FEAR

A MEDICAL DICTIONARY, BIBLIOGRAPHY,
AND ANNOTATED RESEARCH GUIDE TO
INTERNET REFERENCES

JAMES N. PARKER, M.D.
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The collective knowledge generated from academic and applied research summarized in various references has been critical in the creation of this book which is best viewed as a comprehensive compilation and collection of information prepared by various official agencies which produce publications on fear. Books in this series draw from various agencies and institutions associated with the United States Department of Health and Human Services, and in particular, the Office of the Secretary of Health and Human Services (OS), the Administration for Children and Families (ACF), the Administration on Aging (AOA), the Agency for Healthcare Research and Quality (AHRQ), the Agency for Toxic Substances and Disease Registry (ATSDR), the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), the Healthcare Financing Administration (HCFA), the Health Resources and Services Administration (HRSA), the Indian Health Service (IHS), the institutions of the National Institutes of Health (NIH), the Program Support Center (PSC), and the Substance Abuse and Mental Health Services Administration (SAMHSA). In addition to these sources, information gathered from the National Library of Medicine, the United States Patent Office, the European Union, and their related organizations has been invaluable in the creation of this book. Some of the work represented was financially supported by the Research and Development Committee at INSEAD. This support is gratefully acknowledged. Finally, special thanks are owed to Tiffany Freeman for her excellent editorial support.

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FORWARD

In March 2001, the National Institutes of Health issued the following warning: "The number of Web sites offering health-related resources grows every day. Many sites provide valuable information, while others may have information that is unreliable or misleading."[1] Furthermore, because of the rapid increase in Internet-based information, many hours can be wasted searching, selecting, and printing. Since only the smallest fraction of information dealing with fear is indexed in search engines, such as **www.google.com** or others, a non-systematic approach to Internet research can be not only time consuming, but also incomplete. This book was created for medical professionals, students, and members of the general public who want to know as much as possible about fear, using the most advanced research tools available and spending the least amount of time doing so.

In addition to offering a structured and comprehensive bibliography, the pages that follow will tell you where and how to find reliable information covering virtually all topics related to fear, from the essentials to the most advanced areas of research. Public, academic, government, and peer-reviewed research studies are emphasized. Various abstracts are reproduced to give you some of the latest official information available to date on fear. Abundant guidance is given on how to obtain free-of-charge primary research results via the Internet. **While this book focuses on the field of medicine, when some sources provide access to non-medical information relating to fear, these are noted in the text.**

E-book and electronic versions of this book are fully interactive with each of the Internet sites mentioned (clicking on a hyperlink automatically opens your browser to the site indicated). If you are using the hard copy version of this book, you can access a cited Web site by typing the provided Web address directly into your Internet browser. You may find it useful to refer to synonyms or related terms when accessing these Internet databases. **NOTE:** At the time of publication, the Web addresses were functional. However, some links may fail due to URL address changes, which is a common occurrence on the Internet.

For readers unfamiliar with the Internet, detailed instructions are offered on how to access electronic resources. For readers unfamiliar with medical terminology, a comprehensive glossary is provided. For readers without access to Internet resources, a directory of medical libraries, that have or can locate references cited here, is given. We hope these resources will prove useful to the widest possible audience seeking information on fear.

The Editors

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[1] From the NIH, National Cancer Institute (NCI): **http://www.cancer.gov/cancerinfo/ten-things-to-know**.

CHAPTER 1. STUDIES ON FEAR

Overview

In this chapter, we will show you how to locate peer-reviewed references and studies on fear.

The Combined Health Information Database

The Combined Health Information Database summarizes studies across numerous federal agencies. To limit your investigation to research studies and fear, you will need to use the advanced search options. First, go to **http://chid.nih.gov/index.html**. From there, select the "Detailed Search" option (or go directly to that page with the following hyperlink: **http://chid.nih.gov/detail/detail.html**). The trick in extracting studies is found in the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Journal Article." At the top of the search form, select the number of records you would like to see (we recommend 100) and check the box to display "whole records." We recommend that you type "fear" (or synonyms) into the "For these words:" box. Consider using the option "anywhere in record" to make your search as broad as possible. If you want to limit the search to only a particular field, such as the title of the journal, then select this option in the "Search in these fields" drop box. The following is what you can expect from this type of search:

- **Lexidactylophobia: The (Irrational) Fear of Fingerspelling**

  Source: American Annals of the Deaf. 143(5): 404-415. December 1998.

  Contact: Available from American Annals of the Deaf. KDES PAS-6, 800 Florida Avenue, NE, Washington, DC 20002-3695.

  Summary: Fingerspelling is a system of manually representing the graphemes of a spoken language and is used by deaf people worldwide. Yet, at least within the North American educational system, fingerspelling appears to be largely discounted in favor of sign usage, despite its high potential for linkage to the orthographical system of English and literacy development. This article describes fingerspelling in connection with how it is used within the American Deaf community, and also describes the development of fingerspelling skills in deaf (and hearing) children. The author describes

how deaf adults use fingerspelling to promote literacy development in young deaf children. In addition, the author outlines strategies for increasing the use of fingerspelling by teachers and parents of children who are deaf. The author concludes that fingerspelling is a resource within the linguistic system of American Sign Language (ASL) that provides a strong link to the printed word and literacy for deaf and hard of hearing children. Teachers of deaf children need to develop their expressive and receptive skills in fingerspelling and be comfortable as well as fluent in the use of fingerspelling. They also need to understand how and when to use fingerspelling appropriately, including the use of instructional strategies such as the concepts of linking, distancing, and framing equivalences. 65 references. (AA-M).

- **Fighting the Fear Factor**

  Source: Positively Aware; Fall 1993.

  Contact: Test Positive Aware Network, 5537 N Broadway, Chicago, IL, 60640, (773) 989-9400, http://www.tpan.com.

  Summary: In this article, the author describes her initial reaction to learning she was HIV-positive, and how she overcame the fear that followed the diagnosis. She asserts that the fear that accompanies the diagnosis is based on a sense that once a person learns they have HIV, they will be denied a partner with whom to share their life and disease process. The author describes her evolution from agony to self-enlightenment and self-empowerment. The author shares three strategies for defeating what she terms "the fear factor;" rejecting old habits and patterns, reaching out to others, and learning to love ones self.

- **Fear of Offending: Odor and Its Management**

  Source: Metro Wash By-Pass. 98(68): 6-7. September 1991.

  Contact: Available from United Ostomy Association. Metropolitan Washington Chapter, Washington Hospital Center, East Building, Room 3102, 110 Irving Street, N.W., Washington, DC 20010. (202) 877-6019.

  Summary: Offensive odors is among the concerns of many people with ostomies. This article describes a number of effective methods and precautions that can be taken for preventing odor. Topics covered include general cleanliness and personal hygiene, odorproof appliances, external deodorizers, pouch deodorants, dietary adjustment, excessive flatulence, and systemic deodorizers. The author concludes with a brief discussion of odor prevetion related to urostomies.

- **Dental Fear: Aren't You Tired of It?**

  Source: Dentistry Today. 22(1): 96-102. January 2003.

  Contact: Available from Dentistry Today Inc. 26 Park Street, Montclair, NJ 07042. (973) 783-3935.

  Summary: Patient fear creates problems for both patients and dentists. This article focuses on the use of some psychological tools to help dentists help their patients reduce and control their fear and anxiety about dental care. Topics include a definition of fear, the option of drug therapy for fearful patients, the dentist-patient relationship, and management techniques, including giving the patient the control to stop procedures when they need to do so, relaxation methods (breathing, muscle tension reducers), imagery, meditation, hypnosis, distraction, touch, and adequate information about each

step of the procedure. The author concludes that taking the time to learn about and implement these techniques will offer many advantages for dentist and patient. 3 references.

- **Relieving the Anxiety and Fear of Dementia**

  Source: Journal of Gerontological Nursing. 11(5): 8-11, 14-15. May 1985.

  Summary: Persons suffering from dementia present a variety of serious management problems in long-term care settings. In an attempt to deal with daily nursing problems more effectively and improve the function of patients with dementia, a special program was designed called SERVE. The program consists of music, exercise, touch, and relaxation, administered in a group setting for an hour three times a week. One of the concepts underlying this approach is a belief that many of the behavioral symptoms of dementia evolve from patients' responses to the environment and their personal awareness of cognitive deficits. The object of a session is to create an atmosphere of safety, predictability, and acceptance which will foster the release of patients' fear and anxiety. If participants can experience some degree of confidence and success, even a few hours a week, it will affect their sense of well-being and functioning outside the session. 34 references.

- **Nancy's Secret: How One Patient's Unspoken Fear Taught These Nurses a Valuable Lesson**

  Source: Nursing 91. 21(5): 57. May 1991.

  Summary: This article describes how one patient's fear of injections and needles interfered with her diabetes management. Written for a nursing audience, the article tells the story of a woman who was unable to give herself insulin injections; her husband prepared and injected her daily insulin for her. When he was unavailable, she skipped that dose of insulin. This resulted in wide fluctuations in blood glucose levels, and she began to experience complications including diabetic retinopathy and chronic urinary tract infections. Because the woman was embarrassed to tell the nurses about her fears, her diabetes remained out of control until she tried an indwelling insulin delivery device called Insulfon. The authors stress the importance of determining what is causing a patient's not to adhere to a management program and of working with the patient to establish a program that will be followed. The use of the Insulfon is described in detail.

- **Friends Fight Fear of AIDS**

  Source: Scholastic News trails; Vol. 48, No. 20, Edition 3.

  Contact: Scholastic Incorporated, 557 Broadway, New York, NY, 10012-3902, (212) 343-6100, http://www.scholastic.com.

  Summary: This article describes the friendship of two 12-year-old boys, one of whom has AIDS, and their efforts to dispel myths about HIV/AIDS transmission. It discusses the poor treatment that the boy with AIDS has received in the past due to a lack of understanding among members of the community. A list of ways that HIV/AIDS cannot be transmitted, and a discussion of the cause of transmission among adults, is included. A short insert on Magic Johnson accompanies the article.

- **Facing The Fear of Dementia**

  Source: Diabetes Forecast. 45(5): 50-54. May 1992.

Contact: Available from American Diabetes Association. 1701 North Beauregard Street, Alexandria, VA 22311. (800) 232-3472. Website: www.diabetes.org.

Summary: This article discusses dementia and its causes with the goal of reducing fear of dementia. Topics include a detailed definition of dementia, diagnosing dementia, reversible and nonreversible causes of dementia, the significance of these diseases for people with diabetes, and the contribution of good diabetes management to overall health. One sidebar considers this issue from the viewpoint of family members and friends of persons with dementia.

- **Fear of Being Found Out: The Dilemma of Denial**

  Source: Hearing Review. 7(3): 72, 74. March 2000.

  Contact: Available from Fladmark Publishing Company. P.O. Box 6004, Duluth, MN 55806-9851. (218) 723-9558. Fax (218) 723-9437.

  Summary: This article explores the issue of denial in hearing impaired individuals. The author contends that untold millions of Americans go to unbelievable lengths to avoid exposure of their hearing loss, even when that hearing loss is moderate or worse. The author discusses the concept of 'fight or flight', the role of spontaneity in human communication, and ways to avoid socially inappropriate behavior. The author then offers two case studies to illustrate the concepts under discussion and to show hearing care professionals how they can begin to address this untapped clientele population. In both case histories, the fear of being found out is a fear that brings seemingly irrational social fear, defensiveness, and personal insecurity. The article concludes with a brief discussion of other effects of uncorrected hearing loss, including paranoia and depression. The author concludes that only an intimate and exceptional knowledge of the forces that shape hearing impaired individuals' quality of life coupled with hearing instruments, cochlear implantation and or assistive devices will return the hearing impaired individual to greater fulfillment and enjoyment in life. 14 references.

- **Dental Fear in a Special Needs Clinic Population of Persons with Disabilities**

  Source: SCD. Special Care in Dentistry. 22(3): 99-102. 2002.

  Contact: Available from Special Care Dentistry. 211 East Chicago Avenue, Chicago, IL 60611. (312) 440-2660.

  Summary: This article reports findings from a survey of dental fear in a special needs dental clinic population. Subjects (n = 132) were recruited from the University of Washington's Dental Education in Care of Persons with Disabilities (DECOD) clinical program. Dental fears were assessed using the Kleinknecht Dental Report. Fear levels were examined among patients with differing categories of primary disabilities and between genders, races, and educational levels. Some level of dental fear was reported by 43.2 percent of the respondents, indicating that dental fear may be an important factor in dental care for this population. Gender and educational level were significantly associated with fear levels. Significant differences in fear levels were found between individuals with differing classes of disability. Accompanying caregivers (n = 72) also were interviewed to allow for a comparison of patient and caregiver perceptions. Both patient and caregiver were interviewed whenever possible to create paired reports. Generally, caregivers significantly overestimated fear levels compared with patients. However, when scores were compared in matched caregiver-patient analyses, the fear scores were not significantly different, indicating that caregivers accurately estimated their client's level of dental fear. The authors conclude that dental fear may be a

significant, though little understood, problem for a population of persons with disabilities and that further investigation is needed. 1 figure. 3 tables. 23 references.

- **Greatest Fears of Type 1 and Type 2 Patients About Having Diabetes: Implications for Diabetes Educators**

  Source: Diabetes Educator. 24(2): 168-173. March-April 1998.

  Contact: Available from American Association of Diabetes Educators. 100 West Monroe, 4th floor, Chicago, IL 60603-1901. (312) 424-2426.

  Summary: This article reports on a study designed to compare the greatest fears of people with type 1 and type 2 diabetes. The authors note that fear has an impact on people with diabetes and contributes to the stress they experience. Through self-report questionnaires, data were obtained from 12 people with type 1 diabetes and 20 people with type 2 diabetes. Participants with type 1 and type 2 diabetes were more likely to report fears regarding long term complications rather than acute complications. The chronic complications they most feared included amputation, cardiovascular disease, nephropathy, neuropathy, retinopathy, and stroke. Retinopathy was the most feared complication among the participants with type 2 diabetes. Answers to the study question that were suggestive of acute diabetes complications were likely to involve hyperglycemia and hypoglycemia. The authors conclude that patients need accurate information about both acute and chronic diabetes complications whether they are newly diagnosed or have had diabetes for many years. Patients should understand that earlier effective treatment is now possible because doctors can identify signs of physical complications much earlier. The article concludes with recommendations for future research. 6 tables. 13 references. (AA-M).

- **Dental Fear in Pediatric Patient: Challenges and Opportunities for Dental Care Providers**

  Source: Journal of Practical Hygiene. 12(3): 11-15. May-June 2003.

  Contact: Available from Montage Media Corporation. 1000 Wyckoff Avenue, Mahwah, NJ 07430-3164. (201) 891-3200.

  Summary: This article reviews the problem of dental fear in pediatric patients. Topics include differentiating between dental fear, dental anxiety, and dental phobia; the frequency of dental fear in children; the consequences of dental fear; the factors behind child dental fears, including gender and age; keys to reducing or preventing dental fear, including the importance of patient information and control. The authors conclude that dental care providers play an important role in shaping a child's response to dental treatments. Experienced providers have a repertoire of behavior management techniques available that they can choose from, ranging from the use of restraints or pharmacological agents to using the tell-show-do approach, voice control, or positive reinforcement. The most effective tool, however, is the ability to communicate successfully with the child, and ultimately also with the child's parent or caregiver. Preventing and reducing dental fear in children will have a positive effect on future health care behavior of these dental patients and thus on their oral health, general health, and quality of life. Appended to the article is a posttest with which readers can quality for continuing education credit. 21 references.

- **Fear of Falling**

  Source: ADVANCE for Speech-Language Pathologists and Audiologists. 8(26): 15-16. June 29, 1998.

  Summary: This article, from a professional newsletter for audiologists and speech language pathologists, reviews the problem of balance disorders and falling in older people. The author notes that vestibular (balance) disorders in the elderly can lead to falls, anxiety, and isolation. Topics include the causes of dizziness, such as BPPV (benign paroxysmal positional vertigo); the interrelationship of psychological and panic disorders with subtle or undiagnosed vestibular disorders; the role of physical examinations and environmental assessments, particularly to prevent falls; problems with drug therapy often prescribed for dizziness or anxiety; the use of vestibular function tests and vestibular rehabilitation procedures with elderly patients; general physical rehabilitation exercises and their impact on dizzy symptoms; sensory integration exercises; and the role of family support and other support systems. The author reiterates that environmental modifications are key to preventing falls in the home. The article concludes with the contact information for the clinicians interviewed.

- **Bioterrorism: Today's Fear, Tomorrow's Reality**

  Source: Continuing Medical Education Resource. 102(5): 17-36. May 2003.

  Summary: This continuing education course addresses the various components of a bioterrorism attack and the appropriate responses required for a health care facility and health care personnel. The course also alerts dentists and their staff members to their potential role in the recognition of the symptoms of bioterrorism infectious agents and the identification of lesions manifesting on mucous membranes and skin. Topics include the history of bioterrorism; three types of biological agents; two types of dispersion; two bacterial agents likely to be used during a bioterrorist attack; viral agents with a potential for bioterrorist use; detection of a bioterrorist attack; two methods of personal protection from toxic agents; decontamination of a patient exposed to a bioterrorist agent; the Association for Professionals in Infection Control and Epidemiology's (APIC) position on bioterrorism; the psychological aspects of bioterrorism; and the importance of having a plan for facing a bioterrorism threat. The curriculum concludes with a list of relevant Internet resources, a glossary of terms, and a posttest with which readers can qualify for continuing education credits. 18 references.

- **The Effects of Fear of AIDS and Gender on Responses to Fear - Arousing Condom Advertisments**

  Source: Journal of Applied Social Psychology; Vol. 20, no. 17, 1990.

  Contact: University of South Dakota, Department of Psychology, 414 E Clark, Vermillion, SD, 57069-2390.

  Summary: This reprint of a journal article looks at the effects of fear of Acquired immunodeficiency syndrome (AIDS) and of gender on response to fear-arousing condom advertisements. In the laboratory experiment described in the article, 95 male and 96 female college students rated the effectiveness of condom advertisements in motivating them to buy the product. Contrary to prediction, the high-fear condom ads did not significantly differ from low-fear ads in effectiveness. The study also did not support the prediction that subjects' fear of AIDS would interact with the fear level shown in the ad. Subjects with a high fear of AIDS saw the ads in general as more effective, and male subjects saw the ads as more effective than did women. The article

discusses the implications of the results for condom use promotion in Human immunodeficiency virus (HIV) prevention.

Federally Funded Research on Fear

The U.S. Government supports a variety of research studies relating to fear. These studies are tracked by the Office of Extramural Research at the National Institutes of Health.[2] CRISP (Computerized Retrieval of Information on Scientific Projects) is a searchable database of federally funded biomedical research projects conducted at universities, hospitals, and other institutions.

Search the CRISP Web site at **http://crisp.cit.nih.gov/crisp/crisp_query.generate_screen**. You will have the option to perform targeted searches by various criteria, including geography, date, and topics related to fear.

For most of the studies, the agencies reporting into CRISP provide summaries or abstracts. As opposed to clinical trial research using patients, many federally funded studies use animals or simulated models to explore fear. The following is typical of the type of information found when searching the CRISP database for fear:

- **Project Title: @NEWORLD: A VIRTUAL COMMUNITY FOR KIDS WITH CANCER**

  Principal Investigator & Institution: Rapchak, Barbara A.; Ceo; Leap of Faith Technologies, Inc. 5016 Edgewood Rd Crystal Lake, Il 60012

  Timing: Fiscal Year 2002; Project Start 01-SEP-2000; Project End 31-MAY-2004

  Summary: Children with cancer face myriad psychosocial challenges as they try to cope with their condition. The inherent qualities of the Internet- connectivity and interactivity in a media-rich environment-make it a promising tool for addressing these challenges. A comprehensive and scientific understanding of the impact of Internet technology is key to defining its role as an intervention in pediatric healthcare. We propose to develop an Internet-based intervention to help children deal with issues of isolation, **fear,** anxiety, and decreased selfesteem by providing access to a community of peers in an environment that encourages communication, education, and self-expression. We will evaluate the intervention by studying program effects in alleviating loneliness, anxiety, and stress. In addition, we will examine the value of the intervention as a communication and socialization tool by assessing effects on self-esteem, coping behaviors, and feelings of control over health destiny. Our goal is to keep the child connected to the school during diagnosis and treatment, and to connect the child with a community of peers who are experiencing similar challenges related to illness. In this way, we will use the Intemet as the basis for what we call "social computing" in an integration of technology and social need. PROPOSED COMMERCIAL APPLICATIONS: This program will have initial application in pediatric cancer treatment centers, hospitals and schools. However, it also offers numerous vertical market opportunities. Cancer is just one of the many chronic or fatal diseases that affect children. The proposed program may be a useful prototype for expanding Internet-based technology to other chronic childhood diseases. The program may ultimately he

[2] Healthcare projects are funded by the National Institutes of Health (NIH), Substance Abuse and Mental Health Services (SAMHSA), Health Resources and Services Administration (HRSA), Food and Drug Administration (FDA), Centers for Disease Control and Prevention (CDCP), Agency for Healthcare Research and Quality (AHRQ), and Office of Assistant Secretary of Health (OASH).

made available to children's hospitals via third-party reimbursement from health maintenance organizations and health insurance companies.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: 500 MHZ WIDE BORE NMR SYSTEM**

  Principal Investigator & Institution: Koutcher, Jason A.; Associate Attending Physicist; Sloan-Kettering Institute for Cancer Res New York, Ny 10021

  Timing: Fiscal Year 2002; Project Start 01-APR-2002; Project End 31-MAR-2004

  Summary: (provided by applicant): This application requests funds for a 500 MHz wide bore, self shielded, nuclear magnetic resonance (NMR) system for Memorial Sloan Kettering Cancer Center (MSKCC). MSKCC currently has one NMR instrument suitable for cellular and in vivo studies, a 4.7T Omega system (33cm bore magnet), purchased in 1988. The console of this magnet is being upgraded but its field strength is no longer ?state of the art" and this has been recognized by an outside review panel and several grant critiques. In the last 1.5 years there has been a major increase in imaging related funding at MSKCC including a Small Animal Imaging Grant, A Cellular and Molecular Imaging Center, and a Biological Engineering Consortium Grant, in addition to multiple R0l grants. Based on recent increases in investigators and funded projects, there is also a need for more NMR research equipment. We have selected this instrument since it provides the highest magnetic field available within severe constraints of space and money, it complements the 4.7T system, and in combination with the upgraded 4.7T system, will serve virtually all of the needs of investigators at MSKCC interested in imaging and metabolic research. There are 22 grants from 16 investigators that this program will support. There are six major users and a seventh major "group" (mouse imaging to determine gene penetrance for tumor formation - 5 participants). The major user group encompasses Pharmacology, Cell Biology, Medical Physics, Neurology, and Radiology. The 22 supported grants also include applications from Surgery, Medicine, and Radiation Oncology. Most of these scientists have shown a need for NMR support as shown by the fact that most projects have preliminary data. Two of the investigators are from New York Hospital, an adjacent (independent) institution. A strength of this proposal if it is funded, is that it supports cellular and in vivo imaging research in an area that encompasses five major medical/research institutions, in addition to a major animal medical center. Three of these institutions share a common animal service, and therefore animals from multiple institutions can be studied without **fear** of cross-infection. Thus this application will have some benefit to outside institutions, in addition to a broad base of researchers at MSKCC. It is noted that in the past we have collaborated with 3 of the 4 outside institutions, as noted by two outside projects (with supportive preliminary data), and intend to continue to do this. Thus this proposal, if funded , will support a very broad base of scientist and medical researchers in this area.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: ACTIVITY, GAIT, AND EFFICACY (AGE) IN OLDER WOMEN**

  Principal Investigator & Institution: Mcauley, Edward; Professor; Kinesiology; University of Illinois Urbana-Champaign Henry Administration Bldg Champaign, Il 61820

  Timing: Fiscal Year 2002; Project Start 15-AUG-2002; Project End 31-JUL-2006

  Summary: (provided by applicant): Although studies have investigated rates of physical activity in African Americans and the overall rates of disability in African Americans, few studies have examined the relationship between physical activity, physical function,

and health status in older black adults. Given much lower rates of physical activity in African Americans as compared to whites, it is important to examine in greater detail the extent to which physical activity differentially influences health status in this population and to identify those parameters that mediate this relationship. Levels of physical activity in older women, and particularly older African American women, are extremely poor putting them at elevated risk of morbidity and mortality. This proposal employs a social cognitive framework to examine the longitudinal relationships among physical activity patterns, expectations, balance, gait, and health status in 150 white and 150 black older (age 60-80 years) women. Based upon preliminary studies, we propose that levels of physical activity influence expectations (efficacy and outcome) which influence overall health status through their effects on balance and gait. Additionally, we propose that **fear** of falling is influenced by efficacy expectations and also has a direct effect on balance. Latent growth curve strategies will be employed to examine developmental change in the model constructs over a two year period. Additionally, the relationships among changes in these variables over the study period will allow conclusions to be drawn relative to the roles played by parameters mediating the relationship between physical activity and health status in older black and white women. Only when we can reliably identify such patterns of relationships will we be effectively able to prescribe and promote public health agendas and programs to maximize health, function, and well-being in all older adults.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: ADRENERGIC SIGNALING IN SYNAPTIC PLASTICITY AND LEARNING**

  Principal Investigator & Institution: Thomas, Steven A.; Pharmacology; University of Pennsylvania 3451 Walnut Street Philadelphia, Pa 19104

  Timing: Fiscal Year 2002; Project Start 01-JUL-2002; Project End 31-MAR-2006

  Summary: (provided by applicant): We propose to examine the role of adrenergic signaling in synaptic plasticity, learning and memory using mouse molecular genetics. Specifically, we have created mice that are unable to synthesize norepinephrine (NE) and epinephrine due to a targeted disruption of the dopamine B-hydroxylase (Dbh) gene. Homozygotes (Dbh-/-) completely lack NE; however NE can be restored rapidly in vivo and in vitro using the synthetic amino acid precursor of NE (DOPS). This model has several advantages over prior pharmacologic approaches, including completeness of effect, specificity for NE, and reversibility. Prior studies using various techniques have often generated conflicting results with regard to the roles of NE in synaptic plasticity, learning and memory. Some studies have suggested a role for NE in the formation of emotional (aversive) memories. To test this possibility, we have begun to characterize the ability of Dbh-/- mice to learn and remember an aversive event using **fear** conditioning. Preliminary results indicate a specific deficit in the consolidation of contextual but not cued memory, suggesting hippocampal function may be altered in the absence of NE. For this reason we have begun to examine synaptic plasticity in the hippocampus. Preliminary results from these studies suggest that the late phase of long-term potentiation in region CAl is deficient. Because other studies have suggested a critical role of synaptic plasticity in region CAl for learning and memory, we propose to examine whether intracellular signaling pathways implicated in learning and memory are altered in region CAl following stimuli that elicit the late phase of LTP in vitro, and following **fear** conditioning in vivo. Finally, we will test whether compensation for the absence of NE occurs during development, and whether dopamine released from the adrenergic terminals of Dbh-/- mice can substitute at least partially for NE. These goals

will be achieved through the use of a second mouse model (Th-/-/Dat-Th+/-) that should lack DA as well as NE in the adrenergic neurons specifically. Some of these mice will be raised with NE present (by supplying L-DOPA pre- and postnatally). L-DOPA will then be withdrawn in half prior to using the mice in the above studies.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: AIDS STIGMA & GENDER: HEALTH CONSEQUENCES IN URBAN INDIA**

  Principal Investigator & Institution: Ekstrand, Maria L.; Research Psychologist; Medicine; University of California San Francisco 500 Parnassus Ave San Francisco, Ca 941222747

  Timing: Fiscal Year 2003; Project Start 01-JUN-2003; Project End 31-MAY-2007

  Summary: (provided by applicant): AIDS stigma is a major barrier in the fight against HIV/AIDS. It adds to the suffering of those infected and interferes with decisions to seek HIV counseling and testing, disclosure of HIV infection, and seeking treatment for HIV-related problems. Members of marginalized groups often experience dual stigma, forcing them to conceal their lifestyles and making it more difficult for them to access AIDS prevention programs and treatment. Family members and health care workers who provide care to HIV positive patients also become the target of AIDS stigma and discrimination. Our research suggests that these problems exist in India as well. Previous qualitative work in urban India by Bharat has identified AIDS stigma attitudes and overt discrimination, both in the health care setting and the family. This has included refusal to care for HIV infected individuals, additional charges for protective equipment such as extra gloves, masks, fumigation of rooms, and lack of confidentiality. The data also suggest that AIDS stigma in urban India is a gendered phenomenon. Reports of women being neglected and maltreated by their husbands and in-laws were common, and many women were found to have less access to treatment than their husbands. Although many important culture-specific issues were identified in Bharat's qualitative research, there is now a need to extend this work to develop culture-specific quantitative models and measures of AIDS stigma and its health consequences and to examine the prevalence and correlates of stigma in the Indian context. The current investigation has been designed to meet this need. It will build on the qualitative work by Bharat, by incorporating the culture-specific themes into a modified version of a quantitative measure developed and administered in the U.S. by Herek. This measure will be administered in a range of health care settings in two large Indian cities situated in high HIV prevalence states. Specifically we propose to: Examine the nature, extent, and context of AIDS stigma and discrimination by gender, at multiple levels, among people coming into contact with urban health care systems, including a) People Living with HIV/AIDS (PLWHAs), b) families of PLWHAs, c) healthcare staff; and d) general hospital outpatients. 2. Measure the potential health-relevant consequences of AIDS stigma and discrimination between both perpetrators and targets of stigma at each of the above levels. 3. Develop a) a culture-specific theoretical understanding of AIDS stigma and health in urban India as well as b) measures of AIDS stigma that can be used to evaluate future stigma reduction policies and programs in health care and community settings among both victims and perpetrators of stigma. 4. Develop specific data-based program and policy recommendations to reduce AIDS-related stigma and discrimination in urban Indian health care settings and to disseminate these among regional stakeholders.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: AMYGDALA NEURONS AND FEAR CONDITIONING**

  Principal Investigator & Institution: Shinnick-Gallagher, Patricia; Professor; Pharmacology and Toxicology; University of Texas Medical Br Galveston 301 University Blvd Galveston, Tx 77555

  Timing: Fiscal Year 2002; Project Start 01-AUG-1998; Project End 31-JUL-2004

  Summary: (adapted from applicant's abstract): The amygdala is known to play a critical role in emotional responses particularly **fear,** in both humans and animals. The amygdala and its afferent and efferent connections comprise a major component of the auditory **fear** conditioning circuitry. The long-term objective of this research is to characterize pre- and postsynaptic modifications in amygdala glutamatergic neurotransmission underlying the expression of learned **fear.** Preliminary data show significant alterations in synaptic transmission in the internal capsule (IC) fiber pathway from the medial geniculate to the dorsal lateral amygdala recorded in vitro in amygdala slices from paired **fear** conditioned but not unpaired control animals. The proposed experiments using the fear-potentiated startle paradigm will test the hypothesis that lasting potentiation of synaptic transmission occurs at particular synapses within the **fear** conditioning intraamygdala circuitry. The following specific aims will be addressed using whole cell patch recording in amygdala slice preparations from three populations of animals. naive control, unpaired control and paired **fear** conditioned animals: 1) Characterize the modifications in synaptic transmission and membrane conductance underlying **fear** conditioning and determine the pre- and post-synaptic changes in N-methyl-D-aspartate (NMDA)- and non-NMDA-mediated synaptic transmission in animals exposed to a paired conditioned stimulus (CS) and aversive stimulus (UCS) with those exposed to the same information but in an unpaired paradigm and 2) trace the information flow through the amygdala by comparing in the three populations of animals the synaptic modifications occurring in glutamatergic transmission at different synapses in the amygdala **fear** conditioning circuitry. The results of the proposed experiments will enhance our understanding of the membrane mechanisms underlying emotional learning at the membrane and whole cell level and provide important information about changes in the essential elements of interneuronal communication within a key structure involved in emotion, the amygdala. Ultimately the proposed studies may provide insight into potential therapeutic strategies in the treatment of neuropsychiatric disorders such as anxiety, phobia, schizophrenia and in particular posttraumatic stress disorder.

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- **Project Title: ANIMAL MODEL FOR CHEMICAL INTOLERANCE**

  Principal Investigator & Institution: Sorg, Barbara A.; Associate Professor; Vet & Comp Anat/Pharm/Physiol; Washington State University 423 Neill Hall Pullman, Wa 99164

  Timing: Fiscal Year 2003; Project Start 01-SEP-1998; Project End 31-JUL-2007

  Summary: This abstract is not available.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: ANXIETY, DEPRESSION, OPTIMISM, AND CELLULAR IMMUNITY**

  Principal Investigator & Institution: Segerstrom, Suzanne C.; Assistant Professor; Psychology; University of Kentucky 109 Kinkead Hall Lexington, Ky 40506

  Timing: Fiscal Year 2002; Project Start 16-FEB-2001; Project End 31-JAN-2006

Summary: Optimism, or positive outcome expectancies, has been associated with better psychological and physical health, including changes in the immune system. Under moderately severe stress, optimists have more lymphocytes associated with cell-mediated immunity and natural killer cell cytotoxicity. The proposed research is intended to test whether optimism is beneficial during different sorts of stressors and using and in vivo measure of immune function. In a group of first year law students, optimism will be related to cell-mediated immunity, as measured by skin test over five time points: baseline (before school starts), a moderately severe stressor (mid-semester), a more sever stressor (final examinations), recovery (beginning of second semester) and feedback (return of first semester grades). The various time points allow for a test of the adaptiveness of optimism under different levels of stress and after confirmation or discontinuation of optimistic beliefs. Potential moderators and mediators of an optimism-immunity relationship will also be investigated. First, social network integration may provide a buffer; in its absence, optimism may be more important. Second, the degree to which optimism effects are independent of those of negative affectivity will be tested. Third, state positive and negative and cognitive appraisal processes may be psychosocial mediators by which optimism affects the immune system. The amount and rhythm of cortisol release is a potential physiological mediator. The results will have the potential to clarify the circumstances under which optimism is beneficial, differentiate optimisms effects from those of negative affectivity, and examine the role of mood, cognitive processes, and cortisol in stressor-related immune change. Given that interventions to increase optimism are being developed, it is becoming increasingly important to understand when and why optimism leads to better psychological health, less distress, and better immune function during stressors.

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- **Project Title: BEHAVIORAL MULTIMEDIA FOR ACL RECONSTRUCTIVE SURGERY**

  Principal Investigator & Institution: Brewer, Britton W.; Virtual Brands 10 Echo Hill Rd Wilbraham, Ma 01095

  Timing: Fiscal Year 2003; Project Start 01-AUG-2003; Project End 31-JUL-2004

  Summary: (provided by applicant): Approximately 80,000 Americans sustain acute tears of the anterior cruciate ligament (ACL) of the knee each year, with associated healthcare costs estimated at roughly 1 billion dollars annually. Surgical reconstruction followed by an extended rehabilitation period is commonly recommended for ACL tears. The purpose of this STTR project is to develop a comprehensive behavioral multimedia package designed to reduce preoperative anxiety, decrease pain and anxiety during rehabilitation, and enhance rehabilitation outcome. In a novel application of existing technology, an interactive CD-ROM will be developed to provide ACL reconstruction patients with information on surgery- and rehabilitation-related matters and instruction in presurgical and postsurgical coping strategies. Audiotapes based on an empirically validated relaxation and guided imagery protocol for postsurgical ACL rehabilitation will also be produced. Phase I tasks will include: (a) developing content for the CD-ROM; (b) examining the accuracy and usability of the content generated for the CD-ROM; (c) producing initial prototypes of the CD-ROM and audiotapes; (d) evaluating the acceptability, usability and potential utility of the prototype multimedia package with the target population; and (e) finalizing plans to produce a revised prototype of the multimedia package, and evaluate its effect on presurgical and postsurgical processes and outcomes in Phase II.

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- **Project Title: BIOBEHAVIORAL EFFECTS OF EMOTIONAL EXPRESSION IN CANCER**

  Principal Investigator & Institution: Cohen, Lorenzo; Associate Professor; Behavioral Science; University of Texas Md Anderson Can Ctr Cancer Center Houston, Tx 77030

  Timing: Fiscal Year 2002; Project Start 11-FEB-2002; Project End 31-JAN-2007

  Summary: Models of cognitive processing suggest that once a traumatic event is appropriately understood and integrated the stress associated with the event will diminish. Thoughts and feelings surrounding a traumatic experience are often disorganized, yet when disclosed verbally or through writing, they can assume the form of an organized, coherent narrative resulting in improved health outcomes. This is illustrated by recent findings that indicated that a brief written emotional expression exercise was associated with improved physical health, psychological well-being, physiological functioning, and general functioning. This writing exercise was also associated with beneficial changes in immune function. The brief writing intervention is hypothesized to increase cognitive processing and foster adaptation to traumatic events. To date, however, most research examining this intervention has been conducted in healthy populations. The diagnosis and treatment of cancer are traumatic experiences associated with distress and the **fear** of cancer recurrence, progression, and death. The impact of stress on the immune system may be particularly detrimental to patients with renal cell cancer, as this cancer is immunogenic, meaning that the immune system regulates progression of the disease. Because emotional expression writing interventions have been shown to facilitate adaptation, reduce stress, improve psychological adjustment and QOL, and positively impact immune function, this type of intervention may be beneficial in patients with renal cancer. Pilot data from our laboratory suggest that it is feasible to conduct the emotional expression writing intervention in patients with renal cancer. Results from this study also provide initial evidence that the intervention increases cognitive processing and improves psychological well- being. The proposed study will assess the benefits of this written emotional expression exercise in patients with renal cell carcinoma. Patients in this study will be randomly assigned either to an emotional expression writing group or to a neutral writing group. This research will also evaluate the extent to which psychosocial factors mediate or moderate the effects of the intervention program and predict recovery and adjustment. The effects of the intervention should be evident throughout recovery and across indices of quality of life, mental health, subjective symptoms of stress, and immune function.

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- **Project Title: BIOBEHAVIORAL LUNG CANCER PREVENTION PROGRAM**

  Principal Investigator & Institution: Lerman, Caryn E.; Mary W. Calkins Professor; Psychiatry; University of Pennsylvania 3451 Walnut Street Philadelphia, Pa 19104

  Timing: Fiscal Year 2002; Project Start 10-SEP-1993; Project End 31-MAY-2003

  Summary: ABSTRACT=In our original grant (R01CA63562), we evaluated the impact of a smoking cessation treatment which incorporated motivational feedback about genetic susceptibility to lung cancer. We found strong positive effects of genetic feedback on perceived risk, perceived quitting benefits, and **fear** arousal. While smokers receiving genetic feedback made more quit attempts, they were no more likely to quit than were smokers receiving standard minimal contact cessation treatment. Observing that the vast majority of smokers were unable to quit, even in the face of perceived vulnerability and heightened motivation, we became interested in the genetic basis of nicotine dependence and smoking cessation. The strongest evidence (by our group and others)

supports the role of the dopamine transporter gene (SLC6A3) which regulates reuptake of dopamine at the synapse. This is consistent with a large body of data suggesting that the reinforcing effects of nicotine are due to its impact on the neurotransmitter dopamine. Thus, in this competitive renewal, we propose to extend our research by evaluating the role of SLC6A3 in the response of smokers to pharmacological smoking cessation treatment (bupropion/Zyban). We have selected bupropion because: (a) initial data from randomized clinical trials provide strong support for its efficacy as a smoking cessation treatment, and (b) bupropion has inhibitory effects of dopamine transport (the protein product of the SLC6A3 gene). The specific aims of the proposed research are: (1) to evaluate the role of genetic factors in response to standard smoking cessation treatment; (2) to evaluate the role of genetic factors in response to bupropion treatment; and (3) to evaluate the psychobiological mechanisms by which genotype and bupropion influence smoking cessation. The study will be a double blind randomized placebo-controlled clinical trial of bupropion in 600 adult male and female smokers. The factorial design includes one treatment factor (bupropion plus standard treatment (with nicotine patch) vs. placebo plus standard treatment with patch) and one subject factor (SLC6A3 genotype, genetically predisposed vs. genetically protected). Bupropion or placebo will be delivered over a 10-week treatment period. All subjects will receive standard minimal contact cessation treatment, which includes two in-person sessions plus five brief structured phone-counseling sessions. A major innovation of this study is that we will use a behavioral economics computer paradigm to evaluate the reinforcing value of nicotine at pre-treatment and during bupropion therapy. Other mediating outcomes (mood, withdrawal) will be assessed at pre-treatment and at multiple points during treatment. The primary smoking cessation outcomes will be assessed at 1-, 6- and 12-months post-treatment. The proposed research will be the first to examine the role of specific genetic factors in response to pharmacological therapy for smoking cessation and to evaluate novel mediating mechanisms. The long-term objective is to provide information necessary to match smoking cessation treatments to individuals, based on their genetic predispositions.

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- **Project Title: CANCER CENTER MODEL FOR EARLY PHASE CLINICAL TRIALS**

  Principal Investigator & Institution: Jacobs, Samuel; Medicine; University of Pittsburgh at Pittsburgh 350 Thackeray Hall Pittsburgh, Pa 15260

  Timing: Fiscal Year 2003; Project Start 21-AUG-2003; Project End 31-JUL-2005

  Summary: (provided by applicant) This proposal is to develop a community (network) model for conducting and enhancing patient participation in early phase clinical trials. In our model, the academic cancer center remains the focal point for these studies, which will be made available at selected community sites. To accomplish this goal, a number of barriers will need to be clearly elucidated and overcome. Since the vast majority of early phase clinical trials are currently conducted at academic medical centers under the direction of academic faculty, faculty attitudes and concerns about extending their trials to community sites will need to be explored and barriers overcome. For our clinical faculty, i.e. community-based oncologists/hematologists, who choose to participate in early phase clinical trials, this will be a new effort. Despite having experience in cooperative group and phase II/III pharmaceutical trials, these physicians and their staffs have not participated in early phase clinical trials. Their attitudes and concerns about participating in these trials will need to be defined and are likely to include perceptions about faculty-clinical faculty interactions, their own lack of time, training, and resources. In addition, patient barriers that exist in the community

setting that up to this time has prevented wider participation in early phase clinical trials will be investigated. Based on our assessments to date, community-based oncologists perceive that patient barriers to increased participation include age, co-morbidities, poor understanding of the clinical trials process, and the **fear** and expense of leaving the community to travel to the academic center. Procedures will be developed to measure attitudes and changes in attitudes, develop the needed infrastructure to provide closer links between the academic center and community-site, the necessary on-site resources to conduct safely and completely these trials, and to develop outreach programs within the community sites to increase the awareness, understanding and availability of early phase clinical trials.

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- **Project Title: CBT AUGMENTATION OF PAROXETINE FOR SOCIAL ANXIETY**

  Principal Investigator & Institution: Heimberg, Richard G.; Psychology; Temple University 406 Usb, 083-45 Philadelphia, Pa 19122

  Timing: Fiscal Year 2003; Project Start 15-AUG-2003; Project End 31-MAY-2007

  Summary: (provided by applicant): Social anxiety disorder is a prevalent, chronic and disabling condition. Paroxetine has received FDA approval on the basis of its acute efficacy for this disorder, but much about longer-term management remains uncertain. There are virtually no data regarding next steps in treatment despite evidence that most patients who receive acute paroxetine therapy still exhibit significant residual symptoms. Furthermore, there are also no data regarding methods for minimizing relapse when medication is discontinued despite evidence that relapse rates in such circumstances are high. Cognitive-behavioral therapy (CBT) is a good candidate for augmenting paroxetine response and reducing relapse after medication discontinuation as it has been shown to be an effective treatment in its own right and often associated with lesser relapse than medication alone. Although CBT has been found to be useful in these circumstances for depression and panic disorder, there have been no similar studies in social anxiety disorder. This application will examine the ability of CBT to augment acute paroxetine response and reduce relapse following paroxetine discontinuation in social anxiety disorder. It will also examine the degree of residual symptoms and disability as well as rates of remission and improvements in quality of life in response to paroxetine alone or with the addition of CBT. Predictors of acute response and relapse after treatment is discontinued will also be explored. To achieve these ends, two hundred fifty patients will receive 12 weeks of open treatment with paroxetine. Patients showing at least some benefit will be randomized to continued paroxetine with or without CBT for 16 additional weeks. All treatment will then be tapered and patients will be followed for 24 additional weeks. Overall, this study should provide important information about the augmentation of paroxetine treatment for patients with social anxiety disorder, effective methods for reducing relapse, and who may benefit from paroxetine treatment or relapse when medication is withdrawn. It will also increase understanding of the interplay of psychosocial and pharmacological treatment methods and psychological and biological factors in patients' total response to treatment.

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- **Project Title: CENTER FOR STUDY OF OPIOID RECEPTORS AND DRUGS OF ABUSE**

  Principal Investigator & Institution: Evans, Christopher J.; Professor; None; University of California Los Angeles 10920 Wilshire Blvd., Suite 1200 Los Angeles, Ca 90024

Timing: Fiscal Year 2002; Project Start 30-SEP-1987; Project End 31-MAY-2007

Summary: (provided by applicant): The research objectives of CSORDA are to gain insights into the mechanisms of action of opioid drugs at their cognate receptors with the goal of discerning molecular and cellular processes that contribute to opioid-induced behaviors as well as adaptations leading to opioid addiction, tolerance and withdrawal. The Center has six integrated components, which will investigate the activity of opioid ligands at the molecular, cellular and behavioral levels utilizing overlapping methodologies and resources. The Components of the Center will specifically investigate: I) Constitutive activity of opioid receptors as a potential target for the development of therapeutic drugs. II) Differential signaling among opioids and targeting of ligands to selective signaling pathways. III) Mechanisms of mu/delta-opioid receptor interactions that influence cellular signaling. IV) Desensitization of opioid signaling in dorsal root ganglia. V) The endogenous, opioid system as a regulator of hedonic homeostasis. VI) The role of memory and **fear** in opioid adaptive responses. In addition to the research specified within the components, a Pilot Program will be implemented to create new avenues of investigation within the Center and enrich the ongoing programs. For facilitation of the component and pilot programs, the Center has an Administrative Core and three Scientific Cores, which serve to integrate resources, as well as provide practical expertise and training in specific technical areas. The Scientific Cores cover molecular biology, tissue culture, mutant animal breeding/genotyping and various neurochemical procedures. Continued application of this multidisciplinary and collaborative approach will enhance our understanding of the molecular mechanisms underlying opioid actions and provide a basis for improved opioid pharmacotherapies as well as clinical approaches to ameliorating problems associated with drugs of abuse.

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- **Project Title: CHANGING ROLES OF PROTEIN KINASES: SYNAPTIC PLASTICITY**

  Principal Investigator & Institution: Klein, Marc; Associate Professor; Physiological Sciences; University of California Los Angeles 10920 Wilshire Blvd., Suite 1200 Los Angeles, Ca 90024

  Timing: Fiscal Year 2003; Project Start 30-SEP-2003; Project End 31-JUL-2006

  Summary: (provided by applicant): Early stages of memory formation involve the activation of biochemical pathways that modulate neuronal communication. In particular, protein kinases play key roles in the synaptic changes that underlie forms of learning as diverse as short-term behavioral sensitization in invertebrates and long-lasting **fear** conditioning in mammals. As these roles become progressively clearer, it is becoming apparent that the contribution of different kinases is not fixed, but can vary as a result of prior experience and maturational stage. Modulation of transmission at the sensory neuron-motor neuron synapses of Aplysia contributes importantly to the changes induced by training in the defensive withdrawal reflex. Synaptic transmission is modulated by activity in the sensory neurons and by modulatory neurotransmitters. Synaptic facilitation, associated with behavioral sensitization, is caused by activation of protein kinases in the sensory neurons. At unstimulated synapses, facilitation is mediated primarily by protein kinase A (PKA), while facilitation that follows extensive stimulation is mediated mainly by protein kinase C (PKC). A similar change in the relative contributions of PKA and PKC to facilitation occurs as the animal matures. In addition, facilitation at synapses from mature animals varies with initial synaptic strength. The goals of this project are: 1) To define the physiological targets of the kinases contributing to plasticity: Which aspects of synaptic transmission are modulated

by each kinase? 2) To characterize the change in the contributions of the kinases with stimulation: Are the kinases activated differently? Do their targets change? Does the sensitivity of the targets to the kinases change? 3) To determine whether there are synapse-specific differences in kinase involvement that resemble those between synapses of mature and immature animals: Does the variation in facilitation with synaptic strength result from differential contributions of the kinases or from a switch in their targets? Understanding the biological processes that underlie learning and memory would have implications for the treatment of disorders of memory, such as those that accompany Alzheimer's disease. Understanding how background factors such as prior experience and stage of maturation influence the formation of new memories could suggest how therapeutic strategies would need to be tailored to address the particular processes involved in memory formation in different behavioral and developmental states.

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- **Project Title: CHIROPRACTIC, MEDICATION, AND SELF-CARE FOR NECK PAIN**

  Principal Investigator & Institution: Bronfort, Gert; Research; Northwestern Health Sciences University 2501 W 84Th St Bloomington, Mn 55431

  Timing: Fiscal Year 2002; Project Start 24-SEP-2001; Project End 31-MAY-2006

  Summary: (provided by applicant): Neck pain is very common, with considerable socioeconomic consequences. Despite the public health impact, management of neck pain conditions has been inadequately researched. Systematic reviews have concluded that, although some therapies appear promising, there are too few randomized clinical trials of sufficient quality to support the use of one therapy over another. This is especially true for acute/subacute neck pain. Although commonly treated with prescription medications, neck pain sufferers are increasingly seeking relief through complementary and alternative medicine therapies, like chiropractic spinal manipulation. Little is known, however, about the short- and long-term relative efficacy of these therapies and how they compare to giving patients simple advice on self-care. The broad, long-term objective of this research is to identify effective therapies for neck pain sufferers and to increase our understanding of neck pain conditions. The proposed randomized, observer-blinded clinical trial is a unique collaborative effort by experienced chiropractic and medical researchers and will focus on patients with acute/subacute neck pain (<12 weeks duration). A pilot study recently completed by our investigative team shows that this proposed trial is feasible. The study has the following specific aims: Primary Aim To determine the relative efficacy of chiropractic spinal manipulation, prescription medication, and self-care advice for neck pain in both the short term (after 6 weeks) and long term (after 52 weeks), using patient-rated neck pain as the main outcome measure. Secondary Aims To determine the short- and long-term relative efficacy of the three interventions using the following secondary outcome measures: patient-rated disability, general health, improvement, satisfaction with care, **fear** avoidance, and over-the-counter medication use. To determine the relative efficacy of the three interventions in terms of cervical spine motion performance measured by examiners blinded to treatment group assignment. This research will help narrow the large gap in the scientific literature regarding the relative efficacy of two commonly used treatments for acute/sub-acute neck pain. It will also provide clinically useful information for health care practitioners, policy makers and, most importantly, those who suffer from this painful and costly condition.

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- **Project Title: COACH TRAINING TO PROMOTE SOCIAL DEVELOPMENT**

  Principal Investigator & Institution: Conroy, David E.; Kinesiology; Pennsylvania State University-Univ Park 201 Old Main University Park, Pa 16802

  Timing: Fiscal Year 2003; Project Start 01-APR-2003; Project End 31-MAR-2005

  Summary: (provided by applicant): The primary objective of this research project is to examine one possible mechanism by which coach behaviors impact the psychosocial development of youth participating in sports. Previous research has established the effectiveness of Coach Effectiveness Training (CET; Smith & Smoll, 1996) for enhancing self-esteem (Smith, Smell, & Curtis, 1979; Smell, Smith, Barnett, & Everett, 1993), decreasing performance anxiety (Smith, Smell, & Barnett, 1995), improving attraction to coaches (Smith et al., 1979), and decreasing rates of attrition from organized sports (Barnett, Smoll, & Smith, 1992). This project is a randomized blind trial of an enhanced-CET intervention. The conceptual model underlying this research proposes that coach training will change observed coach behaviors and youth perceptions of coach behaviors. Youth's internalization of coach behaviors is hypothesized to be manifest in youth achievement goal orientations and self-talk. This internalization process is hypothesized to be the mechanism for the intervention's effects of increasing self-esteem and decreasing **fear** of failure. Coaches from two community-based sport leagues will be randomly assigned to either an enhanced-CET training session or sport science training session that does not include psychosocial components. After receiving preseason training in these workshops, coaches will self-monitor their behaviors and receive booster telephone calls and mailings on a weekly basis, Youth will complete measures of self-talk, achievement goal orientations, **fear** of failure, and self-esteem throughout the season. The first aim of the present research is to establish the effects of the intervention on youth psychosocial development. The second aim is to evaluate whether observed coaching behaviors mediate the effects of the intervention on youth development. The third aim of this research is to evaluate whether youth internalization of coaches' behavior mediates the effects of coaching behaviors on their psychosocial development.

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- **Project Title: COGNITIVE/BEHAVIORAL TREATMENT OF PANIC IN ADOLESCENCE**

  Principal Investigator & Institution: Mattis, Sara G.; Psychology; Boston University Charles River Campus 881 Commonwealth Avenue Boston, Ma 02215

  Timing: Fiscal Year 2002; Project Start 01-AUG-1998; Project End 31-JUL-2004

  Summary: (Adapted from Applicant's Abstract): While Panic Control Treatment (PCT) has been found to be widely effective in the treatment of panic disorder in adults, no large-scale controlled treatment studies have evaluated the use of similar cognitive-behavioral approaches in the treatment of adolescents with panic disorder. Given that late adolescence has been suggested as the initial peak age for onset of panic disorder, the purpose of this project is to establish an empirically validated intervention aimed at treating panic disorder at its earliest stages. Specifically, the aims of this project are: to evaluate the effectiveness of a developmental adaptation of PCT for the treatment of panic disorder in adolescents; to determine the long-term impact of such treatment through follow-up assessment; and to assess the impact of treatment on the quality of life of adolescents beyond the specific symptoms of panic disorder. A total of 52 adolescents (aged 12 to 17) with a diagnosis of panic disorder, assessed via the Anxiety Disorders Interview Schedule, will be randomly assigned to either an immediate PCT treatment condition or to a self-monitoring waitlist in which participants will wait

approximately 12 weeks prior to receiving PCT. All participants will undergo a pretreatment and a posttreatment/waitlist assessment, as well as three follow-up assessments, conducted 3-, 6-, and 12 months following completion of treatment. Assessments will consist of diagnostic interviews with adolescents and their parent(s), a behavioral and physiological assessment of response to symptom induction tasks designed to elicit sensations similar to naturally occurring panic, and self-report measures of anxiety, anxiety sensitivity, depression, and **fear.** Participants will also be asked to self-monitor their panic attacks as well as daily anxiety and depression. It is hypothesized that adolescents receiving PCT will evidence greater improvement than those in the waitlist group, and will continue to show improvement at follow-up, on panic-specific variables (e.g., frequency of panic attacks), psychopathology variables (e.g., anxiety sensitivity score), behavioral and physiological variables (e.g., average change in heart rate from baseline to the symptom induction tasks), and clinical severity ratings of panic disorder.

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- **Project Title: COMPLEMENTARY/ALTERNATIVE MEDICINE FOR VESTIBULOPATHY**

  Principal Investigator & Institution: Krebs, David E.; Professor; Massachusetts General Hospital 55 Fruit St Boston, Ma 02114

  Timing: Fiscal Year 2002; Project Start 01-MAY-2001; Project End 31-MAR-2003

  Summary: (APPLICANT'S ABSTRACT): It is proposed a randomized, blinded, controlled trial comparing vestibular rehabilitation (VR) to Tai Chi. Our overall goal is to explore whether, and if so, how TC can improve functional, dynamic stability in persons with vestibulopathy (VSP). It is hypothesized that the TC group will demonstrate significantly greater improvement in performing functional activities than the VR group. Specific Aims #1: To determine the relative neuro-biomechanical benefits of TC and VR. Sixty subjects will be randomly assigned into either TC instruction or VR. Both treatment groups will receive identical duration treatment once a week for 10 weeks, with supplemental home exercises. It is hypothesized that I) TC improves whole-body dynamic locomotor stability more than does VR; 2) TC improves gait coordination during planned and unplanned obstacle encounters more than does VR; 3) TC improves whole-body speed related movement control more than does VR. #2: To determine which biomechanical measures best demonstrate TC and VR motor control and coordination improvements. It is proposed to quantify VSP patients' motor control and coordination using muscle power flow, gaze (eyehead) stability, and whole-body dynamic stability during standing, locomotion and balance perturbations. It is hypothesized that 1) The TC group will demonstrate power flow more similar to healthy individuals than those receiving VIA during locomotion and balance recovery followingperturbation; 2) The TC group will demonstrate greater improvements in intersegmental movement coordination, which in turn, translates into improved gaze and whole-body stability, than the VR group. #3: A) To determine whether TC improves psychological status, including **fear** of falling. B) To determine the association between both psychological variables and TCM medical diagnosis, and their predictive value about response to TC or VR. It is hypothesized that TC will improve both **fear** of falling and other psychological scores more than VR. It will also be diagnosed each patient according to traditional Chinese medicine (TCM) diagnostic categories to determine whether any TCM category is more likely to be associated with improvements in either group. The latter aim is purely exploratory and descriptive in nature.

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- **Project Title: COMPUTER BASED EXPOSURE THERAPY FOR SOCIAL ANXIETY**

  Principal Investigator & Institution: Anderson, Page L.; Phd; Virtually Better, Inc. 2450 Lawrenceville Hwy, Ste 101 Decatur, Ga 300333226

  Timing: Fiscal Year 2002; Project Start 20-MAR-2002; Project End 31-MAR-2004

  Summary: (provided by applicant) This study will develop and test the feasibility of using virtual reality technology as a part of a computer-based exposure (CBE) self-help program to address public speaking **fears.** Public speaking anxiety is the most common **fear** among individuals, affecting up to 57 percent of the general population. Although cognitive-behavioral therapy is an effective treatment for social anxiety, many individuals do not seek treatment. Self-help programs are one popular alternative to psychiatric treatment. Primary goals of Phase I include are to develop a virtual environment for public speaking anxiety that can be used as a part of a CBE self-help program and to determine the effectiveness of CBE as compared to pre-treatment baseline. Ten participants who meet criteria for social phobia with a prominent **fear** of public speaking will be assessed using standardized measures prior to and following CBE and again at three-month follow-up. Phase II will test the relative efficacy of CBE and a cognitive-behavioral self-help manual for social anxiety versus a waitlist. The long-term objectives include the development of an effective and affordable self-help program utilizing virtual reality, leading to direct commercial access for anxiety sufferers to help them help themselves. PROPOSED COMMERCIAL APPLICATION: The commercial applications include: (1) the sale of PC-based self-help program to individuals suffering with social anxiety, (2) the utilization of the program by therapists as an adjunct to treatment, (3) the training of researchers and therapists in using this technology in therapy.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: COMPUTERIZED STRATEGY FOR VIOLENCE SCREENING**

  Principal Investigator & Institution: Renker, Paula Rinard.; None; University of Akron 302 Buchtel Mall Akron, Oh 44325

  Timing: Fiscal Year 2003; Project Start 01-JUN-2003; Project End 31-MAY-2004

  Summary: (provided by applicant): Violence screening and advocacy are essential practices for health care providers to empower pregnant abused women so that the devastating physical and emotional sequelae of abuse can be diminished. Despite directives from national health organizations, it is estimated that between 60%-95% of women are not screened for domestic violence during their pregnancies. Health care providers (including physicians and nurses) state that they omit screening because they lack confidence in its accuracy and helpfulness. Women may be hesitant to acknowledge abuse due to issues of confidentiality and **fear** of reprisal from the perpetrators. Because violence research has been predominantly conducted with women over the age of 20 from clinic populations, limited knowledge exists about adolescents and patients who receive care in private offices. Anonymous research studies with population-based samples that are economically, racially, age, and ethnically diverse are needed to identify the prevalence of abuse, prevalence of screening, and factors inhibiting women from identifying abuse to health care providers. Computerized interviews provide a promising, but untested, approach for anonymous screening in postpartum units which provide a rich opportunity to recruit large numbers of economically and age-diverse patients. The proposed research will survey 500 newly delivered women in postpartum units with anonymous computerized interviews to identify the prevalence and severity of pregnancy abuse and the prevalence of prenatal violence screening and provision of

interventions. Two specific aims have been identified including 1) To establish statistical parameters of pregnancy abuse, abuse screening, and acknowledgement of abuse in a economically, ethnically, and age-diverse sample that will be used in the development of a future population study; and 2) Examine the efficacy of computerized anonymous data collection in a hospital setting for collecting information about domestic violence experienced during pregnancy and for conveying advocacy information. The results of the research will lay the statistical and methodological foundation for a population-based study to measure prevalence of pregnancy abuse and assessment strategies. The long-term goal for this program of research is to refine and implement protocols, including computerized assessment and advocacy interventions, for systematic violence and abuse screening in all obstetrical and gynecological care settings.

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- **Project Title: CONDITIONING-SPECIFIC REFLEX MODIFICATION**

  Principal Investigator & Institution: Schreurs, Bernard G.; Professor; Physiology and Pharmacology; West Virginia University P. O. Box 6845 Morgantown, Wv 265066845

  Timing: Fiscal Year 2002; Project Start 02-AUG-2002; Project End 31-JUL-2005

  Summary: (provided by applicant): The reflex is a basic unit of behavior and a building block of many forms of learning and memory. Associative changes in the reflex have recently been described but they lack behavioral laws and the neural substrates are unknown. This gap in knowledge is an important problem because associative changes in the reflex may have significant implications for many forms of learning. Without understanding this new form of reflex modification, a complete understanding of the behavioral complexity and biological basis of many forms of learning is unlikely. Our long-range goal is to understand how learning modifies behavior in order to develop preventive and therapeutic strategies for learning and memory disorders. The objective of this application is to characterize the behavioral laws and identify the potential neural substrates of the conditioning-specific reflex modification that occurs after classical conditioning of the rabbit's nictitating membrane response (NMR). The central hypothesis of the application is that classical conditioning induces changes in the unconditioned response - detectable in the absence of the conditioned stimulus - that can be described, quantified, and localized. This hypothesis is based on strong evidence from behavioral experiments showing significant changes in the reflex following classical conditioning. The rationale for the proposed research is that once behavioral laws governing learning-specific changes in the reflex are known, they may provide a model for new and innovative approaches to the treatment of learning and memory disorders such as post traumatic stress disorder. The objective of this application will be accomplished by pursuing two specific aims: 1) Characterize the behavioral laws governing conditioning-specific reflex modification and 2) Identify potential neural substrates of conditioning-specific reflex modification. The proposed work is innovative because it combines a novel behavioral finding - conditioning-specific reflex modification - with a very well understood learning paradigm - classical conditioning of the rabbit NMR. The research is significant because it will provide strategies for preventive and therapeutic interventions for the growing numbers of persons in this country with disorders in learning and memory, such as post-traumatic stress disorder, as well as provide an understanding of the biological processes that underlie learning and memory.

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- **Project Title: CONTEXTUAL PRIMING IN PSYCHOPATHS**

  Principal Investigator & Institution: Newman, Joseph P.; Professor; Psychology; University of Wisconsin Madison 750 University Ave Madison, Wi 53706

  Timing: Fiscal Year 2002; Project Start 30-SEP-1995; Project End 31-MAY-2006

  Summary: A wealth of evidence demonstrates that, in contrast to ordinary criminality, psychopathy is a serious form of psychopathology that has terrific costs to the affected individual as well as society (Hare, 1996). The long-range goal of this research is to specify the psychological processes responsible for their maladaptive breakdown of self-regulation. Success in this endeavor would enable the early identification of relevant processing anomalies and allow for the implementation of informed interventions to treat and/or prevent their maladaptive expressions. Predictions regarding the psychological processes responsible for the breakdown of adaptive self-regulation in psychopaths are derived from the response modulation hypothesis (Gorenstein and Newman, 1980; Patterson and Newman, 1993). In contrast to theories which attribute psychopathy to "low fear" or "insensitivity to punishment cues" (e.g., Fowles, 1980; Lykken 1995), the response modulation hypothesis predicts (a) that primary psychopaths' insensitivity to punishment cues will be relatively specific to circumstances in which the cues are peripheral to ongoing, goal-directed behavior; and (b) that primary psychopaths will be less sensitive to motivationally neutral, as well as motivationally significant, peripheral stimuli while they are engaged in goal-directed behavior. Results from the first 5-6 years of this grant provide solid evidence for both of these hypotheses and suggest that attentional deficit involving the use of contextual cues may underlie psychopaths' cognitive and affective processing deficiencies and account for their deficits in self-regulation. Moreover, we have demonstrated that psychopaths' anomalous processing of both affective and non-affective contextual (i.e., secondary) cues relates to cerebral asymmetries in the allocation of attention. In this competing renewal, we propose to (a) specify the types of information that do or do not influence the behavior of psychopaths; (b) clarify the circumstances that enable or preclude psychopaths from processing available information; and (c) elaborate the association between psychopaths' cognitive and affective information processing deficits and their left hemisphere processing anomalies. Analogous to identifying a specific learning disability, the proposed studies will not only specify a dysfunction and, thus, clarify the etiology of psychopathy, but will serve to identify particular strategies for preventing the serious consequences of the dysfunction.

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- **Project Title: CORE--BEHAVIORAL**

  Principal Investigator & Institution: Self, David W.; University of Texas Sw Med Ctr/Dallas Dallas, Tx 753909105

  Timing: Fiscal Year 2002; Project Start 01-SEP-2002; Project End 31-JUL-2007

  Summary: (provided by applicant): Center investigators are studying numerous genes and their protein products in the brain's appetitive circuits to define their role in the regulation of mood and motivation under normal circumstances and in animal models of depression and antidepressant action. To accomplish this goal, the Behavioral Core has established a broad battery of behavioral tests in rats and mice. This battery includes several routine measures of locomotor activity and anxiety-Iike behavior, as well as several depression-related tests such as the forced swim test and learned helplessness paradigm. The battery also incorporates several additional tests that provide complementary information about an animal's affective state; these include measures of

fear conditioning, sexual behavior, incentive motivation for food, intra-cranial self-stimulation, and social interaction, to name some examples. In addition, Core personnel will continually work to extend this battery to additional tests in the years ahead. The imperative to employ such a large battery of behavioral tests is that it is difficult to infer something about complex behavior from a single test or even a limited number of tests. Rather, by utilizing numerous complementary measures we will be able to infer, with much greater accuracy, the role of a given gene in complex behavior related to depression. By consolidating these behavioral tests within a centralized Core, we can ensure rigorous control over the data as well as facilitate comparisons and contrasts of experimental results from the individual Projects. This consolidation also makes financial sense, since we can concentrate and maximize efficient use of our behavioral expertise. The role of specific target proteins in behavioral responses related to mood and motivation will be tested with a variety of approaches, including advanced mouse mutagenesis techniques in conjunction with the Transgenic Core. We will utilize: 1) intracerebral injections of specific activators or inhibitors of a target protein; 2) intracerebral injections of viral vectors that overexpress the target protein itself or a dominant negative mutant of the protein; and 3) mutant mice that lack or overexpress the target protein or a dominant negative mutant. The latter will include mutant mice in which the target gene is overexpressed or knocked out in an inducible manner and selectively within a brain region of interest. The Behavioral Core will then provide routine, high throughput behavioral tests for investigators in the Center's Projects. Encouraging findings will be pursued with more sophisticated behavioral tests also via this Core. In addition, the Core will obtain routine neuroendocrine measurements (e.g., plasma corticosterone levels) in behaving animals as needed for particular experiments.

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- **Project Title: CORTICAL PLASTICITY: INPUTS, NETWORKS AND BEHAVIOR**

  Principal Investigator & Institution: Sur, Mriganka; Fairchild Professor of Neuroscience; Center for Learning and Memory; Massachusetts Institute of Technology Cambridge, Ma 02139

  Timing: Fiscal Year 2003; Project Start 01-AUG-2003; Project End 31-JUL-2008

  Summary: (provided by applicant): Understanding how brain pathways form, how the pattern of activity conveyed by them shapes processing networks, and how inputs, pathways and networks together mediate behavior, are central themes in understanding mammalian brain development and plasticity. We propose to examine mechanisms responsible for the specific targeting of projections from the retina to the thalamus, and utilize an induced miss targeting of projections to ask how patterned activity shapes the function of subsequent structures. Retinal projections to visual thalamic targets such as the lateral genicutate nucleus (LGN) require specific molecular cues, and these are altered when retinal projections are routed to the medial geniculate nuclus (MGN) of the auditory thalamus. Such rewiring then provides a means to examine how a very different pattern of activity, that driven by vision rather than by audition, influences the development, organization and function of pathways which normally mediate auditory functions and behaviors. Specific questions are: 1. What are the molecular determinants and mechanisms responsible for generating target specificity in retinothalamic projections? We hypothesize that: retinal projections to specific targets, are mediated by molecules such as the ephrins that also generate topographic order. We shall use wild type mice and mice lacking ephrin A2/A5 or Eph B2/B3 to examine whether retinal projections to the LGN and rewired MGN are similarly disrupted. Additional factors also operate during normal development to generate specificity of axon projections. We

will use laser micro-dissection and DNA micro-array analyses to discover genes and signaling molecules that normally regulate containment of retinal ganglion cell axons to the LGN and that promote miss targeting of these axons to the MGN after rewiring. 2. How does the pattern of input activity influence visual feature processing networks in cortex? We hypothesize that a key role for patterned activity is to shape the cortical networks that generate and map multiple stimulus features according to rules of coverage and continuity. We will use optical imaging and single unit recording in ferret primary visual cortex (V1) and rewired primary auditory cortex (A1) to examine the relationships between maps of retinotopy, orientation, ocular dominance, spatial frequency, and direction. 3. How does visual input influence the hierarchical processing of cortical information? We hypothesize that visual activity shapes the serial processing of visual motion in cortex. We will examine the analysis of motion, including direction selectivity, in a hierarchy of areas in the visual cortex and rewired auditory cortex. 4. Can a behavior be specified by its inputs, measured as the influence of vision on **fear** conditioning? We hypothesize that visual inputs directed to the auditory thalamus instruct the function of subsequent projections and structures. We will use a **fear** conditioning paradigm, exploiting the slow rate of acquisition of visual compared to auditory cued **fear,** to examine whether visual inputs routed to the auditory pathway accelerate visual cued **fear** conditioning in rewired mice.

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- **Project Title: DENTAL FEAR AND ANTICIPATION OF PAIN: IMAGING THE BRAIN**

  Principal Investigator & Institution: Bradley, Margaret M.; Professor; Clinical & Health Psychology; University of Florida Gainesville, Fl 32611

  Timing: Fiscal Year 2002; Project Start 15-APR-2001; Project End 31-MAR-2006

  Summary: The proposed experimental program is designed to assess changes in brain function that occur with fearful anticipation of a painful stimulus. Its principal aim is to determine the relationship between activity in specific brain structures (as defined by changes in regional blood flow), reports of **fear** arousal, and the electrocortical, visceral, and somatic responses that occur when expecting a painful stimulus. This research is driven by a motivational theory of human emotion that is founded on behavioral, psychophysiological, and neurophysiological research. The proposed studies are intended to explicate neural mechanisms that mediate **fear** of pain in normal humans, and furthermore, to examine possible individual differences in anticipation of pain between men and women, and between those who are low or high in dental **fear.** The specific aim of the proposed research is to map neural activation in the brain during fearful anticipation evoked by imminent painful stimulation, and to relate the obtained brain maps to psychophysiological patterns of **fear** reactivity. Three primary independent variables are assessed: 1) The type of anticipated stimulus (electric shock or nonpainful vibrotactile); 2) Dental **fear** level of the subject (low, high); and 3) Sex of the subject. Each of these eight studies (2 stimulus type x 2 **fear** groups x 2 sex) will be conducted once in the magnetic resonance imaging (MRI) context to assess functional brain activity, and once (with new participants) in a simulated MRI context to acquire autonomic, somatic, and central (i.e., EEG) physiological measures of anticipatory **fear.** The proposed research will address questions concerning the neural and psychophysiological organization of **fear** associated with imminent pain, as well as how individual differences in **fear** and/or sex affect these reactions. The proposed methodology is, furthermore, adaptable and can be used subsequently to address other facets (sensory and emotional) of the pain experience.

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- **Project Title: DIETARY RESTRICTION, AGING, LEARNING, AND LTP**

  Principal Investigator & Institution: Barea-Rodriguez, Edwin J.; University of Texas San Antonio San Antonio, Tx 78249

  Timing: Fiscal Year 2003; Project Start 01-AUG-2003; Project End 31-JUL-2006

  Summary: The oxidative stress theory of aging states that damage to molecules that are important for cellular function increases with age. This increase causes a decline in normal physiological function in a number of organs including the brain. Normal aging may be accompanied by a decline in cognitive function. It is widely believed that learning and memory are mediated by dynamic changes in the brain. Long-term potentiation (LTP) is an activity-dependent form of synaptic plasticity thought to be to be the most plausible mechanism for learning and memory. LTP was first discovered in the hippocampus, a neural structure associated with learning and memory. Interestingly, aging is accompanied by impairments in both hippocampal-dependent learning and LTP. Dietary restriction (DR) is the only environmental manipulation known to extend lifespan in all mammals studied. Many studies report that DR can prevent age-related impairments in hippocampal-dependent learning tasks. Most DR studies implement a life-long DR regimen and the animals used are adults at the time of testing. Few studies investigate the effects of short-term DR in aged rats and its consequences for learning and memory. Also, the relationship between DR and LTP longevity remains largely unexplored and no current studies document the effects of short-term DR on LTP in aged rats. The long-term goal of this research is to investigate age-related increases in oxidative brain damage, age-related deficits in hippocampal-dependent learning and medial perforant path (MPP)-CA3 LTP in awake rats, as well as their prevention by short-term (3 months) DR. In Specific Aim 1, experiments will investigate whether short-term DR can improve the performance of aged rats in trace **fear** conditioning and the Morris Water Maze. In Specific Aim 2, experiments will investigate whether short-term DR can extend LTP longevity in aged rats. In Specific Aim 3, experiments will investigate whether short-term DR decreases levels of oxidative brain damage and increases levels of the neuroprotective brain proteins Heat Shock Protein 70 and Brain Derived Neurotrophic Factor. These studies are expected to increase our understanding of how oxidative damage impairs hippocampal-dependent learning and LTP, how such impairments can be prevented by dietary manipulations, and whether the proposed molecular mechanisms are associated with such improvements.

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- **Project Title: DIZZINESS IN OLDER PEOPLE**

  Principal Investigator & Institution: Baloh, Robert William.; Professor; None; University of California Los Angeles 10920 Wilshire Blvd., Suite 1200 Los Angeles, Ca 90024

  Timing: Fiscal Year 2002; Project Start 01-APR-1991; Project End 31-MAR-2006

  Summary: Complaints of dizziness and disequilibrium are common in older people yet it is often difficult to determine the cause. Associated falls and **fear** of falling affect the quality of their lives and limit their daily activities. We hypothesize that dizziness and disequilibrium are not a result of normal aging but rather the result of specific pathophysiologic changes involving the inner ear and brain. Our goal is to better understand the causes of dizziness and disequilibrium in older people. We propose to continue a longitudinal study of patients complaining of dizziness and disequilibrium

and age-matched controls with yearly examinations including quantitative visual-vestibular testing and posturography. The goal of the first specific aim is to a) document changes in vestibular function and balance associated with normal aging; b) define the natural history of the common causes of dizziness and disequilibrium in older people; and c) document the clinical course in patients with dizziness and disequilibrium of unknown cause. The second aim is to correlate function with morphology in normal subjects and patients who come to postmortem examination with the goal of explaining changes in balance in terms of identifiable changes within the inner ear and brain. How accurate were the clinical diagnoses? Do patients with dizziness and disequilibrium of unknown cause show changes in the inner ear or brain different from those of age-matched controls? The unique features of this research are a) the longitudinal design and b) the correlation of histopathologic findings at the time of postmortem examination with the results of quantitative test information obtained during life. There have been few prior longitudinal studies of dizziness and imbalance in older people and none that includes serial measurements of auditory and vestibular function, and quantitative measurements of balance, semiquantitative neuro-logical examinations and serial magnetic resonance images (MRI's) of the brain. Prior histopathological studies in older people with balance dysfunction have focused on the temporal bone or brain but not both, have lacked detailed clinical data, and rarely have contained quantitative information regarding vestibular function during life. By continuing this longitudinal study of carefully studied older patients and controls, our multidisciplinary research team is in a good position to achieve our goals.

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- **Project Title: DOMESTIC VIOLENCE AND CHILD AGGRESSION**

  Principal Investigator & Institution: Jouriles, Ernest J.; Professor; Psychology; University of Houston 4800 Calhoun Rd Houston, Tx 77004

  Timing: Fiscal Year 2002; Project Start 01-SEP-2002; Project End 31-MAY-2003

  Summary: (provided by applicant): The primary goal of the proposed research is to advance our understanding of the relation between domestic violence and child problems, with an emphasis on children's aggressive behavior. We plan to address a number of important conceptual and methodological limitations of existing research that constrain our ability to interpret or generalize knowledge on this topic. In addition, we will examine pathways by which domestic violence is theorized to exert its detrimental effects on children; and, importantly, we will evaluate the contribution of domestically violent men to child problems (beyond the effects of their domestic violence). Participants will be 1000 children aged 7-9 years, their mothers, and mothers' partners (in families in which mothers and partners live together). The sample will be comprised of three demographically comparable groups. The first group will include 400 children whose mothers sought shelter because of recent domestic violence. The second group will consist of 400 children whose mothers experienced recent domestic violence but have not sought shelter. The third group will include 200 children not exposed to domestic violence. Each family will participate in 3 assessments over a 12-month period; the assessments will be spaced by approximately 6 months. The assessments will include measurements of domestic violence, proximal context variables directly related to the domestic violence, family milieu variables, child responses hypothesized to mediate the relation between domestic violence and child problems, maternal and partner emotional functioning and parenting, and children's aggressive behavior and internalizing problems.

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- **Project Title: DRINKING CONTEXTS AND DWI: IMPLICATIONS FOR PREVENTION**

  Principal Investigator & Institution: Caudill, Barry D.; Westat, Inc. 1650 Research Blvd Rockville, Md 208503195

  Timing: Fiscal Year 2002; Project Start 01-FEB-1995; Project End 31-MAY-2005

  Summary: (provided by applicant): This Continuation proposal is based on interim findings from a NIAAA-funded study to evaluate a community-based alternative transportation program to prevent Driving While Intoxicated (DWI). These findings show that drinkers who use designated drivers (DDs), who serve as DDs, or who use safe rides (SRs-free taxi rides home for intoxicated drivers) are more likely than other drinkers to report DWI and riding with intoxicated drivers (RID). They are also more likely, however, to engage in behaviors to avoid DWI and RID, such as waiting to drive until the effects of alcohol diminish, walking home, and staying overnight (Caudill & Harding, 1997; Caudill et al., 2000a; 2000b; in press). Subsequent studies similarly revealed that heavy drinkers were either more likely or as likely as moderate drinkers, and more likely than light drinkers, to report DWI and RU) and high levels of DWI and RID (Caudill et al., 1999; 2000c). Heavy drinkers were also more or as likely as moderate, and more likely than light drinkers, to report behaviors to avoid both DWI and RID and to report high frequencies of these avoidance behaviors. Heavy drinkers also exhibited DWI risk avoidance behavior, relative to DWI risk behavior, just as often as moderate or light drinkers, namely 70 percent versus 72 percent, and 72 percent of the time they drink to intoxication outside the home (Caudill et al., 2000c). Recent analyses show that drinkers who report DWI are more likely than drinkers who do not, to engage in behaviors to avoid DWI and RID, including the use of DDs and SRs. The main goal for the proposed study is to learn why at-risk drinkers engage in DWI on some occasions, but avoid DWI on others. A secondary goal is to learn why drinkers engage in RID on some occasions but not others (RID can be examined efficiently since 67 percent of those reporting DWI in our current study also report RID). Most research on risk-taking compares individuals who exhibit the behavior with those who do not. Because of the difficulty of controlling for many potential differences between such subjects, we propose a design that compares occasions when the same at-risk drinkers exhibit risk with occasions when they do not. A representative sample of 800 barroom drinkers who report both DWI and avoiding DWI will participate in a CATI interview designed to collect detailed data about the last occasion (during the past two weeks) when they drove while feeling intoxicated, and last occasion when they avoided DWI. Using this self-matched case control approach, analyses will identify situational (e.g., type of drinking companion), motivational (e.g., **fear** of arrest), and other variables (e.g., Blood Alcohol Concentration, gender) associated with these two choices. Findings will be used to identify prevention strategies that might either reinforce the use of alternatives to avoid DWI and RID, or reduce identified barriers to their use. A panel of national experts will be used to help refine the study design and tie findings to the development of future innovations in DWI and RID prevention.

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- **Project Title: EMOTION OF PAIN: A NEUROBIOLOGICAL ANALYSIS**

  Principal Investigator & Institution: Borszcz, George S.; Associate Professor; Pathology; Wayne State University 656 W. Kirby Detroit, Mi 48202

  Timing: Fiscal Year 2003; Project Start 01-MAR-2003; Project End 31-MAR-2007

Summary: (provided by applicant): All animals, including humans, react with distinct emotional coping strategies when confronted with stressors. The immediate reactions to stressors are innate behavior patterns with a phylogenetic history of enabling individuals to cope with threats. The prototypical threat to an individual is exposure to a painful stimulus, and recent findings indicate that painful stimuli engage neural circuits that control the execution of defensive behaviors. Within this context, the emotional dimension of pain belongs to a class of sensory experience that represents threat to the individual and governs the production of defensive reactions that enable the individual cope with the threat. Because the neural circuits that control the execution of defensive behaviors are known to a considerable degree, these circuits can be used to evaluate the mechanisms that underlie the innate emotional reaction to painful stimuli. An understanding of how these neural circuits are engaged by a painful stimulus also provides a foundation to study how the immediate emotional reactions to pain produce enduring effects on the individual. Alterations in the circuitry that controls defensive responding are implicated in conditions such as **fear,** anxiety, depression, frustration, and anger. These secondary emotional reactions are components of the human pain experience, and contribute to the suffering and disability associated with pain. Rats produce a particular type of vocalization (vocalization after discharge, VAD) when exposed to a painful stimulus or confronted with a predator. These vocalizations reflect the rat's immediate emotional reaction to threatening stimuli. These vocalizations are used as a model behavioral system to investigate how painful stimuli engage mesolimbic circuits that control execution of defensive reactions to threats. Two interconnected core structures (ventromedial hypothalamus and periaqueductal gray) control execution of defensive behaviors, and the proposal initiates a systematic evaluation of how painful stimulation activates this neural circuit. The amygdala is the best-characterized modulator of these core structures, and the proposal also evaluates how amygdaloid subnuclei (medial, basolateral, central) enhance or suppress pain transmission through these sites.

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- **Project Title: EMOTION, PAIN AND PAIN CONTROL CIRCUITS**

  Principal Investigator & Institution: Commons, Kathryn G.; Children's Hospital of Philadelphia 34Th St and Civic Ctr Blvd Philadelphia, Pa 19104

  Timing: Fiscal Year 2002; Project Start 01-APR-2002; Project End 31-MAR-2004

  Summary: (provided by applicant): The periaqueductal gray (FAG) and the adjoining dorsal raphe nucleus (DRN) are mesencephalic cell groups that can act to control pain perception. A consensus has arisen that the PAG functions in initiating and implementing behavioral coping strategies to situations involving stress, **fear** or pain. The DRN is a major source of forebrain serotonin, which modulates many behaviors and has been implicated in the pathophysiology of depression. Control of pain by these two nuclei is likely a single element of a multimodal response pattern to stressful situations. Substance P (SP) is a neuropeptide well known for playing a role in pain transmission. When released, SP binds the neurokinin 1 (NK1) receptor and precipitates receptor activation and internalization. The NK1 receptor is enriched within the dorsal and ventrolateral FAG as well as the DRN. In this region, focal application of SF is antinociceptive, eliciting the local release of endogenous opioids. In addition, SP neurotransmission is associated with anxiety, cardiovascular adjustments and grooming behavior. Therefore the PAG and DRN represent potential sites where SP may influence several individual components of behavioral coping strategies. The proposed experiments will examine internalization of the NK1 receptor produced by exogenous

and endogenous SP using immunohistochemical methods to gain insight into the role of SP neurotransmission in the FAG and DRN. The topography of NK1 internalization by these stimuli will reveal the potential overlap of neural circuits used in coping with these stimuli. In addition, the proposed AIMS will broadly establish the neural circuitry that SP engages to modulate these areas. That is, the hypothesis that enkephalin- or serotonin-containing neurons have the NK1 receptor will be tested using light and electron microscopic analysis. The results of these studies will-yield insight into how distinct modes of stressful stimuli impact SP neurotransmission within neural circuits that coordinate defensive coping strategies.

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- **Project Title: ENHANCED INTERVENTION FOR MAMMOGRAM-RESISTANT WOMEN**

  Principal Investigator & Institution: Costanza, Mary E.; Director, Division of Oncology; Medicine; Univ of Massachusetts Med Sch Worcester Office of Research Funding Worcester, Ma 01655

  Timing: Fiscal Year 2003; Project Start 01-JUN-2003; Project End 31-MAY-2005

  Summary: (provided by applicant): This is an exploratory behavioral research project, which focuses on the development of an effective outreach intervention for mammogram-resistant women. In our previous cancer control work, we identified a group of women who were not up to date with mammogram screening recommendations. This group was identified by their intentions: not planning to get a mammogram. The importance of this finding is twofold. 1) This is a mammoqram-resistant group. These women have not responded to a public health climate of mammography recommendations, a strong reminder system (annual written reminders from their managed care organization and quarterly reports of their overdue status to their primary care physicians), or tailored telephone counseling. 2) These women are an at risk population. They are at risk for the development of advanced breast cancer, which is more lethal than cancers discovered by screening. At least 15 percent of women may be mammogram resistant. Because tailored telephone counseling is a cost-effective intervention and is easily integrated into health care systems, we wanted to explore whether enhancing the intervention would make it effective with mammogram-resistant women. In order to develop a meaningful improvement in tailored telephone counseling, we need to know more about this group. Our study begins with in-depth qualitative research, designed to understand the reluctance, psychosocial characteristics and global feelings/beliefs about breast cancer and breast cancer screening. We will then develop an enhanced telephone-based counseling intervention. New strategies include: motivational interviewing, a technique developed to motivate classically resistant patients (alcoholics and tobacco/drug addicts); multiple calls; supplementary materials; and an effort to improve access and physician recommendation. This will be pre-tested on mammogram-resistant women and adjusted following evaluation of their responses and input. The enhanced intervention will then be pilot tested on 50 mammogram-resistant women and evaluated for its success in moving them towards mammography. Outcome measures include rate of mammography utilization by radiology billing records and by self-report. Secondary measures include changes in stage and other variables. The project is grounded in two strong behavioral theories: The Precaution Adoption Process Model of Weinstein and the Cognitive-Social Information Processing (C-SHIP) Model of Miller and Shoda. This study should increase scientific knowledge about an at-risk population and the limits of telephone based counseling. If successful, the enhanced intervention would be tested in a randomized controlled trial

and could be modified to include groups resistant to other screenings (e.g. pap smear or colon cancer screening). If not successful, one could avoid using telephone-counseling strategies in this resistant group. Alternative avenues of communication and motivation would need to be developed.

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- **Project Title: ENHANCING FUNCTION OF FRAIL ELDERS BY MODIFYING THE HOME**

  Principal Investigator & Institution: Gitlin, Laura N.; Professor and Director; Nursing; Thomas Jefferson University Office of Research Administration Philadelphia, Pa 191075587

  Timing: Fiscal Year 2002; Project Start 01-JUN-1999; Project End 31-MAY-2004

  Summary: Functional disability is a major adverse outcome of age-related chronic diseases. It is associated with diminished capacity to perform activities of daily living, increased **fear** and risk of falling, depression, higher service utilization and health care costs. The proposed intervention study is a two-group (intervention vs. control) randomized trial which tests the effectiveness of a home-based, client-tailored, environmental modification program that targets functionally vulnerable older adults. This theoretically-guided intervention is based on principles from a competence-environmental press framework and personal control theory. It involves instruction in a combination of behavioral and environmental strategies that provide primary mechanisms of control over the environment and the ability to perform basic and instrumental activities of daily living. Strategies include use of assistive devices and home alterations, energy conservation, proper body mechanics, safe fall and fall recovery methods, and task breakdown techniques that are designed to minimize the impact of functional limitations and afford personal efficacy. Strategies are selected based on assessment, personal goals and environmental and performance risk factors. The program involves a 6-month active phase that consists of 5 home visits and 1 telephone contact by a health professional in which strategies are implemented. A 6-month maintenance phase follows involving 1 home visit and 3 telephone contacts to reinforce and refine environmental strategy use. The study will enroll 318 community-living elders 70 + years of age from the waiting lists of the Philadelphia Corporation for Aging, the Area Agency on Aging. Subjects will be stratified by gender and living arrangement (alone vs. live with other) and randomized to either a usual care control group or the experimental group. All participants will be assessed at baseline (Tl), 6 months (T2) and 12 months (T3) post-baseline. The specific study aims are to: 1) Test the immediate effect (T1-T2) of intervention on functional status, self-efficacy and home safety; 2) Test the maintenance effect (T2-T3) of intervention on functional status, self-efficacy and home safety; 3) Evaluate the cost-effectiveness of the intervention or the net cost of intervention to improvement of functional status and reduction of health and human service utilization. A secondary aim is to evaluate the impact of intervention on rate of falls and depressive symptomatology. Another secondary aim is to explore the differential impact of intervention and whether the above outcomes are moderated by gender, living arrangement, and baseline efficacy beliefs and depression. Last, we seek to describe the intervention process and specifically, the therapeutic techniques that are used, the staying power of each environmental strategy and the process of developing a therapeutic relationship using a client-centered approach.

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- **Project Title: ENKEPHALINS AND LEARNING**

  Principal Investigator & Institution: Martinez, Joseph L.; Ewing Halsell Professor of Neuroscience; Biology; University of Texas San Antonio San Antonio, Tx 78249

  Timing: Fiscal Year 2002; Project Start 01-JAN-1987; Project End 31-JUL-2005

  Summary: (Adapted from the Investigator's Abstract) The major goals of the proposed research are 1) to investigate the role of the mu opioid receptor in long-term potentiation (LTP) at the hippocampal mossy fiber-CA3 synapse and in the acquisition of spatial memory, 2) to characterize the presumptive DNA recombinase which undergoes a mu opioid receptor-dependent upregulation during LTP and spatial learning, and 3) to investigate whether this presumptive recombinase is upregulated in other areas of the brain when other types of memory are acquired. Both long-term potentiation (LTP) at the hippocampal mossy fiber-CA3 synapse and the acquisition of spatial memory can be attenuated by a local blockade of mu opioid receptors. To confirm this pharmacological data, we will examine both these processes in mice that are genetically deficient in components of the mu opioid signaling system (receptor and ligand precursors). We predict that both processes will be impaired. We will extend our experiments to ascertain if other forms of hippocampal-dependent memory are impaired in these mice. Spatial learning or LTP at the mossy fiber-CA3 synapse both result in increased transcription of a presumptive DNA recombinase. In both cases, this upregulation can be clocked by mu opioid receptor antagonists. Long-term memories can involve permanent changes in gene expression, and somatic cell DNA recombination is capable of producing such changes. We will sequence the cDNA that encodes the presumptive DNA recombinase, and then confirm that increased transcription of this gene causes both increased enzymatic recombinase activity and concomitant DNA recombination in the intact animal. During spatial learning, increased transcription of the presumptive recombinase is not restricted to the mossy fiber-CA3 region, or even to the hippocampus. We will invoke different types of memory acquisition using different experimental protocols, and test if recombinase expression is increased in other regions (e.g. in the amygdala during **fear** conditioning). The proposed research therefore examines two topics of potential clinical significance: a memory-specific role of a receptor (the mu opioid receptor) known to be the target of some addictive drugs, and a candidate mechanism (the presumptive recombinase) for making the permanent cellular changes thought to underlie long-term memory.

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- **Project Title: ESTROGEN EFFECTS ON ANXIETY RELATED NEURAL SYSTEMS**

  Principal Investigator & Institution: Altemus, Margaret; Associate Professor; Psychiatry; Weill Medical College of Cornell Univ New York, Ny 10021

  Timing: Fiscal Year 2002; Project Start 01-SEP-2000; Project End 31-JUL-2005

  Summary: (Adapted from the Investigator's Abstract) This Mentored Clinical Scientist Development Award, a program of research and career development, is proposed to establish a foundation for future independent research in behavioral neuroscience, with a focus on reproductive hormones and emotional regulation. The research component of the proposal is a series of studies investigating the hypothesis that estrogen restrains **fear** associated behaviors. Clinical data indicates that reproductive hormones fluxes have profound effects on the course of anxiety disorders and depression, but the neurobiological determinants of these clinical observations are not well understood. The specific aims of the research plan are to: 1) study the effects of estrogen on a battery of behavioral tests of anxiety; 2) examine the effects of estrogen on glucocorticoid and

stress induced enhancement of **fear** behaviors; 3) examine the effects of estrogen on extrahypothalamic CRH and glucocorticoid receptors, a neuroendocrine system known to modulate **fear** and anxiety and 4) define the anatomic sites of estrogen action on **fear** behaviors. **Fear** associated neural circuits involving the amygsala, bed nucleus of the stria terminalis, and medial prefrontal cortex will be studied using local administration of estrogen and estrogen antagonists. The training portion of this proposal consists of basic neuroscience coursework and seminars as well as hands-on instruction in behavioral analysis and functional neuroanatomic techniques. Studies of the effects of estrogen on anxiety related neural systems provides an opportunity for the investigator to expand her area of expertise from clinical neuroendocrinology and clinical psychiatry to behavioral neuroscience where the effects of hormones on brain function can be studied more directly. This field of investigation is likely to improve understanding and treatment of anxiety and affective disorders, both of which are widely prevalent, chronic public health problems.

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- **Project Title: ETHANOL & ANXIETY:FEARFUL ADAPTATIONS IN THE AMYGDALA**

  Principal Investigator & Institution: Mccool, Brian A.; Medical Pharmacology & Toxicology; Texas A&M University Health Science Ctr College Station, Tx 778433578

  Timing: Fiscal Year 2002; Project Start 01-JUN-2001; Project End 31-JUL-2002

  Summary: APPLICANT'S ABSTRACT: Ethanol's modulation of anxiety is a significant contributing factor to the abuse of this drug. For example, the punishment of withdrawal following chronic ethanol ingestion may help perpetuate abuse by the alcoholic individual. This intimate association between ethanol and anxiety is found in several species; and, the neural circuitry regulating **fear** and anxiety behaviors is also well conserved. Classic fear-conditional approaches have implicated the amygdala, a limbic forebrain area, as playing a pivotal role in the acquisition and expression of fear/anxiety behaviors. The amygdala is therefore a likely target for anxiety-related neuro-adaptive processes elicited by chronic ethanol abuse. Importantly, preliminary data suggests that chronic ethanol exposure causes facilitation of N-methyl-D-aspartate (NMDA) receptor function in dissociated amygdala neurons. Because amygdala NMDA receptors play an important role in fear-conditioned learning, we hypothesize that ethanol-induced adaptation in NMDA receptor function may result in an ethanol-dependent, 'chemical' conditioning of this brain region. This hypothesis will be tested by two specific aims. Specific Aim #1 will characterize the effects of chronic ethanol exposure on NMDA receptors in dissociated amygdala neurons using whole-cell patch clamp electrophysiology combined with single-cell reverse transcription/polymerase chain reaction. These studies will provide cellular and molecular insight into the mechanism of chronic ethanol-induced alterations in NMDA receptor physiology. Specific Aim #2 will determine the neurophysiologic consequences of increased NMDA-dependent synaptic plasticity within the amygdala to directly address chemical conditioning by chronic ethanol. This proposal provides a unique opportunity to examine the influences of chronic ethanol exposure on the molecular, cellular, and physiologic characteristics within the amygdala's fear/anxiety circuit. The proposed studies will also advance our knowledge of the fundamental neural mechanisms regulating ethanol abuse.

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- **Project Title: EXPRESSIVE BEHAVIOR AND AFFECTIVE INFORMATION PROCESSING**

  Principal Investigator & Institution: Schnall, Simone; Psychology; University of Virginia Charlottesville Box 400195 Charlottesville, Va 22904

  Timing: Fiscal Year 2003; Project Start 01-SEP-2003; Project End 31-JUL-2005

  Summary: (provided by applicant): The proposed experiments investigate the informational value of bodily cues in affective information processing. We suggest that in general, affective bodily cues (enacted affect) offer information with the same potential to guide cognitive processing as emotional feelings (felt affect) or activated cognitive concepts (conceptualized affect). Moreover, the influences of expressive cues should obey the same constraints as those that have been observed for feelings. For example, the feelings of mood are general and unconstrained and their influences on judgment and memory, when they occur, tend to be general rather than specific. But the nature of the influence should depend on the generality vs. specificity of the information conveyed by the experience of affective cues. Hence, while some of the proposed experiments examine relatively unconstrained expressive information, others examine cues specific to one emotion (fear), whose meaning is further constrained by the active mental context (established through various priming manipulations) in which the cues are experienced. \Study 1 will attempt to specify the conditions in which bodily affective states influence memory processes, whereas Study 2 will attempt to specify the conditions in which those influences should be absent. Those two experiments involve manipulating the applicability of information derived from bodily cues. In studies 3 and 5 we will further explore to what extent bodily information is contextually constrained. Study 3 will address whether bodily cues of **fear** lead to a general attentional bias toward all emotional stimuli when their meaning is not further specified. In contrast, studies 4 and 5 will explore the boundary conditions in which diffuse vigilance associated with the bodily state of **fear** can be channeled into attention specifically directed toward information relevant to personal concerns. The methodological advantage to studying expressions is that, whereas creating emotions of **fear** for research is problematic, our initial results suggest that many of the cognitive consequences of **fear** (and perhaps other emotions) are elicited when the particular embodiments of the emotion are expressions rather than feelings.

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- **Project Title: GAIT KINEMATIC PARAMETER MEASUREMENT AND ANALYSIS SYSTEM**

  Principal Investigator & Institution: Parker, B E.; Barron Associates, Inc. Jordan Bldg, Ste 300 Charlottesville, Va 22901

  Timing: Fiscal Year 2003; Project Start 15-SEP-2003; Project End 31-JUL-2004

  Summary: (provided by applicant): Recent research has demonstrated the utility of spatio-temporal gait measures in augmenting the prospective evaluation of fall risk in the elderly. Although significant gains in fall risk evaluation in clinical and community-dwelling settings appears to be within reach, a significant hurdle is presented by the unavailability of a practical, low-cost commercial system to measure and assess both the spatial and temporal parameters of gait. Providing physicians and other care givers the tools to accurately assess fall risk will provide at least two benefits: (1) allow individuals at greater risk for falling to be identified and targeted for extra attention and interventions; and (2) reduce the **fear** of falling present in individuals who harbor an unwarranted degree of such **fear,** which has its own negative consequences. Barron

Associates proposes to develop, demonstrate, and commercialize a low-cost system capable of measuring both spatial and temporal gait parameters in freely ambulating subjects, obviating the requirement for access to a gait laboratory or other specialized equipment. Along with fall risk assessment in the elderly, the proposed system will simplify and expand access to accurate gait measurement technology, allowing it to be used in other applications and in subjects' natural environments.

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- **Project Title: GENETICS OF FEAR AND ANXIETY DISORDERS**

  Principal Investigator & Institution: Hettema, John M.; Assistant Professor of Psychiatry; Psychiatry; Virginia Commonwealth University Richmond, Va 232980568

  Timing: Fiscal Year 2002; Project Start 07-AUG-2002; Project End 31-JUL-2007

  Summary: (provided by applicant): This K08 Mentored Clinical Scientist Development Award proposes to provide advanced research training in the genetics of **fear** and anxiety disorders for Dr. John M. Hettema, M.D., Ph.D. Dr. Kenneth S. Kendler, M.D., a world renowned researcher in psychiatric genetics, will serve as Dr. Hettema's primary sponsor. The training will take place at the Virginia Institute for Psychiatric and Behavioral Genetics of Virginia Commonwealth University, which provides a rich, stimulating environment for the conduct of training and research. Dr. Hettema proposes to receive training in epidemiology, statistical and molecular genetics, and experimental methods for measuring anxiety-related traits, including psychophysiology and neuroimaging. Specific research objectives include i) examining the stability, reliability, and heritability of self-report measures in anxiety disorders using a longitudinal design; ii) determine the extent to which the high comorbidity observed between the anxiety disorders is determined by genetic and environmental factors shared between them, including specific individual risk factors such as gender, early enviroment, stressful life events, etc.; iii) determine the genetic correlations between neuroticism and the anxiety disorders and the causal relations between them; iv) elucidate the genetic and environmental factors underlying the increased risk for major depression caused by pre-existing anxiety disorders and what effects gender has on this relationship; v) understand the genetic structure of **fear** conditioning in humans and to what extent this is shared with phobias. In addition, Dr. Hettema intends to apply knowledge gained in training to design pilot studies that incorporate experimentally derived anxiety-related measures from a genetically informative sample of twins from the Virginia Twin Registry, combining this data with the existing database of self-report anxiety measures. This research training plan will allow Dr. Hettema to emerge at the end of the proposal period as an independent researcher in the genetics of anxiety disorders, seeking to extend this work further by combining self-report and experimentally derived anxiety-related measures with linkage and association studies to identify genetic loci and brain mechanisms involved in the anxiety disorders.

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- **Project Title: GLUTAMATE TRANSPORT REGULATION AND SYNAPTIC PLASTICITY**

  Principal Investigator & Institution: Eskin, Arnold; Professor and Chair; Biology and Biochemistry; University of Houston 4800 Calhoun Rd Houston, Tx 77004

  Timing: Fiscal Year 2002; Project Start 01-AUG-2001; Project End 31-JUL-2005

  Summary: A number of properties of a neuron change in a coordinated fashion to store a given type of memory. Our long- term goal is to determine which properties of

neurons change, and how these properties are regulated during formation of memories. Regulation of glutamate transporter activity may be necessary during increases in synaptic efficacy to maintain the fidelity of synaptic transmission and to avoid toxicity that might occur if glutamate is elevated in the synaptic cleft for too long. Thus, we hypothesize that increases in glutamate transporter activity will accompany increases in synaptic efficacy at glutamatergic synapses, especially ones involving long-term changes in synaptic efficacy. This hypothesis will be tested in vitro by investigating regulation of glutamate uptake after induction of LTP and in vivo by investigating regulation of glutamate uptake after contextual **fear** conditioning. Area CA1 of the rat hippocampus will be used in most experiments. We will use a multidisciplinary approach including electrophysiology, biochemistry and behavioral analysis to investigate the regulation of glutamate uptake. The proposed research has four specific aims. Most of the experiments in Specific Aims 1-3 will investigate regulation of glutamate transport during two different forms of LTP (E- and L-LTP). Aim 1 is to characterize the mechanisms involved in the increase in glutamate uptake produced by high frequency stimulation. Aim 2 is to determine whether induction of LTP increases the expression of glutamate transporters, and what mechanisms are involved in the increase in expression. Aim 3 is to investigate the relationship between LTP and changes in glutamate uptake and expression of glutamate transporters. Aim 4 is to determine whether an associative learning paradigm, contextual **fear** conditioning, produces an increase in glutamate transport in the hippocampus in vivo. In our lab, recent studies have shown that glutamate uptake is regulated during long-term memory in Aplysia, and preliminary results indicate that glutamate uptake is regulated during LTP in the rat hippocampus as well. Thus, the results of these studies will likely indicate that regulation of glutamate transport is a general phenomenon at glutamatergic synapses involved in synaptic plasticity. As glutamate is a remarkably potent and rapidly acting neurotoxin, fundamental studies of long-term regulation of glutamate transport should aid solutions to brain trauma and diseases such as amyotrophic lateral sclerosis.

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- **Project Title: HIV RISK IN OLDER ABUSED WOMEN RECEIVING EMERGENCY CARE**

  Principal Investigator & Institution: Sormanti, Mary; None; Columbia Univ New York Morningside 1210 Amsterdam Ave, Mc 2205 New York, Ny 10027

  Timing: Fiscal Year 2002; Project Start 02-APR-2001; Project End 31-MAR-2004

  Summary: Rates of sexually transmitted diseases (STDs) including HIV among women attending Emergency Departments (EDs) are higher than in populations of women seeking non-emergency treatment. Additionally, studies estimate that between 5% to 35% off all women who receive treatment in Eds are there because of an injury or problem resulting from intimate partner violence (IPV). Although Eds are often the principal source of medical care for low income women at high risk of STDs and IPV, the health care system has been slow to develop treatment approaches that attend to the co-occurrence of HIV and partner violence particularly among women older than 50. In order to develop interventions that will be effective in controlling the spread of HIV in this population qualitative research into the context of risk behaviors must take IPV into consideration. The proposed study will utilize focus groups and in-depth interviews to: (a) elicit cultural meanings, values, and beliefs related to IPV and HIV risk behaviors among older (i.e. ages 50-60) women seeking ED services, (b) explore how IPV and **fear** of this violence may be related to older women's abilities to negotiate safer sex practices with their primary partners, and (c) investigate the types of formal and informal support

services sought and utilize by older abused women to cope with HIV risk and partner violence. In the first six months of Year 1, 36 women between the ages of 50-64 attending an ED who have recently experienced IPV will participate in focus groups. An additional 45 abused women of the same age cohort will participate in narrative interviews. Participants will be recruited from New York Methodist Hospital Emergency Department. Investigators from Social Intervention Group (SIG) at Columbia University School of Social Work will lead the study in consultation with New York Methodist Hospital. Findings will increase understanding of the contextual factors that may explain the relationships between IPV and HIV risk behaviors in older women. Consequently findings will inform assessment, referral, and treatment protocols used by ED staff to meet the diverse needs of women ages 50-64 who are at risk for partner violence and HIV and will inform the design of HIV prevention interventions for this cohort of women.

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- **Project Title: IMPACT OF MORTALITY CONCERNS ON CANCER RISK BEHAVIOR**

  Principal Investigator & Institution: Arndt, Jamie; Psychology; University of Missouri Columbia 310 Jesse Hall Columbia, Mo 65211

  Timing: Fiscal Year 2002; Project Start 01-JUN-2002; Project End 31-MAY-2007

  Summary: (provided by applicant): Despite important progress toward identifying behavioral health risk factors for different forms of cancer there are still considerable gaps in understanding what leads certain individuals to engage in health promotion behavior, and why some individuals all-too-often continue to put their health at risk. Significance insight may be gained by considering the deeper motivational and psychological processes that are elicited when people are confronted with, both consciously and unconsciously, thoughts of cancer and, ultimately, their death. Indeed, an increasing amount of social psychological research indicates a diverse array of self-regulatory processes (both cognitive and behavioral) function to protect individuals from concerns associated with mortality. Yet there have been few applications of these ideas or research to behavioral health. The present application addresses this gap by integrating ideas about psychological consequences of **fears** of death with behavioral risk factors for cancer. The hypotheses guiding this research are that concerns about death and cancer can engender two types of psychological defense, each of which may have adaptive or maladaptive health implications. In response to conscious **fears** about cancer and death, "direct" psychological defenses aim to reduce perceived vulnerability. In response to unconscious death-related **fears,** "symbolic" psychological defenses are directed toward maintaining a sense of meaning and self-esteem: such efforts may occur along health-relevant dimensions (e.g., tanning to improve one's appearance). Fifteen experimental studies are proposed to explicate the conditions associated with each type of defense, and when, how, why, and for whom thee defensive strategies have adaptive (e.g., intentions to conduct self-breast exams) or maladaptive (e.g., avoidance of health information) implications for risky (e.g., smoking) and preventative (e.g., using sun screen) behaviors. This research program thus has the potential to illuminate previously unrecognized factors in cancer risk prevention. By highlighting the importance of peoples' motivation to remove thoughts of death from consciousness and to defend against unconscious mortality concerns, education and interventions fostering cancer prevention can be markedly improved.

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- **Project Title: IMPLICIT ATTITUDES AND HIV RISK BEHAVIOR**

  Principal Investigator & Institution: Marsh, Kerry L.; Psychology; University of Connecticut Storrs Unit 1133 Storrs-Mansfield, Ct 06269

  Timing: Fiscal Year 2002; Project Start 15-JUN-2001; Project End 31-MAY-2005

  Summary: This revised application proposes studies to redress limitations in current research on HIV sexual risk. Previous research focuses on deliberative, belief-based attitudes toward sexual risk behaviors. Sexual contexts, however, epitomize situations in which systematic retrieval of one's beliefs about condoms and HIV prevention might often be minimal. Recent theoretical advances suggest that in such contexts, behavior should be better predicted by implicit attitudes. Implicit sexual attitudes are evaluative responses that are automatically and effortlessly evoked by cues in a sexual situation and involve feelings rather than verbally articulated thought. This research will use new response latency methods to assess implicit condom attitudes. In two studies, three hundred HIV-positive individuals will complete baseline self-report measures to assess their sexual behavior and explicit (belief-based) condom attitudes. Computerized priming and implicit association tasks will also be used at baseline to assess implicit attitudes toward condoms and risk-related behavior. Individuals at one clinic will continue to receive their regular treatment; individuals at the other clinic will begin a more intensive psychological intervention designed to make attitudes and sexual behavior become less risky. Six months later, all measures will be completed again. For both groups, implicit attitudes should predict subsequent sexual behavior (e.g., condom usage) in spontaneous contexts (e.g., occasional partners) better than will explicit attitudes, and the reverse is expected for deliberative situations (e.g., main partners). Individuals exposed to the intensive intervention should change implicit attitudes and reduce risky sexual behavior the most. Four other studies will test other hypotheses using 910 additional participants: (1) Implicit measures linking specific affective associations to condoms will be correlated with individual differences in relevant motives for sexual behavior and condom use (e.g., hedonic, social, fear). (2) Experimental manipulations (cognitive accessibility and affective priming techniques) that create transient changes in implicit attitudes will lead to short-term increases in condom-related behavior. Ultimately, understanding how automatically evoked condom attitudes associated with affective and motivational states impact sexual risk behavior may suggest a reexamination of aspects of interventions that might be impacting implicit (as well as explicit) attitudes-for example, the direct experience aspect of skills training.

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- **Project Title: INTERGROUP EMOTIONS, PREJUDICE, AND DISCRIMINATION**

  Principal Investigator & Institution: Mackie, Diane M.; Psychology; University of California Santa Barbara 3227 Cheadle Hall Santa Barbara, Ca 93106

  Timing: Fiscal Year 2002; Project Start 01-APR-2002; Project End 31-MAR-2007

  Summary: (provided by applicant): The research in this application tests an intergroup emotions theory (JET) approach to understanding prejudice and discrimination against out-groups, and in particular why negative reactions to out-groups are differentiated by situation, context, and occasion. According to JET, social identification with a group triggers intergroup appraisals: interpretations of situations or events according to whether they help or hurt relevant membership groups, rather than the individual self. When appraisals occur at this group level, intergroup emotions are experienced. Such emotions are experienced on behalf of the in-group, and the in-group and out-group

become the targets of emotion. Specific intergroup emotions lead to differentiated action tendencies and thus behavior, and also to changes in mental representations. Such differentiated outcomes occur because of and are mediated by specific intergroup emotions that have been triggered by particular appraisals of situations or events related to social identity. Four research projects involving 19 studies focus on key tests of the IET model. Project 1 focuses on the initial process of social identification and on the nature of intergroup emotions. Project 2 focuses on intergroup appraisals and emotions, and particularly the way in which the unique dynamics of intergroup contexts direct such appraisals and emotions. Project 3 is concerned with the consequences of intergroup emotions. Key experiments in this project assess whether intergroup emotions translate into distinct action tendencies and actual behavior, as well as changing the content of mental representations. Project 4 addresses the implications of lET for interventions that undermine or eliminate the negative reactions toward out-groups caused by intergroup emotions. Given the toll that stigmatization and intergroup violence takes on the mental health of individuals and societies, the research is socially relevant as well as theoretically important.

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- **Project Title: IRON DEFICIENCY, HIPPOCAMPAL DEVELOPMENT, AND LEARNING**

  Principal Investigator & Institution: Mcechron, Matthew D.; Neural and Behavioral Sciences; Pennsylvania State Univ Hershey Med Ctr 500 University Dr Hershey, Pa 17033

  Timing: Fiscal Year 2003; Project Start 11-AUG-2003; Project End 31-MAY-2005

  Summary: (provided by applicant): The goal of this project is to identify the neural mechanisms involved in the well-established link between dietary iron deficiency (ID) and developmental impairments in learning and cognition. The hippocampus is the most important learning and memory structure in the mammalian brain. The hippocampus is critical for learning tasks that require the association of complex sets of information, and in humans it is critical for cognitive performance. Numerous studies in animals have shown that the hippocampus is more susceptible to ID during early development compared to other brain regions. An extensive list of animal and human studies has shown that ID impairs the development of learning and cognitive ability, and some of these studies suggest that these learning impairments persist well into adulthood. Together these lines of evidence strongly suggest that dietary ID alters the development of the hippocampus, and these alterations in turn significantly impact the development of children's cognitive and learning ability. Very little is known about how the functional physiology of the hippocampus is affected by ID during development. Experiment 1 in this proposal will determine if ID in postnatal developing rats impairs hippocampal synaptic responsiveness. This experiment will also determine if these physiological impairments are related to deficits in hippocampus-dependent learning. The animal learning paradigm that will be used in all of the experiments in this proposal combines trace and contextual **fear** conditioning, both of which have been shown to be dependent on the hippocampus. Our preliminary data demonstrate that ID in developing postnatal rats impairs learning in both of these hippocampus-dependent tasks. Our previous studies in normal adult animals have shown that single neurons in the hippocampus exhibit learning-specific encoding of the trace interval duration. Experiment 2 in this proposal will determine if ID in postnatal developing rats impairs hippocampal single neuron encoding of the trace interval duration during trace **fear** conditioning. Experiment 3 will determine if ID during postnatal development produces

long-term impairments in hippocampal neurogenesis and hippocampus-dependent learning in young adult rats.

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- **Project Title: LIVER REGENERATION IN MAN--EFFECTS OR ADJUVANT THERAPY**

  Principal Investigator & Institution: Fong, Yuman; Associate Professor; Sloan-Kettering Institute for Cancer Res New York, Ny 10021

  Timing: Fiscal Year 2002; Project Start 01-JUL-1997; Project End 31-JAN-2006

  Summary: (provided by applicant): Cancers involving the liver are responsible for over one million deaths a year. At present, liver resection represents the only potentially curative treatment. However, in the majority of patients, tumor recurs, because microscopic disease remain undetected at the time of liver resection. This R01 is one of four submissions in an Interactive Research Project Grants. Using shared resources, including animal models, central isotope facility, Positron Emission Tomography (PET) facility, Magnetic Resonance (MR) facility, and patients, these grants seek to improve survival of patients with liver cancer. The current submission examines the cellular alterations underlying liver regeneration and the resultant biological determinants for the optional timing of adjuvant therapy after resection of tumors. In experimental models, the liver regenerative process stimulates growth of residual tumor. Adjuvant chemotherapy or oncolytic viral therapy strives to eradicate microscopic residual tumor. Theoretically, early adjuvant therapy is desirable. However, clinicians are reluctant to institute adjuvant therapy within four weeks after liver resection for **fear** that such therapy may detrimentally alter liver regeneration. In the previous grant study period, we showed that characteristic changes in cellular phospholipids and high energy phosphates can be detected by MR spectroscopy in animals and be used as a surrogate marker for liver recovery in planning of safe adjuvant therapy. We further demonstrated that such characteristic MR spectroscopic changes can be detected in man. Non-invasive measure of DNA synthesis by 124I-IUDR PET scanning was also validated in animals and used to predict safe administration not only of chemotherapy but also of 125I-IUDR as anti-tumor therapy. Two new advances that are reaching clinical testing and utilization are 1) pre-operative unilateral portal vein embolization as a means of producing contralateral liver hypertrophy to extend the possibilities of resective therapy, and 2) oncolytic viral therapies that also exploit cell proliferation for tumor targeting. In the current proposal, we seek to extend our MR spectroscopy observations to study of liver and tumor metabolism after portal vein embolization in order to characterize hepatocyte alterations during regeneration without the confounding issues of major surgery, but more importantly to determine if tumor proliferation is enhanced in man during regeneration. We also seek to determine if MR or PET can be used to determine tumor sensitivity and liver toxicity in response to viral oncolytic therapy. Finally, the use of 124I-IUDR PET validated in animals as a non-invasive measure of DNA synthesis in the previous grant period will be extended to a human trial. Thus, the specific goals of this application are to determine the comparative cellular proliferative rates of hepatocyte versus residual tumor after liver resection, to determine if these changes in proliferative rates can be determined non-invasively in vivo, with the hope that an adjuvant strategy exploiting the differential changes in tumor and hepatocyte proliferation may provide the basis for future therapy in man.

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- **Project Title: MAPK, LTP, AND FEAR MEMORY**

  Principal Investigator & Institution: Schafe, Glenn E.; Center for Neural Science; New York University 15 Washington Place New York, Ny 10003

  Timing: Fiscal Year 2002; Project Start 01-APR-2001; Project End 31-MAR-2003

  Summary: Pavlovian **fear** conditioning has received extensive experimental attention. Much of this work has focused on defining the neuroanatomical pathways and cellular events that underlie **fear.** In brief, studies have suggested that **fear** conditioning involves sensory transmission from thalamic and cortical areas to the lateral nucleus of the amygdala (LA), where alterations in synaptic transmission are thought to encode key aspects of the learning. In contrast to the progress that has been made at the systems level in **fear** conditioning, relatively little is known about the molecular mechanisms that underlie **fear** memory consolidation. To begin to define the molecular mechanisms that underlying conditioned **fear,** the following proposal is aimed at evaluating the role of mitogen-activated protein (MAP) kinase in both **fear** memory consolidation and in long-term potentiation (LTP) in the pathway between the auditory thalamus (MGm) and the LA, which is thought to undergo plastic changes that are necessary for **fear** conditioning. The first set of experiments will utilize behavioral, biochemical and immunohistochemical methods to determine whether activation of MAPK in the LA is necessary for **fear** memory consolidation. The second set of experiments will utilize in vivo electrophysiological, biochemical, and immunohistochemical methods to assess the involvement of MAPK activation in synaptic plasticity in the MGm-LA pathway. The third set of experiments will involve a MAPK activation in the LA impairs both memory consolidation of **fear** conditioning-induced neural plasticity in the LA in freely behaving animals. Investigation into the molecular mechanisms of conditioned **fear** in animals has both the potential to shed light on normal processes governing learning and memory in general, as well as implications for the etiology and treatment of various psychological disorders. In humans, including anxiety, phobic and panic disorders, in which **fear** is a prominent underlying symptom.

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- **Project Title: MEMORY FOR STIMULUS ATTRIBUTES**

  Principal Investigator & Institution: Riccio, David C.; Professor; Psychology; Kent State University at Kent Research & Graduate Studies Kent, Oh 44242

  Timing: Fiscal Year 2002; Project Start 01-OCT-1981; Project End 31-JUL-2005

  Summary: This abstract is not available.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: MIXED CHIMERISM TO TREAT SICKLE CELL DISEASE**

  Principal Investigator & Institution: Ildstad, Suzanne T.; Director; None; University of Louisville University of Louisville Louisville, Ky 40292

  Timing: Fiscal Year 2002; Project Start 16-AUG-1999; Project End 31-JUL-2004

  Summary: Sickle cell disease (SCD) is one of the most frequent of inherited hemoglobinopathies. Although the genetics and pathophysiology of the disease are well characterized, it was recently described as a "simple disease with no cure". Three percent of all African-Americans have SCD. Fifteen percent of patients die by age 20 and 50 percent by age 40. Bone marrow transplantation (BMT) has been demonstrated to cure SCD. However, the morbidity and mortality associated with conventional BMT, especially graft versus host disease (GVHD) and lethal conditioning, have limited the

widespread application of BMT to treat SCD. Only 20 percent of patients with SCD have an HLA-identical family member donor. For the remainder of patients who do not have a matched family member donor, a substantial risk for GVHD exists, since the incidence and severity of GVHD is directly correlated with the degree of genetic disparity between donor and recipient. It would be of significant impact if a nonlethal approach to achieve a mixed chimeric state in patients with SCD, with partial replacement of the defective RBC, could be achieved without substantial risk of GVHD. This study addresses the problems of (1) high toxicity; (2) **fear** of early mortality; and (3) lack of suitably matched donors, using a new approach to BMT. The goal is to reverse the risk/benefit ratio for BMT for patients with SCD. A novel donor bone-marrow-derived cell, separate from the hematopoietic stem cell (HSC), has been identified that facilitates engraftment of purified donor HSC in allogeneic recipients without producing GVHD. Because BMT has been demonstrated to cure SCD when an HLA-identical sibling donor is available, in AIM I we will APPLY THE FACILITATING CELL PROTOCOL TO CONVENTIONAL BMT FOR SICKLE CELL DISEASE. By processing the marrow to remove all undesired cells, we hope to enhance engraftment and avoid GVHD. In AIM II we will ESTABLISH A PARTIAL CONDITIONING APPROACH To MIXED CHIMERISM IN CHILDREN WITH SICKLE CELL DISEASE WHO DO NOT HAVE A SUITABLY MATCHED DONOR. We will MONITOR CHIMERISM AND IMMUNOLOGIC RECONSTITUTION in both cohorts of patients (AIM III). SCID is a chronic ailment with significant morbidity including painful crises, bacterial infections, missed school or work days, and frequent hospitalizations. In AIM IV, we will ASSESS QUALITY OF LIFE in patients who engraft as chimeras. Our overall objective is to apply BMT to treat SCD, yet avoid the morbidity and mortality of lethal conditioning, GVHD, and lack of suitably matched donors.

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- **Project Title: MOUSE MUTAGENESIS: PHENOTYPE-DRIVEN NEUROSCIENCE SCREENS**

  Principal Investigator & Institution: Takahashi, Joseph S.; Professor; Neurobiology and Physiology; Northwestern University 633 Clark Street Evanston, Il 60208

  Timing: Fiscal Year 2002; Project Start 01-APR-2001; Project End 31-MAR-2006

  Summary: The overall objectives of this proposal are to create a Center that will focus on large-scale ENU mutagenesis screens in five phenotypic domains relevant to the nervous system and behavior. We have carefully chosen to focus upon five phenotypic screens: 1) circadian rhythms, 2) **fear** conditioning, 3) vision, 4) neuroendocrine hormones, and 5) response to psychostimulants. In order for us to include a screen, we have established the following set of criteria: * the biological context of the phenotype must be mature and of significance to neuroscience; * the characterization of mutants in the phenotypic class is well established; * the phenotypic screen must be amenable to automation and scaling; * the initial screen must be capable of a throughput of at least 10,000 mice per year; * the investigators involved in the screens and their follow up must be leading experts in the field. Our aims are: 1. To conduct a large-scale, genome-wide, phenotype-driven ENU mutagenesis screen for recessive mutations that targets five domains influencing the nervous system and behavior. 2. To screen, isolate and characterize mutations that alter the circadian phenotype of mice. 3. To screen, isolate and characterize mutations that alter context- dependent and cued **fear** conditioning in mice. 4. To screen, isolate and characterize mutations that alter vision using three different methods: electroretinogram (ERG), visually evoked potentials (VEP) and fundus photography. 5. To screen, isolate and characterize mutations that alter the

hypothalmic-adrenal (HPA) axis and the hypothalamic-thyroid (HPT) axis. 6. To screen, isolate and characterize mutations that alter the response of mice to psychostimulant treatment. 7. To act as a national resource for mouse mutants by providing rapid access to phenotypic screening analyses "online" so that mice are accessible to the greater scientific community. As the human genome project progresses and the sequences of more human and mouse genes are determined, the function of a large number of genes will not be predictable by sequence and expression alone. Phenotype-driven mutagenesis screens provide an important approach to understand the function of these genes.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: NEURAL ANALYSIS OF MATERNAL AGGRESSION IN RODENTS**

  Principal Investigator & Institution: Gammie, Stephen C.; Zoology; University of Wisconsin Madison 750 University Ave Madison, Wi 53706

  Timing: Fiscal Year 2003; Project Start 01-JUL-2003; Project End 31-MAY-2007

  Summary: (provided by applicant): To help understand and mitigate human aggression, it is critical to develop appropriate animal models to understand all the different forms of aggression. Maternal aggression is a fierce aggression exhibited towards intruders by lactating female rodents when they are protecting their pups, that may share similarities with other short-lived, but fierce forms of human aggression. The goal of this proposed research, submitted by a new investigator, is to examine the neural basis of maternal aggression in mice. During lactation, decreases in corticotropin releasing hormone (CRH) neurotransmission have been linked to decreases in **fear** and anxiety. Because maternal aggression is high when **fear** and anxiety are low, it is possible that decreases in **fear** are necessary for a dam to be able to attack a normally **fear** evoking stimulus. Despite a possible link to maternal aggression, no work has systematically examined whether, or how, CRH plays a role in the control of this important social behavior. The studies proposed here test the hypothesis that regulation of CRH during lactation plays a necessary role in switching on maternal aggression. Consistent with this hypothesis we have collected evidence that intracerebroventricular (icv) injections of CRH inhibit maternal aggression and that decreases in endogenous CRH due to developmental intervention increase levels of maternal aggression. The three studies of this proposal will extend these preliminary findings and use multiple approaches to investigate further the role of CRH in maternal aggression. 1) Conduct icv injections of CRH, and a related peptide, urocortin III, and two CRH receptor antagonists to the lateral ventricle to determine the effect on maternal aggression. 2) Examine whether and where levels of CRH mRNA are decreased in mice that exhibit increased levels of maternal aggression due to a developmental intervention. 3) Examine levels of maternal aggression in mice that are missing either the CRH receptor 1 gene, or the CRH receptor 2 gene relative to control mice. Each study will also use indirect markers for neuronal activity, cFOS and FosB, to identify brain regions where CRH may be interacting with maternal aggression circuitry. Many studies have focused on male aggression, but far less is known about the neural basis of female aggression and preliminary results indicate that CRH has the opposite effect on male and maternal aggression. Basic research into sex differences in aggression, then, is important to understanding the biological underpinnings of sex and gender differences in social behavior, health, and disease.

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- **Project Title: NEURAL CIRCUITS IN WOMEN WITH ABUSE AND PTSD**

  Principal Investigator & Institution: Bremner, J Douglas.; Associate Professor; Psychiatry and Behavioral Scis; Emory University 1784 North Decatur Road Atlanta, Ga 30322

  Timing: Fiscal Year 2003; Project Start 10-APR-1999; Project End 31-JUL-2006

  Summary: (provided by applicant): This is a second revision of an application for competitive renewal of MH56120, a research program for the study of neural correlates of childhood sexual abuse-related posttraumatic stress disorder (PTSD) in women. In the initial funding period studies used magnetic resonance imaging (MRI) and position emission tomography (PET) to show smaller hippocampal volume and failure of hippocampal activation with memory tasks in women with abuse-related PTSD. The PI now proposes to continue studies of neural correlates of abuse-related PTSD with a focus on the amygdala, which has been shown in animal studies to play a critical role in conditioned **fear** responses, and the medial prefrontal cortex, which is felt to be involved in extinction of **fear** responses. Preliminary data collected by the PI with PET showed increased amygdala activation with acquisition of conditioned **fear** responses, and a failure of medial prefrontal cortical activation during extinction of **fear** responding, in women with abuse-related PTSD. Newly analyzed skin conductance (SC) data from this study confirmed the ability of this paradigm to produce conditioned responses. The PI now proposes to compare neural and SC correlates of conditioned **fear** responses in women with childhood sexual abuse-related PTSD compared to abused women without PTSD, non-abused women without PTSD, and non-abused women with PTSD from adult civilian trauma. The specific aims of this competitive renewal are therefore to: 1) compare amygdala activation during acquisition of **fear** responding between PTSD and comparison groups. We hypothesize increased amygdala activation during acquisition of **fear** responses in PTSD; 2) compare medial prefrontal cortical function during extinction of **fear** responses between PTSD and comparison groups. We hypothesize a failure of medial prefrontal cortical activation during extinction in PTSD; 3) assess the relationship between SC responses and brain activation. We hypothesize increased SC responses will correlate with increased amygdala/decreased prefrontal function in PTSD. Secondary exploratory analyses will compare brain activation patterns in early onset to adult onset PTSD.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: NEUROBIOLOGY OF PRIMATE SOCIAL BEHAVIOR**

  Principal Investigator & Institution: Amaral, David G.; Professor; Psychiatry; University of California Davis Sponsored Programs, 118 Everson Hall Davis, Ca 95616

  Timing: Fiscal Year 2003; Project Start 08-AUG-1998; Project End 31-JUL-2008

  Summary: (provided by applicant): We propose a continuation and extension of studies designed to analyze the neurobiological basis of social behavior in macaque monkeys. The overarching goal of this program is to determine which neural systems are specialized to process socially relevant information and to guide social behavior. During the first four years of this program, we established the physical and personnel infrastructure to examine the effects of brain manipulations on conspecific social behavior in adult and infant rhesus monkeys. In particular, we established highly successful protocols of animal husbandry that allow infants, following lesions at two weeks of age, to be raised by their biological mothers and to participate in daily socialization that insures normal socioemotional development. Contrary to our initial hypothesis, investigations conducted thus far indicate that the amygdala is not essential for normal social behavior in the adult, and is not necessary for gaining social

knowledge during development. Our findings are consistent with the hypothesis that the amygdala is a danger detector. It functions, in part, to evaluate objects and organisms in the environment as potential threats and then marshals an appropriate response. Interestingly, lesions of infant subjects produce greater social **fear** despite the absence of the amygdala and the lack of **fear** of objects! In the next funding period, we propose to follow the further development of socioemotional, sexual and maternal behavior of the 16 monkeys that received lesions of the amygdala or hippocampus at two weeks of age. We also propose to use high-resolution positron emission tomography (microPET) to evaluate brain plasticity resulting from the early lesions and to search for the neural substrates of the abnormal social **fear** that we observe in infant monkeys with amygdala lesions. We will also introduce a new genetic method, using viral transfection of the amygdala with the gene for the Drosophila allatostatin receptor, for producing selective and reversible inactivation of the amygdala in freely behaving monkeys. Finally, we will study adult animals with lesions of the orbitofrontal or medial dorsal frontal cortex in an attempt to define the neural network associated with normal social behavior. While these studies are designed to investigate the neural networks for normal socioemotional cognition, we believe that our findings will have important implications for disorders such as autism, social phobia and anxiety.

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- **Project Title: NEUROENDOCRINE AND BEHAVIORAL ACTIONS OF CORTICOTROPIN R**

  Principal Investigator & Institution: Majzoub, Joseph A.; Professor; Children's Hospital (Boston) Boston, Ma 021155737

  Timing: Fiscal Year 2002; Project Start 23-JUN-1995; Project End 31-MAR-2004

  Summary: The overall goal of this project is to better understand how corticotropin-releasing hormone (CRH) and other CRH-like molecules allow mammals to respond successfully to stress. Mouse models will be studied to take advantage of gene knockout and replacement methods that we and others have created. 3 broad areas will be addressed: 1. The activation during stress of endocrine responses; 2. The activation during stress of behavioral responses; and 3. The suppression during stress of appetite and reproduction. Specifically: 1. Are glucocorticoids necessary for life? Adrenal insufficiency causes death, whereas CRH-deficient mice have a normal lifespan despite extremely low (but detectable) levels of glucocorticoid. We will determine it CRH deficiency prevents death in the face of complete glucocorticoid deficiency. If so, this will show that glucocorticoids are not essential for mammalian survival. What is the function of the circadian rhythm in ACTH? We will test the hypothesis that the daily rise in blood ACTH in normal mice functions to maintain basal adrenal integrity by preventing adrenocortical apoptosis. What are the relative roles of CRH and vasopressin (VP) in the stress-induced and circadian activation of the pituitary adrenal axis? We will study mice with deletions in the CRH, VP or both CRH and VP genes, which will be analyzed for their hypothalamic, pituitary and adrenal responses to acute and chronic stressors, as well as to circadian cues. 2. What is the identity of the CRH receptor 1 ligand that mediates **fear** responses in CRH knockout mice? Is it urocortin, or a new, mammalian CRH-like peptide? 3. What is the role of CRH and related molecules in the suppression of appetite and reproduction during the stress response?

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- **Project Title: NPSF JOINT MEDICAL-LEGAL CONFERENCE AT SMU**

  Principal Investigator & Institution: Nance, John J.; National Patient Safety Foundation 515 N State St, 8Th Fl Chicago, Il 60610

  Timing: Fiscal Year 2003; Project Start 01-APR-2003; Project End 31-MAR-2004

  Summary: It is widely believed among the medical and legal professions that a system for reporting and discussing medical errors is crucial to improving the safety of all patients served by the healthcare system. However, among the many factors blocking open reporting, the most damaging is the uniform **fear** of legal consequences. The NPSF Joint Medical-Legal Conference at SMU (hereafter referred to as the Conference) begins an unprecedented dialogue and joint effort between the legal and medical professions to generically identify and move toward those commonly-held goals both professions constantly cite: The protection of the health and the rights of patients from unnecessary injury or death in the course of medical practice. The Conference will achieve this by bringing together an equal number of highly qualified and knowledgeable experts from the medical and legal professions to: Increase interdisciplinary knowledge and understanding. Engage in dialogue that will serve as a foundation for the development of model statues, procedures, and regulatory standards that encourage and enable aggressive communication among healthcare professionals of critical information about adverse medical outcomes, while preserving the essential rights and abilities of legitimate plaintiffs to recover from truly tortious, injurious conduct. Identify and prioritize short-and long-term actions that need to be taken to include writing, publishing, and disseminating a Conference summary document. The crucial importance of this Conference is based on the past decade of growing knowledge and alarm that the public is suffering from a preventable epidemic of medical mistakes and accidents which kill, injure, or threaten an unacceptably large percentage of patients each year. There is a growing understanding that a majority of injurious medical mistakes result, at least in part, from the generic failure of healthcare professionals to openly exchange vital information. The proposed conference dates are March 6, 7, 8, 2003.

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- **Project Title: PANIC DISORDER, PARENTING AND INFANT NEUROBIOLOGY**

  Principal Investigator & Institution: Warren, Susan L.; Assistant Professor; Psychiatry and Behavioral Scis; George Washington University 2121 I St Nw Washington, Dc 20052

  Timing: Fiscal Year 2003; Project Start 01-APR-2003; Project End 31-JAN-2008

  Summary: (provided by applicant): This research will test models concerning the impact of specified parenting behaviors in combination with severe symptoms of parental anxiety, environmental risk and protective factors, in a high-risk sample of children of parents with panic disorder (PD), in order to examine child **fear** arousal across the first two years of life. Four-month infants from two parental diagnostic groups will be studied in order to increment the likelihood of risk: eighty infants with PD mothers and eighty infants of mothers without psychopathology. Infant fearful behaviors in response to novel stimuli and neurobiological indicators of arousal (baseline and potentiated startle, salivary cortisol and sleep disturbances), along with parental anxiety symptoms, specified parenting behaviors, and environmental risk and protective factors, will be assessed at four, fourteen and twenty-four months of age. Caregiver-infant interactions are expected to play an important role in contributing to increasing infant fear-arousal for constitutionally vulnerable infants during this period. This research will provide

information concerning which particular factors might contribute to increasing child fear-arousal across the first 2 years of life.

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- **Project Title: PERCEPTION AND MODULATION OF VISCERAL SENSATIONS**

  Principal Investigator & Institution: Mayer, Emeran A.; Medicine; University of California Los Angeles 10920 Wilshire Blvd., Suite 1200 Los Angeles, Ca 90024

  Timing: Fiscal Year 2002; Project Start 30-SEP-1996; Project End 31-MAY-2006

  Summary: (Applicant's Abstract):The long range goal of this proposal is to develop a better understanding of CNS mechanisms involved in the generation of altered bowel habits and abdominal pain in Irritable Bowel Syndrome (IBS). The current proposal is based on the general hypothesis that these symptoms result from an enhanced responsiveness of central stress circuits, which manifests in altered autonomic responses, and alteration in endogenous pain modulation systems in responses to stressors. The investigator will test the following 3 main hypotheses: 1) lBS patients show enhanced perceptual, attentional, emotional and autonomic responses to acute psychological stress and to learned (conditioned) **fear;** 2) In response to acute psychological stress and to learned **fear,** IBS patients, compared to healthy controls, show decreased activation of brain regions which have noradrenergic (NE) innervation and which are part of central stress circuits (incl. amygdala, hippocampus, perigenual cingulate cortex, thalamus and periaqueductal grey); 3) The difference in regional brain activation is related to differences in central NE release between lBS patient and controls. Enhanced regional NE release in lBS patients is related to enhanced responsiveness of ascending NE pathways, which plays a central role in the mediation of responses to stress. We will compare responses of non-constipated lBS patients and healthy controls, using validated measures of autonomic function (skin conductance, heart rate variability, plasma epinephrine), psychophysical measures of viscera sensitivity, and functional brain imaging techniques (H2 150-PET, fMRI and EEG) with different spatial and temporal resolution. We will also test specific hypotheses related to gender differences in central and peripheral responses. In Aim 1, the investigator will characterize the effect of two acute, validated laboratory stressors on perceptual, emotional, autonomic and regional brain responses to rectal distension. In Aim 2, the PI will evaluate the differential effect of conditioned **fear** to visceral and somatic stimuli on these responses. In Aim 3, the investigator will determine the effect of pharmacologically (yohimbine) induced enhanced central NE release, on regional brain metabolism, cerebral blood glow and electrical response during conditioned **fear.** The investigator expects that in LBS patients, the greater NE release in response to psychological stressors, learned **fear** and to yohimbine will be reflected in a biphasic brain activation pattern: An enhanced early response (detected by EEG, and reflecting enhanced activity of arousal systems), and a reduced later response, secondary to postsynaptic inhibition by excessive NE release (detected by fMRI and PET).

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- **Project Title: PHARMACOLOGIC MECHANISMS OF FALLS AND SWAY IN ELDERLY**

  Principal Investigator & Institution: Pepper, Ginette A.; Professor, Colby Endowed Chair; None; University of Colorado Hlth Sciences Ctr P.O. Box 6508, Grants and Contracts Aurora, Co 800450508

  Timing: Fiscal Year 2002; Project Start 01-SEP-2002; Project End 31-MAY-2003

Summary: (provided by applicant) Drugs are one of the presumed causes of falls in the elderly. Research has not addressed the pharmacologic mechanisms whereby drugs cause falls. Most medicines associated with falls have anticholinergic activity, but other possible mechanisms are sedation and postural hypotension. This is a pilot study t ascertain plausibility of the hypothesis that anticholinergic activity is a pharmacologic mechanism of drug-induced falls. This study also examines the relationship of postural sway (a measure of static balance), dynamic balance, and **fear** of falling with pharmacologic properties of drugs. The aims of this project are to describe falls associated with medications; estimate the fall risk associated with anticholinergic drugs; ascertain the amount of variance in the dependent variables (postural sway, dynamic balance, and **fear** of falling) explained by selected predictor variables (anticholinergic dose, sedation, and postural sway); and compare postural sway at peak and trough of anticholinergic activity. The study is a longitudinal descriptive correlational design. After a preliminary study of 10 subjects to refine study procedures, 110 elderly taking drugs associated with fall with be recruited from community locations. Subjects will be assessed on the predictor variables of anticholinergic dosage (in atropine equivalents computed across all drugs), postural hypotension, and sedation (measured by the Mood Rating Scale and the Digit Symbol Substitution Test), as well as on the dependent variables of postural sway (area of the ellipse, sway velocity, and lateral sway measured using biochemical force platform), functional dynamic balance (Berg Balance Scale) and **fear** of falling (Modified Falls Efficacy Scale). Fall events (falls, near falls) during 12 months and time to first fall event will be ascertained by fall diaries, postcards, and telephone interview. A subsample of 40 patients taking either drugs with anticholinergic properties or taking no drugs with anticholinergic properties will be compared on sway at projected time of peak and trough drug levels. Analysis will include descriptive statistics, logistic regression, content analysis, stepwise multiple regression, and repeated measures ANOVA. Explanation of significance variance in falls or postural sway by anticholinergic dose and increased postural sway at time estimated peak drug levels would indicate anticholinergic activity is a tenable mechanism of drug-induced falling in the elderly. If there is anticholinergic dose effect, elderly adults with high fall risk should be prescribed alternative medications with similar therapeutic effects, but smaller impact on falls.

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- **Project Title: PHENOTYPICAL EXPRESSION OF ANXIETY AND SLEEP**

  Principal Investigator & Institution: Sanford, Larry D.; Associate Professor; Pathology and Anatomy; Eastern Virginia Medical School Norfolk, Va 23507

  Timing: Fiscal Year 2002; Project Start 30-SEP-1999; Project End 31-MAY-2004

  Summary: (adapted from the applicants' abstract) The long-term goal of this project is to further the understanding of how emotional factors influence sleep. Emotional state has a strong influence on sleep quality and amount. This statement can be attested to by almost everyone, and it is factually supported by the observed role of emotional factors in human sleep medicine, particularly sleep disorders related to a psychiatric condition. However, the role of emotion has virtually been ignored in basic sleep research, possibly because of the lack of a clear anatomical focus, or perhaps because of a lack of established models. It is now becoming increasingly apparent that the amygdala, the limbic center of emotion, has a strong modulatory role in the control of sleep. Inbred mouse strains are being examined in order to find models of anxiety and mood disorders. The investigators plan to study sleep in inbred mouse strains with differences in emotional reactivity in order to begin to understand how genetics and the

environment interact in producing the effects of emotion on sleep. The investigators' strategy is to : 1) establish protocols for studying how emotion affects sleep in inbred mouse strains, 2) identify the anatomical regions that could account for strain differences in emotional reactivity as it affects sleep, and 3) determine the functional significance of these regions in the control of emotion and sleep. To accomplish these goals, the investigators will examine the effect of **fear** conditioning on sleep, identify the activated brain areas that affect sleep and examine the function of these regions by selectively preventing their activation in response to **fear** conditioning. These studies will help elucidate into how stress, emotion and environmental factors influence sleep. This work will advance the understanding of how stress and anxiety affect sleep and may give insight into sleep disorders such as insomnia and into mental disorders in which sleep is affected. The investigators findings may be especially relevant to posttraumatic stress disorder (PTSD), which is typically characterized by a prominent sleep disturbance in the aftermath of exposure to a psychologically traumatic stressor.

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- **Project Title: PILOT--COLLECTIVE EFFICACY, CULTURE, RELIGION-LATINO NEIGHBORHOOD QUALITY OF LIFE**

  Principal Investigator & Institution: Cancino, Jeffrey M.; University of Texas San Antonio San Antonio, Tx 78249

  Timing: Fiscal Year 2003; Project Start 01-AUG-2003; Project End 31-JUL-2006

  Summary: Guided by social disorganization theory and the emerging concept of collective efficacy, the proposed research seeks to identify neighborhood structural characteristics (e.g., poverty) and social processes (e.g., collective efficacy) that influence citizens' assessment of quality of life (e.g., **fear** of crime) across San Antonio Hispanic/Latino neighborhoods. However, this research does not exclusively focus on neighborhood social processes of collective efficacy; instead, alternative mechanisms of neighborhood informal social control, such as the Hispanic culture and religion are also investigated. Using survey, systematic social observation, census, and official incident crime data, hierarchical linear modeling (HLM) is used to examine the effects of neighborhood structural and social features on citizens' perception of quality of life. There is a possibility that Hispanic/Latino neighborhoods possess unique mechanisms of social control based on cultural and religious characteristics, which may explain the relatively favorable physical and mental health of Hispanic/Latino citizens (Scribner, 1996), as well as other citizens living among such neighborhoods. The investigation of the role that culture and religion play in facilitating social control is important, because research indicates that minority neighborhoods face difficult challenges in developing collective efficacy (Sampson et al., 1999). The broad, long term objectives are to: (1) reduce the structural barriers (e.g., poverty) that threaten the physical health of citizens (e.g., victims), (2) improve the social processes that influence citizens' assessment of quality of life, and (3) increase the capacity of Iocal commumities to solve social problems (e.g., crime). Understanding the neighborhood context in which a person lives is important for improving quality of life.

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- **Project Title: PLASTICITY IN UNITARY SYNAPTIC CONNECTIONS**

  Principal Investigator & Institution: Madison, V D.; Associate Professor; Molecular and Cellular Physio; Stanford University Stanford, Ca 94305

  Timing: Fiscal Year 2002; Project Start 01-JUN-2002; Project End 31-MAY-2007

Summary: (provided by applicant): Synaptic plastic processes such as long-term potentiation (LTP) and long-term depression (LTD) play a central role in virtually all models that seek to explain learning and memory at a cellular level. Beyond even that, LTP and LTD are found in many brain areas and have been proposed to play a role in a wide range of neural functions and disorders. Neural functions from **fear** and emotion, through memory to addiction have been proposed to have a basis in these plastic processes. Therefore, the understanding of the mechanisms that underlie this plasticity will provide wide-ranging benefits not only to understanding normal brain function, but also to many neurological disorders. The study of LTP and LTD have been plagued by conflicting theories and experimental results that has in many cases slowed progress in understanding the underlying mechanism of these neuronal properties. Much of this confusion, we believe, has arisen from technical limitations of experiments that have, by necessity, relied exclusively on measures of synaptic plasticity in large populations of synapses. Since synapses can be found in a variety of plastic states, e.g. naive, potentiated, depressed, and populations of synapses almost certainly contain all these states and more, experimental manipulations may provide confusing results. Much as patch clamp recording, where the activity of a small number of ion channels could be recorded in isolation, revolutionized the study of ion channel function. the field of synaptic plasticity could benefit from experiments where very small numbers of synapses could be selectively studied and manipulated. In this proposal, we employ a method where we can record the activity of small numbers of synapses (1-10) identify their plastic state, and experimentally manipulate that state. By doing so, we can study the transitions between different plastic states in cases where we know the history of the synapses under study. In our preliminary studies, we have already clarified several issues relating to the mechanisms of synaptic plasticity and expect that the experiments in this proposal will greatly expand our knowledge of these mechanisms.

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- **Project Title: PREFRONTAL AMYGDALA INTERACTIONS IN FEAR CONDITIONING**

  Principal Investigator & Institution: Quirk, Gregory J.; Associate Professor; Physiology; Ponce School of Medicine Industrial Park Ponce, Pr 007327004

  Timing: Fiscal Year 2003; Project Start 01-AUG-1998; Project End 31-JUL-2008

  Summary: (provided by applicant): This proposal addresses a fundamental issue in emotion research, namely, what are the neural circuits of **fear** extinction? **Fear** extinction is the decrease in **fear** responses that normally occurs when a conditioned stimulus (CS) is repeatedly presented in the absence of the unconditioned stimulus (US). Since Pavlov, we have known that extinction does not erase the CS-US association but is new learning. While the neural circuits of **fear** conditioning are well understood, little is known about the neural circuits of **fear** extinction, which are thought to be compromised in post-traumatic stress disorder (PTSD) and other anxiety disorders. Using auditory **fear** conditioning in rats, we will investigate the neural circuits of **fear** extinction. While the amygdala is critical for acquisition and expression of conditioned **fear,** the medial prefrontal cortex (mPFC), which is reciprocally connected with the amygdala, has been implicated in the consolidation and expression of extinction learning. The central hypothesis of this proposal is that the prefrontal - amygdala system mediates the acquisition, consolidation, and expression of **fear** extinction. Specific Aim 1 will examine the prefrontal-amygdala system in the acquisition phase of **fear** extinction, using lesion techniques and single-unit recording in behaving rats (hypothesis: the basal nucleus of the amygdala is responsible for short-term memory for **fear** extinction, as indicated by

lesion deficits and a sub-population of basal neurons that increase their tone responses during extinction). Specific Aim 2 will examine the prefrontal-amygdala system in the consolidation phase of **fear** extinction, using pharmacological inactivation, local inhibition of protein synthesis and NMDA receptors, and single-unit recording in behaving rats (hypothesis: extinction triggers subsequent NMDA activation and protein synthesis resulting in increased prefrontal tone responses and long-term extinction memory). Specific Aim 3 will examine the prefrontal-amygdala system in the expression phase of **fear** extinction, using electrical stimulation, and single-unit recording in anesthetized rats (hypothesis: increased activity of prefrontal neurons after extinction reduces freezing by inhibiting the response of amygdala central neurons to conditioned tones). A detailed knowledge of the circuits and pharmacology of **fear** extinction could improve current exposure-based treatments for PTSD and phobias, which rely on extinction learning.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: PREVALENCE AND IMPACT OF GLAUCOMA AMONG THE VERY ELDERLY**

  Principal Investigator & Institution: Friedman, David S.; Ophthalmology; Johns Hopkins University 3400 N Charles St Baltimore, Md 21218

  Timing: Fiscal Year 2002; Project Start 04-JUN-2001; Project End 31-MAY-2004

  Summary: (Applicant's Abstract) Glaucoma prevalence increases with age with rates as high as 5% among whites and 10% among blacks in their seventies. Previous population-based surveys give poor estimates of the prevalence of glaucoma among those over 75 years of age. The proposed research will obtain solid estimates of glaucoma prevalence rates among the most rapidly increasing segment of the United States population, individuals 75 years of age and older. The planned research will supplement an already scheduled evaluation of a large multiracial cohort of older individuals that will take place in June 2001 in Eastern Maryland. The Salisbury Eye Evaluation project (SEE), initiated in August 1992, is an ongoing population-based cohort study of 2,520 people who are now 74 to 93 years old. Study participants have not been systematically evaluated for glaucoma. In addition to determining the burden of glaucoma among the oldest old, the proposed study will assess the impact of visual field loss on function. SEE investigators are not only collecting patient-reported assessments of their ability to perform activities of daily living, they are also administering performance-based tests of physical function. These include tests of balance, mobility and performance of routine tasks. The current proposal, by improving the quality of visual field testing and providing eye examinations by glaucoma specialists will not only identify glaucoma cases, but will also determine the impact of varying degrees of glaucomatous and non-glaucomatous visual field loss on function. Specifically, the current research will explore the effect of visual field loss on patient mobility, patient-reported falls and **fear** of falling, and limitations in activities of daily living. The extensive data being collected on physical and cognitive comorbidities will allow for adjustments in the analysis so that the impact of visual field loss can be assessed independently from these factors. Finally, the interactions between comorbidities (including cognitive deficits) and visual field loss will be explored.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: PREVENTING HIV/AIDS IN TEEN MOTHERS AND THEIR PARTNERS**

  Principal Investigator & Institution: Koniak-Griffin, Deborah; Professor; None; University of California Los Angeles 10920 Wilshire Blvd., Suite 1200 Los Angeles, Ca 90024

  Timing: Fiscal Year 2002; Project Start 01-JUL-2000; Project End 31-MAR-2005

  Summary: Adolescent mothers are at risk for acquiring HIV/AIDS through heterosexual sex. Their intimate partners are often teen fathers who engage in multiple HIV risk behaviors, including sexual behaviors, illicit drug use, and needle-sharing for body-piercing and tattoos. Many have a history of gang involvement and incarceration. Being in a monogamous relationship and **fear** of negative partner attitudes have been identified as important barriers to condom use for adolescent mothers. Yet, preliminary studies indicate that 1) young fathers do not perceive sexual activity outside their main relationship to conflict with their monogamous status; and 2) a 50 percent break-up rate within 12 months is reported for parenting adolescent couples. Despite teens' misperceptions about relationship stability, current romantic connections may provide the key to building skills needed to maintain safer sex with current and future partners. The exclusion of male partners from scientifically evaluated HIV prevention programs represents a serious research gap. This experimental study will evaluate the impact of a program attended by parenting adolescent couples on their safer sex practices. The sample of 286 couples will be composed of high-risk, predominantly Latino youth. Recruited from alternative schools in Los Angeles County, couples will be randomly assigned to the experimental or control condition. The experimental condition consists of a 12-hour HIV prevention program presented in 6 sessions. The curriculum, based on the CDC model "Be Proud! Be Responsible!" is adapted and expanded for the targeted population by using feelings of maternal protectiveness and paternal responsibility to promote safer sexual behaviors. Activities include small group discussions in combined and gender-separated groups, interactive games, skill-building exercises (conflict and sexual negotiation, condom use), and a presentation by an HIV- positive mother. Cultural issues related to gender and power are addressed throughout. The control condition is a 1-hour AIDS education session (videotape followed by a short discussion period). The programs will be offered in community-based settings (e.g., recreational facilities and libraries). Participants will be evaluated on primary outcomes (sexual risk behaviors) and intermediate outcomes (social cognitive factors related to HIV prevention) through individual interviews at baseline, immediately post-intervention, and at 3-, 6-, and 12- month follow-up. It is hypothesized that by addressing issues of gender and power while providing social-cognitive skill-building learning experiences within the context of a romantic relationship, sexual risk-taking will be reduced in adolescent mothers and fathers.

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- **Project Title: PSYCHOBIOLOGICAL STUDIES OF STRESS IN YOUNG CHILDREN**

  Principal Investigator & Institution: Gunnar, Megan R.; Professor; Institute of Child Development; University of Minnesota Twin Cities 200 Oak Street Se Minneapolis, Mn 554552070

  Timing: Fiscal Year 2002; Project Start 10-AUG-2001; Project End 31-JUL-2006

  Summary: (provided by applicant): The overarching goals of this research program are to understand the psychosocial regulation of stress physiology in early childhood and the relations of stress system activity to children's socioemotional development. We

focus on cortisol, a hormone produced by the Limbic-Hypothalamic-Pituitary Adrenocortical (LHPA) system. Theoretically, frequent prolonged elevations in cortisol increase risk of physical and emotional disorders (allostatic load model, CRH-model of anxiety/depression). Early experience animal studies suggest that variations in care help shape responsivity of the LHPA axis and the neurobiological substrate of fear/anxiety. Studies in children suggest that temperament correlates with children's vulnerability to the normal challenges of early life (e.g. separation, interactions with peers). We seek to understand how and whether sensitive adult care from parents and child care providers and the development of one facet of child regulatory competence (effortful control) modifies cortisol responsivity for more temperamentally vulnerable (fearful/anxious, angry/reactive) youngsters. We further examine the role of peer relationships (acceptance/rejection, dominance, lack of friends, and support/conflict in friendships) in mediating and/or moderating temperament-cortisol associations for children in group-care settings. Both naturalistic (home-based childcare and nursery school) and laboratory assessments are planned. The laboratory assessment will allow (1) objective measures of temperament to be obtained for export to the studies in naturalistic settings and (2) exploration of the roles of adult-child relationship and regulatory processes in moderating relations between cortisol responsivity and electrophysiological measures of the presumed neural substrate of fear/anxiety: fear-potentiated startle, and the tone of the sympathetic, pre-ejection period or PEP, and parasympathetic, respiratory sinus arrhythmia or RSA, arms of the autonomic nervous system (ANS). This work should help integrate research on the physiological basis of fearful/anxious temperament with the work on psychosocial regulation of stress in early childhood. We argue that normative developmental research complements and provides basic data necessary for research and theory on developmental psychopathology.

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- **Project Title: PSYCHOPHYSIOLOGY OF ADAPTATION--CHILDREN IN HEAD START**

  Principal Investigator & Institution: Blair, Clancy B.; Assistant Professor; Human Development and Family Studies; Pennsylvania State University-Univ Park 201 Old Main University Park, Pa 16802

  Timing: Fiscal Year 2002; Project Start 02-AUG-2001; Project End 31-JUL-2004

  Summary: (provided by applicant): The proposed project examines the physiological and psychological developmental origins of adaptive behavior and engagement in the classroom among children in Head Start. The primary thesis of this application is that individual differences in heart rate variability as assessed by vagal tone and in emotionality as assessed by measures of temperament have important implications for young children's readiness to learn. Specific objectives are to examine individual differences in vagal tone and emotionality and relate them to assessments of executive function and of behavior in the classroom. Prior work has noted relations between vagal tone and emotionality among middle SES samples but no study to date has examined relations between these variables among children facing socioeconomic disadvantage. Prior work has also noted relations between attention and anxiety in adult samples but no study has explicitly examined relations among negative emotionality, regulation, and executive function among children at risk for school failure. Neuroscientific study of the mind suggests relations among negative, particularly fearful, emotionality and the attention, planning, and problem solving abilities that comprise executive function. The developmental implications of these relations for child competence in school, however,

have not been previously investigated. One hundred participants will be seen during the Head Start year and followed into kindergarten. During the spring of participants' Head Start year information will be collected on child emotionality, vagal tone, executive function, language, and classroom behavior. During the spring of participants' kindergarten year, information on child academic skills and classroom behavior will be collected. It is expected that the proposed research can provide valuable information with which to promote readiness among children at risk for school failure, and lay the foundation for ongoing programmatic investigation of school adjustment by the principal investigator and his graduate students. The proposed investigation extends the study of relations between emotionality and school adjustment downward to preschool and kindergarten age ranges, and goes beyond prior work to model developmental relations between cognition and emotion in the study of children's school adjustment and readiness to learn.

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- **Project Title: QUALITY OF LIFE INTERVENTION IN BREAST CANCER SURVIVORS**

  Principal Investigator & Institution: Dow, Karen Hassey.; Professor and Research Coordinator; Nursing; University of Central Florida 12443 Research Pky, Ste 207 Orlando, Fl 32828

  Timing: Fiscal Year 2002; Project Start 01-SEP-2001; Project End 31-MAY-2005

  Summary: (provided by applicant): Problems that negatively affect quality of life (QOL) are a major concern among more than 1.7 million breast cancer survivors in the United States. QOL is considered a multidimensional construct that incorporates dimensions of physical, psychological, social, and spiritual well-being. The purpose of this study is to test the effectiveness of an individualized, multidimensional quality of life intervention (Breast Cancer Educational Intervention [BCEI]) on QOL for women with newly diagnosed, early stage I or II breast cancer in the first year after initial treatment. The BCEI is based on extensive preliminary research studies by the investigators. The five selected QOL problems of fatigue, pain, **fear** of recurrence, sexuality concerns, and meaning in illness were targeted as high priority areas based on a preliminary study of 298 breast cancer survivors. The specific aim of this study is to test the effectiveness of the Breast Cancer Educational Intervention (BCEI). Three hypotheses will be tested: H1: Breast cancer survivors will experience improved QOL as a result of the BCEI. H2: Breast cancer survivors will experience improved QOL in the domains of physical, psychological, social, and spiritual well-being as a result of the BCEI. H3: The effects of the BCEI will be retained over time. The conceptual framework is grounded in the City of Hope Quality of Life Model and principles of cancer patient education. A two-group, repeated measures experimental design with a waiting control group will be used to answer the study aims and research questions. A sample of 250 women with newly diagnosed, early-stage I and II breast cancer who are completing treatment will be recruited from two clinical sites in Florida (M.D. Anderson Cancer Center Orlando) and California (City of Hope National Medical Center). Subjects will be randomly assigned to the Experimental or Waiting Control Group. The BCEI consists of a structured and individualized QOL teaching and skills development program delivered by advanced practice nurses using face-to-face instruction and reinforced with written materials and audiotapes. The BCEI will be administered in three face-to-face visits with three telephone reinforcements, and three evaluation visits. Data collection will occur at three time points for the Experimental Group and four time points for the Waiting Control Group using standardized instruments. Data analysis will use multivariate t-test for two

groups (equivalent to MANOVA), and the generalized estimating equation (GEE) model. Study findings are expected to improve our understanding of the incidence of major QOL problems affecting breast cancer survivors, identify individually selected interventions and their effectiveness, and determine theoretically-based interventions that are realistic for implementation by clinicians who provide follow up teaching, support, and surveillance of breast cancer survivors.

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- **Project Title: QUALITY OF LIFE OF OLDER LONGTERM CANCER SURVIVORS**

  Principal Investigator & Institution: Deimling, Gary T.; Associate Professor; Sociology; Case Western Reserve University 10900 Euclid Ave Cleveland, Oh 44106

  Timing: Fiscal Year 2002; Project Start 18-SEP-1998; Project End 31-JUL-2003

  Summary: (Applicant's Description) The proposed study entitled, The Quality of Life (QOL) of Older Adult Long-term Cancer Survivors, has as its primary aim to determine the physiologic, psychologic, and social long-term effects of surviving cancer on older adults (age 60+). This study uses the general stress and coping paradigm and combines the perspectives of extreme stress theory and identity theory to examine the effects of cancer among a uniquely vulnerable group of survivors: older adults. The physiologic outcomes include indicators for assessing the QOL of older adults, such as physical and cognitive functioning and their appraisal of their physical health and symptoms; psychological outcomes include a global indicator of well being/life satisfaction along with measures of psychological distress (e.g., anxiety and depression) and symptoms of post-traumatic stress disorder (PTSD). In addition, several cancer specific measures of psychological QOL will tap **fear** of recurrence and stigma. Social QOL outcomes include effects on survivor's identity relevant characteristics, such as self-esteem and body image, and development of the survivor identity with indicators of a survivor's ability to maintain valued roles. Other core features of the model are personal dispositions, such as coping style and health beliefs, along with proactive behaviors, such as health promotion and marshaling support and how these buffer cancer survivors from the chronic stressors associated with cancer survivorship. Other buffers include social support (e.g., informal support received from family and friends and responsiveness of medical care). Central to the analysis are age-related stressors, such as co-morbid health problems and other negative life events that may exacerbate the stress associated with cancer. We propose a 60-month study using a longitudinal design to collect and analyze three waves of in-person interviews with 360 older adults (60 years of age and older), former patients of the Ireland Cancer Center (ICC) of University Hospitals (UH) of Cleveland. The interview data will be combined with the tumor registry life data for each survivor. The sample will include long-term survivors (5 years beyond primary treatment and currently in remission) and stratify the sample on colorectal (N=120), prostate (N=120), and breast cancer N=120), three of the four most common cancers among older adults and those in the ICC tumor registry. It will over-sample African-Americans (N=180) to provide maximum analytic power to identify racial differences. The ICC of UH is one of 12 National Institutes of Health (NIH) Clinical Cancer Centers with data on 25,500 cancer patients diagnosed and/or treated at University Hospitals of Cleveland since 1975. Multivariate analysis, such as regression and structural equation modeling, and growth curve analysis will be used to investigate the relationship between the variables in our conceptual model. Specific comparative analyses are planned with age, gender, and racial subgroups.

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- **Project Title: REGULATION OF MITOSIS BY PROTEOLYSIS IN YEAST**

  Principal Investigator & Institution: Amon, Angelika B.; Center for Cancer Research; Massachusetts Institute of Technology Cambridge, Ma 02139

  Timing: Fiscal Year 2004; Project Start 30-SEP-1997; Project End 31-JAN-2008

  Summary: (provided by applicant): In all eukaryotes, entry into mitosis is triggered by mitotic cyclin-dependent kinases (mitotic CDKs). For cells to leave mitosis and enter the next G1 phase mitotic CDKs need to be inactivated. In budding yeast, the protein phosphatase Cdc14 plays a key role in promoting the inactivation of mitotic CDKs at the end of mitosis. The activity of this phosphatase is controlled by an inhibitory subunit Cfi1/Net1. Cdc14 is sequestered in the nucleolus and kept inactive by Cfi1/Net1 during G1, S phase and early mitosis but is released from its inhibitor during anaphase. The Cdc14 early anaphase release network (FEAR network) and the Mitotic Exit network (MEN) promote Cdc14 release from its inhibitor. The goal of this proposal is to understand how Cdc14 is released from its inhibitor by the **FEAR** network and the MEN and how Cdc14 returns into the nucleolus after mitotic exit is completed. First, we will, using a molecular biological and biochemical approach, determine whether and how phosphorylation controls the association of Cdc14 with its inhibitor and will identify the protein kinases responsible for phosphorylating these sites. Second, we will, using genetic and cell biological means, identify all **FEAR** network components and perform a detailed characterization of their function. Finally we will determine how an activator of APC/C-mediated protein degradation, CDH1, promotes the return of Cdc14 into the nucleolus by identifying the **FEAR** network and MEN components that are targeted for degradation by Cdhl and by determining whether their degradation is required for the re-sequestration of Cdc14 into the nucleolus after the completion' of mitotic exit. As the return of Cdc14 into the nucleolus is only delayed in cells lacking CDH1 we will also conduct a genetic screen to identify negative regulators of mitotic exit and identify the genes among them that promote the return of Cdc14 into the nucleolus in the absence of CDH1.

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- **Project Title: ROLE OF CENTRAL CRH IN STRESS-INDUCED BEHAVIOR**

  Principal Investigator & Institution: Kalin, Ned H.; Hedberg Professor and Chairman; Psychiatry; University of Wisconsin Madison 750 University Ave Madison, Wi 53706

  Timing: Fiscal Year 2003; Project Start 01-AUG-1986; Project End 31-JAN-2007

  Summary: (provided by applicant): The brain CRH system plays a prominent role in integrating the responses to stress. Dysregulation of the CRH system has been implicated in stress-related psychopathologies such as depression and anxiety. CRH and related ligands mediate their effects through at least two receptors, R1 and R2a. While R1 has been clearly linked to stress and psychopathology, little is known regarding the function of R2a. The proposed studies will extend our earlier work implicating the amygdala CRH system in regulating stress-related effects. We will now explore the contributions of CRH receptor subtypes in mediating stress-induced responses. Our preliminary data strongly suggest that lateral septum (LS) R2a mediates fear-related behavior. We will therefore explore the hypothesis that R2a in the LS and R1 in the central nucleus of the amygdala work together to mediate adaptive fear-related behaviors. Little is known about the mechanisms by which stress influences critical intracellular signaling pathways. Because phosphorylation of the transcription factor CREB is a common step in many intracellular signaling pathways, we will use an ethologically relevant psychological stressor to determine the extent to which stress-

induced R1 and R2a activation mediates effects on CREB phosphorylation. Additionally, using specific protein kinase inhibitors, we will determine which protein kinases are involved in mediating the acute behavioral effects of CRH. To link these data to psychopathology, we will characterize changes in CRH receptors and CREB and pCREB in rats that fail to adapt behaviorally to chronic stress exposure. In addition, to explore new treatment strategies for stress-related psychopathology, rats that display maladaptive behavioral responses will be treated with viral vectors expressing R1 or R2a antisense constructs to continuously reduce either R1 or R2a. It is predicted that antisense producing viral vectors will reduce stress-like responses in these rats. Finally, to directly explore changes in CRH and CREB in relation to human psychopathology, we will characterize CRH receptors and CREB mRNA in postmortem amygdala samples from unipolar depressed, bipolar, and schizophrenic subjects. Overall, these studies will provide important new insights into the role of R2a, interactions between R1 and R2a in adaptive and maladaptive **fear** responses, intracellular changes underlying these responses, and alterations in the CRH system and CREB associated with human psychopathology.

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- **Project Title: SPATIO-TEMPORAL IMAGING OF EMOTION AND FEAR**

  Principal Investigator & Institution: Perlstein, William M.; Clinical & Health Psychology; University of Florida Gainesville, Fl 32611

  Timing: Fiscal Year 2002; Project Start 01-SEP-2000; Project End 31-JUL-2005

  Summary: (Adapted from applicant's abstract) This resubmission of an application (K01 MH01857-01) for an MRSDA outlines a program of training and research in the cognitive neuroscience of emotion in healthy and: anxiety-disordered subjects. The candidate is a new Assistant Professor with previous training in clinical-cognitive neuroscience. His recent work has focused on working memory and prefrontal cortex functioning in severe psychopathology. This proposal seeks to build on this work and develop the candidate's research skills in the areas of affective information processing, autonomic and somatic psychophysiology, and hemodynamic and electroencenphalographic human brain imaging methods. The candidate will be mentored in the design and conduct of a set of related studies using standardized affective stimuli in a cognitive task that simultaneously engages prefrontal cortex and functionally-connected emotion-critical brain regions. The overall purpose of this research is to develop a new experimental approach-based on psychophysiological recording of bodily activity, and complementary measures of brain activity-to study the interaction between high-level cortex and deeper brain structures that mediate normal and abnormal emotional experience and its physiological expression. To achieve these goals, the candidate will pursue career development activities which build upon his existing skills and enhance his expertise in: (a) The design, conduct, and analysis of high-density electroencephalographic and functional MRI studies; (b) developing conceptual and practical skills to integrate these brain imaging methods; (c) developing skills necessary for assessment and empirical measurement of anxiety disorder symptomatology; and (d) extending a knowledge base of functional neuroanatomy and circuitry based on animal models to inform this research approach. The following specific aims are addressed: (a) Develop a probe of prefrontal cortical and emotion-critical deep cortical and subcortical structures; (b) employ imaging methods to track probe effects on affect-working memory interactions in the brain; and (c) apply probe and imaging methods to clinically fear-disordered patients to test hypotheses concerning regional brain interactions and their dysfunction. The preceptor, Dr. Peter

Lang, will provide mentorship in cooperation with expert consultants to ensure a coherent and intellectually rigorous framework for career development and research conduct. This training, which can not be accomplished under any other funding mechanism, will enable the candidate to combine, in the most informative ways possible, clinical and cognitive psychology, electrocortical and hemodynamic measures of brain activity, and anxiety disorder symptom assessment. Completion of this award would place the candidate in the position to continue programmatic research along these lines and provide a unique contribution to the cognitive neuroscience study of emotion and its disorders.

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- **Project Title: STIGMA IN HEALTH CARE SETTINGS IN SOUTH INDIA**

  Principal Investigator & Institution: Solomon, Suniti; Director; Yrg Care Medical Center 1 Raman St, T Nagar Chennai,

  Timing: Fiscal Year 2003; Project Start 01-JUN-2003; Project End 31-MAY-2006

  Summary: (provided by applicant): This is an application to investigate stigma in healthcare settings in South India and to develop an intervention to reduce stigma based on the finding of the investigation. India is the most densely populated country in Asia and has over 4 million adults and children living with HIV/AIDS. As in most of the world, HIV stigma is highly prevalent in India. Such stigma inhibits access to care in India by causing patients to be reluctant to be tested or seek treatment and by leading healthcare facilities to deny care or provide inadequate care. Healthcare workers may stigmatize HIV patients and may have misconceptions about transmission of HIV, leading to **fears** of treating HIV patients. Healthcare workers may also **fear** being stigmatized for working with HIV patients. Breaches in confidentiality in healthcare settings leads to further stigmatization by staff as well as other patients and their families. Such stigmatization can be severely detrimental to the health and well-being of people living with HIV and the people around them. Although stigma is widespread, it has not been extensively studied and is, therefore, poorly understood especially in the realm of healthcare. Data are needed to inform political leadership, medical providers and the community about HIM in order to reduce stigma. The proposed project will interview people living with HIM and their families, physicians, nurses, paramedical workers, hospital administrators and managers, HIV negative patients, public policy makers, and people from the general public in four states in South India. Interviews will address how stigma is formulated, influenced, and expressed, how it affects healthcare, and how it can be reduced. Interviews will be analyzed to assess the various aspects and levels of stigmatization prevalent in South Indian communities and healthcare facilities. Results will be used to develop an intervention to reduce stigma in healthcare settings. The project principal investigator, Dr. Suniti Solomon, is the founder and director of YRG CARE. She and her colleagues were the first to detect HIV in India at Madras Medical College in 1986. YRG CARE is a non-governmental agency in Chennai, India that provides HIV care and counseling, HIV and STD testing, and HIV prevention efforts to patients in southern India. Dr. Solomon was an invited speaker at the Stigma Conference in Bethesda, Maryland, 2001.

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- **Project Title: STIGMA PSYCHOEDUCATION FOR BLACK MENTAL HEALTH CLIENTS**

  Principal Investigator & Institution: Alvidrez, Jennifer; Psychiatry; University of California San Francisco 500 Parnassus Ave San Francisco, Ca 941222747

Timing: Fiscal Year 2003; Project Start 01-AUG-2003; Project End 31-JUL-2006

Summary: (provided by applicant): The stigma of mental illness is pervasive and significant in this country. The **fear** of being labeled as a "mental patient" may deter many individuals from seeking treatment. For those with serious but treatable mental illness, avoidance or refusal of outpatient treatment due to stigma may result in unnecessary suffering, further deterioration in social and occupational functioning, and repeated involuntary psychiatric hospitalizations for an already vulnerable population. This is particularly true for African-Americans, who are less likely to receive outpatient mental health treatment but more likely to be involuntarily hospitalized than the general population. Psychoeducational interventions, shown to be effective in promoting acceptance of mental health treatment, may be a promising method to address stigma concerns for African-Americans with mental health problems. As with any intervention, stigma psychoeducation for Black populations is not likely to be successful unless it addresses relevant concerns presented in a way that resonates with this population. One way to achieve this goal is to develop a psychoeducational intervention based on input from Black mental health clients themselves. This application includes four sequential steps in the development of a psychoeducational intervention for Black adults referred for outpatient mental health treatment: 1) collecting qualitative data about stigma concerns and stigma-coping strategies from Black mental health clients and other key informants, 2) developing a psychoeducational intervention based on the qualitative data, 3) revising the intervention based on feedback from key informants and then piloting it on a small group of Black clients to assess feasibility and acceptability, and 4) conducting a pilot intervention trial in which Black clients referred to outpatient mental health treatment are randomized to psychoeducation or a general information session about mental health services. We will examine whether clients who receive the psychoeducation will report less concern about stigma, a greater perceived need for treatment, and most importantly, be more likely to enter outpatient treatment and receive more outpatient services in a 3-month period.

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- **Project Title: SYNAPTIC MECHANISMS OF FEAR CONDITIONING**

  Principal Investigator & Institution: Bolshakov, Vadim; Mc Lean Hospital (Belmont, Ma) Belmont, Ma 02478

  Timing: Fiscal Year 2002; Project Start 01-JUN-2002; Project End 31-MAY-2006

  Summary: (provided by applicant): In both humans and experimental animals, emotional memory, such as that following learned **fear,** critically depends on the amygdala complex. Pavlovian **fear** conditioning results in the formation of a strong association between a neutral conditioned stimulus and an aversive unconditioned stimulus that can trigger stereotypic **fear** responses. The information from both stimuli converge in the lateral amygdala where association between neutral and aversive stimuli is formed and, possibly, stored. The objective of this proposal is to establish causal relationships between the function of the glutamatergic synapses of the amygdala circuitry and **fear** conditioning, a model of emotional learning in animals. To accomplish this goal, we propose an electrophysiological study, combined with an objective, state-of-the-art statistical approach, to address several crucial but poorly understood aspects of the synaptic mechanisms of learned **fear.** In Aim 1, we will characterize synaptic changes underlying **fear** conditioning in the projections from the auditory thalamus and from the auditory cortex to the lateral amygdala. We have preliminary data indicating that synaptic changes underlying learned **fear,** as quantitatively measured with the fear-potentiated startle paradigm, can be directly determined in the slice preparation. In Aim

2, we will characterize the mechanisms of LTP that are recruited behaviorally in learned **fear.** Our preliminary studies indicate that learned **fear** occludes electrically induced LTP in the cortico-amygdala pathway. Here, we propose to study in detail the effects of LTP on synaptic transmission in the auditory inputs to the LA and compare them with the effects of fear-conditioning. In Aim 3, we will explore the effects of **fear** conditioning on the basic properties of synaptic transmission and plasticity at the synapses between neurons within the lateral nucleus of the amygdala using dual whole-cell patch clamp recordings. These experiments will enable us to use the amygdala slice preparation as a model system for the study of the mechanisms of synaptic plasticity underlying learning and memory acquisition. A better understanding of the mechanisms of conditioned **fear** will permit the rational development of better therapeutics treatments for anxiety and other disorders involving the same neural circuitry.

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- **Project Title: SYNAPTIC SUBSTRATES OF AGE-DEPENDENT MEMORY DEFICITS**

  Principal Investigator & Institution: Geinisman, Yuri; Cell and Molecular Biology; Northwestern University Office of Sponsored Research Chicago, Il 60611

  Timing: Fiscal Year 2002; Project Start 01-SEP-1999; Project End 31-JUL-2004

  Summary: (Adapted from applicant's abstract): Loss of memory, especially for newly acquired information, is one of the hallmarks of normal aging. Yet, it has long been noted that some individuals retain remarkably intact memory even at advanced chronological age. An important and still unresolved problem in the neurobiology of aging is how to explain why memory is preserved in some aged individuals and lost or impaired in others. The proposed project is designed to investigate this problem by testing the hypothesis that memory deficits typical of the majority of aged individuals are due to a loss of synapses in pertinent brain regions. Young adult, middle-aged and old rats will be examined. A battery of behavioral tasks will be used to separate old rats into memory-impaired and memory-intact subgroups based on the presence or absence of memory deficits as compared with young adult and middle aged rats. The behavioral tasks to be employed include the Morris water maze, trace eyeblink conditioning and trace **fear** conditioning. The structural integrity of the hippocampus is a prerequisite for successful performance of animals on these tasks. Synapses will be analyzed in two hippocampal subregions, in the CA1 subfield and the dentate gyrus. Electrophysiologically, the efficacy of impulse transmission will be evaluated at Schaffer collateral-pyramidal cell synapses in the CA1 subregion and at medial perforant path-granule cell synapses in the dentate gyrus, using field potential recordings in vivo. At the electron microscopic level, unbiased techniques of moderm stereology will be employed to obtain estimates of the total number of synapses in the total volume of the CA1 stratum radiatum and the dentate middle molecular layer. Additionally, such techniques will also be used at the light microscopic level to make unbiased estimates of the total number of principal neurons in various hippocampal subregions. The results to be obtained will definitively demonstrate whether old animals with marked impairments of hippocampus-dependent memory function are the ones that exhibit a loss of hippocampal synapses and a decline in synaptic efficacy when compared with memory-intact old, middle-aged or young animals. These results will also show if a loss of hippocampal neurons occurs in memory-impaired old animals but not in memory-intact animals of different ages. Such data are important for a better understanding of the cellular mechanisms that underlie deficits in learning and memory typical of normal

aging, as well as of memory disorders such as Alzheimer's disease. Moreover, the data may be useful for designing preventive measures to make aging "successful."

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- **Project Title: THE AMYGDALA IN INSTRUMENTAL LEARNING**

  Principal Investigator & Institution: Gabriel, Michael; Professor; Psychology; University of Illinois Urbana-Champaign Henry Administration Bldg Champaign, Il 61820

  Timing: Fiscal Year 2002; Project Start 01-AUG-1997; Project End 31-JUL-2005

  Summary: This abstract is not available.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: THE PARAMETERS OF EMOTIONAL-PROCESSING IN PTSD**

  Principal Investigator & Institution: Litz, Brett T.; Associate Professor; Psychiatry; Boston University Medical Campus 715 Albany St, 560 Boston, Ma 02118

  Timing: Fiscal Year 2002; Project Start 29-AUG-2001; Project End 31-JUL-2004

  Summary: (provided by applicant): Individuals with PTSD report intense negative emotional reactions when reminded of their trauma and a lack of ability to experience and express emotions, or "emotional numbing." Although there has been extensive research conducted on conditioned negative emotional response to reminders of trauma, there has been little research on emotional numbing, and sparse research on the relationship between these two response classes. The goal of this proposal is to demonstrate a link between the negative affect and defensive behavior cued by reminders of trauma and subsequent emotional-processing dysfunction in PTSD, in men and women with PTSD stemming from service in Vietnam. Special effort will be made to recruit and study Hispanic male veterans with PTSD because this group has been found to be at higher risk for PTSD. Two studies are planned to test various parameters of emotional-processing in PTSD. Study 1 will examine the emotional responses of men and women Vietnam veterans with and without PTSD, under three conditions: a neutral baseline condition, a non-trauma-related stressor condition (a **fear** film), and a trauma-related prime (war-zone images and sounds). The PTSD groups are expected to exhibit more intense emotional reactions to negatively images only as a result of exposure to the trauma-related prime. The trauma prime should also uniquely suppress positively valenced responses in the PTSD groups. Study 2 is a parametric examination of the threshold of stimulus intensity required to elicit a full range of positive and negative emotion in PTSD. We hypothesize that patients with PTSD are predisposed to require a higher threshold of intensity to elicit positive emotion and a lower threshold for negative affect, and that Hispanic male's with PTSD require a higher threshold for positive and negative emotion. In each study, a variety of psychophysiological indicators of emotional response to standardized emotion eliciting color photographs will be assessed. We pay particular attention to the modulation of startle reflex activity, which has been shown to reliably index the valence of emotional responsivity. In Study 2 we will evaluate the degree of stimulus intensity required to produce startle modulation of positive and negative emotion in PTSD.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: TREATMENT OF CHILDHOOD SOCIAL PHOBIA**

  Principal Investigator & Institution: Beidel, Deborah C.; Professor; Psychology; University of Maryland College Pk Campus College Park, Md 20742

Timing: Fiscal Year 2002; Project Start 15-SEP-1995; Project End 31-MAR-2005

Summary: (Adapted from the Applicant's Abstract): Social phobia affects 3-5% of children, and prevalence rises with age. Youth with social phobia **fear** public speaking, reading or writing in public, going to parties, interacting with authority figures, using public restrooms and interacting informally with others. Clinical correlates include headaches or stomachaches, panic, avoidance, general anxiety, dysphoria, loneliness, and a very restricted range of social relationships. In extreme cases, school refusal or other behavior problems result. Deficiencies in social skills necessary for social development are common. Other disorders frequently co-occur, most often generalized anxiety disorder, separation anxiety disorder, and specific phobia. There are few treatment studies of this debilitating, chronic, and highly prevalent disorder. Recent findings indicate a new psychosocial treatment (Social Effectiveness Therapy for Children; SET-C) is efficacious for ages 8-11, resulting in reduced emotional distress and improved social functioning. Treatment effects have been maintained for up to 6 months. Because the prevalence of social phobia increases with age at least through adolescence, treatments for adolescents are needed. The study proposed here will be a two-site study extending the study of SET-C to a larger sample, and extending the age range to age 15. Because available data suggest that fluoxetine is a promising pharmacological treatment, SET-C will be compared to fluoxetine in a double-blind randomized placebo control design. Fluoxetine has yet to be compared to pill placebo in a controlled design using a representative sample of childhood social phobics. Thus, the study will allow continued evaluation of SET-C's efficacy using an expanded age range, and comparing it to fluoxetine. Furthermore, the study will provide data on the efficacy of fluoxetine compared to pill placebo. Finally, durability of treatment will be monitored over a 1-year follow-up period. The sample will be sufficiently large to provide confidence in the clinical meaningfulness of the findings and to conduct initial studies examining predictors and moderators of treatment clinicians. Similarly, critical data on the efficacy of fluoxetine will be available.

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: TREATMENT OF FEAR AND PAIN IN IRRITABLE BOWEL SYNDROME**

  Principal Investigator & Institution: Naliboff, Bruce D.; Clinical Professor; Brentwood Biomedical Research Institute Bldg. 114, Room 218 Los Angeles, Ca 90073

  Timing: Fiscal Year 2002; Project Start 06-SEP-2002; Project End 31-MAY-2007

  Summary: (provided by applicant) Irritable Bowel Syndrome (IBS) is the most common of the functional gastrointestinal disorders with primary symptoms of chronic abdominal pain or discomfort associated with altered bowel habits. IBS is characterized by stress-related symptom exacerbations and a high co-morbidity with affective disorders, in particular, anxiety. The current proposal is based on a disease model of IBS that emphasizes enhanced responsiveness and conditioning of stress and **fear** circuits in the central nervous system, and associated hypervigilance, stress-induced hyperalgesia, and altered autonomic responses to visceral sensation. Based on this model and the highly successful exposure treatments now used for anxiety disorders, we have designed and successfully piloted a unique cognitive behavioral treatment (CBT) for IBS. Traditional CBT treatments focus on decreasing general stress responses and increasing coping skills for life stress, and have shown only modest efficacy in IBS. We hypothesize that IBS symptoms can be more effectively treated by specifically changing responses to visceral sensations through decreasing interoceptive conditioned responses, and directing attention away from visceral stimuli. If our hypotheses are

correct, we expect to see greater symptom improvements as well as normalization of altered physiological responses following this new CBT approach. We propose to address the following specific aims: 1) Do subjective outcomes differ between the two cognitive behavioral interventions with and without interoceptive exposure and directed attention, and an attention control treatment? 2) Are differential treatment responses accompanied by changes in perceptual and autonomic responses to visceral stimuli? And 3) Are differential treatment responses accompanied by normalization of altered regional brain activation in response to visceral stimuli? In separate studies we will compare CBT with interoceptive exposure and directed attention to tradition CBT (and a control condition) on outcome measures of symptom reduction, beliefs, visceral sensitivity (pain, discomfort, and **fear** responses to balloon distension), and central responses to visceral stimulation using functional magnetic resonance imaging (fMRI).

Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

- **Project Title: WOMEN'S DISCLOSURE OF THEIR HIV STATUS**

  Principal Investigator & Institution: Serovich, Julianne M.; Professor; Human Development & Family Sci; Ohio State University 1960 Kenny Road Columbus, Oh 43210

  Timing: Fiscal Year 2002; Project Start 15-JUN-2001; Project End 31-MAY-2006

  Summary: (provided by applicant): Disclosing HIV status information to friends, family, and significant others can play a pivotal role in improving mental health outcomes for women. In fact, it has long been established that those who share health-related information with others experience fewer emotional difficulties than those who do not. Disclosure of sensitive information like HIV, however, has also been shown to be potentially harmful under certain conditions, such as when women **fear** reprisal. The central hypothesis of this proposal is that women who disclose their status to supportive family, friends, and significant others are more likely to have higher emotional well-being and requisite social support than those who do not. We plan to test the hypothesis by pursing the following three specific aims: (1) measure disclosure, indices of mental health, and social support of HIV-positive women at defined intervals post diagnosis; (2) test and refine a recently developed theoretical model that will accurately predict the relationship between disclosure, social support, and mental health; (3) identify aspects of the relationship between family, friend, and partners and HI V-positive women which would contribute to supportive post disclosure reactions. Participants for this project will be 100 HIV-positive women residing in or near Columbus, Ohio. Participants will be recruited from The Ohio State University HIV/AIDS Clinical Research Unit (ACTU), Family AIDS Clinic and Educational Services (FACES) and the Columbus AIDS Task Force (CATF). Participants will be requested to complete data collection instruments every 6 months for three years. Data include: consequences of disclosure (negative and positive), social support (friends and family), and indices of mental health (depression, loneliness, self-esteem, anxiety, coping, stress, medical adherence and alcohol and substance use) along with basic demographic information. The information gathered in this study can be utilized to assist women with their long term coping with HIV. Findings can be used to develop intervention programs specifically for HIV-positive women to help them with disclosure issues, modify existing intervention programs for women to assist them with their disclosure concerns, and educate therapists, nurses, physicians and other professionals who assist HIV-positive women with their mental health needs about disclosure.

  Website: http://crisp.cit.nih.gov/crisp/Crisp_Query.Generate_Screen

E-Journals: PubMed Central[3]

PubMed Central (PMC) is a digital archive of life sciences journal literature developed and managed by the National Center for Biotechnology Information (NCBI) at the U.S. National Library of Medicine (NLM).[4] Access to this growing archive of e-journals is free and unrestricted.[5] To search, go to **http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Pmc**, and type "fear" (or synonyms) into the search box. This search gives you access to full-text articles. The following is a sample of items found for fear in the PubMed Central database:

- **A subcortical pathway to the right amygdala mediating "unseen" fear.** by Morris JS, Ohman A, Dolan RJ.; 1999 Feb 16;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=15559
- **Automated Assessment of Conditioning Parameters for Context and Cued Fear in Mice.** by Contarino A, Baca L, Kennelly A, Gold LH.; 2002 Mar 1;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=155931
- **Basolateral amygdala is not critical for cognitive memory of contextual fear conditioning.** by Vazdarjanova A, McGaugh JL.; 1998 Dec 8;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=24565
- **Behavioral insensitivity to restraint stress, absent fear suppression of behavior and impaired spatial learning in transgenic rats with hippocampal neuropeptide Y overexpression.** by Thorsell A, Michalkiewicz M, Dumont Y, Quirion R, Caberlotto L, Rimondini R, Mathe AA, Heilig M.; 2000 Nov 7;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=18853
- **Canadians don't appear to fear electronic medical records.** by Martin S.; 2001 Jun 12;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=81174
- **Cerebellar role in fear-conditioning consolidation.** by Sacchetti B, Baldi E, Lorenzini CA, Bucherelli C.; 2002 Jun 11;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=123080
- **Chasing "fear memories" to the cerebellum.** by Vazdarjanova A.; 2002 Jun 11;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=122974
- **Crossmodal binding of fear in voice and face.** by Dolan RJ, Morris JS, de Gelder B.; 2001 Aug 14;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=55568
- **Deficits in Trace Cued Fear Conditioning in Galanin-Treated Rats and Galanin-Overexpressing Transgenic Mice.** by Kinney JW, Starosta G, Holmes A, Wrenn CC, Yang RJ, Harris AP, Long KC, Crawley JN.; 2002 Jul 1;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=182584
- **Does publicity about cancer screening raise fear of cancer? Randomised trial of the psychological effect of information about cancer screening.** by Wardle J, Taylor T, Sutton S, Atkin W.; 1999 Oct 16;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=32262

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[3] Adapted from the National Library of Medicine: **http://www.pubmedcentral.nih.gov/about/intro.html**.

[4] With PubMed Central, NCBI is taking the lead in preservation and maintenance of open access to electronic literature, just as NLM has done for decades with printed biomedical literature. PubMed Central aims to become a world-class library of the digital age.

[5] The value of PubMed Central, in addition to its role as an archive, lies in the availability of data from diverse sources stored in a common format in a single repository. Many journals already have online publishing operations, and there is a growing tendency to publish material online only, to the exclusion of print.

- **Extreme Fear, Shyness, and Social Phobia: Origins, Biological Mechanisms and Clinical Outcomes.** by Schwartzman AE.; 2002 Jan;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=149798
- **Fear in the Presence of Others.** by Schuyler D.; 2001 Apr;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=181166
- **Fear recognition in the voice is modulated by unconsciously recognized facial expressions but not by unconsciously recognized affective pictures.** by de Gelder B, Pourtois G, Weiskrantz L.; 2002 Mar 19;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=122658
- **Interaction of "readthrough" acetylcholinesterase with RACK1 and PKC[beta]II correlates with intensified fear-induced conflict behavior.** by Birikh KR, Sklan EH, Shoham S, Soreq H.; 2003 Jan 7;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=140952
- **Maternal care during infancy regulates the development of neural systems mediating the expression of fearfulness in the rat.** by Caldji C, Tannenbaum B, Sharma S, Francis D, Plotsky PM, Meaney MJ.; 1998 Apr 28;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=20261
- **Memory for Extinction of Conditioned Fear Is Long-lasting and Persists Following Spontaneous Recovery.** by Quirk GJ.; 2002 Nov 1;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=187587
- **Overexpression of hAPPswe Impairs Rewarded Alternation and Contextual Fear Conditioning in a Transgenic Mouse Model of Alzheimer's Disease.** by Corcoran KA, Lu Y, Turner RS, Maren S.; 2002 Sep 1;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=187133
- **Quality of life related to fear of falling and hip fracture in older women: a time trade off study.** by Salkeld G, Cameron ID, Cumming RG, Easter S, Seymour J, Kurrle SE, Quine S.; 2000 Feb 5;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=27279
- **Reduced fear expression after lesions of the ventral hippocampus.** by Kjelstrup KG, Tuvnes FA, Steffenach HA, Murison R, Moser EI, Moser MB.; 2002 Aug 6;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=125057
- **Retrieval of memory for fear-motivated training initiates extinction requiring protein synthesis in the rat hippocampus.** by Vianna MR, Szapiro G, McGaugh JL, Medina JH, Izquierdo I.; 2001 Oct 9;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=59800
- **Scared to death?** by Smith G.; 2002 Dec 21;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=139029
- **Second-Order Olfactory-Mediated Fear-Potentiated Startle.** by Paschall GY, Davis M.; 2002 Nov 1;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=187588
- **Selectively enhanced contextual fear conditioning in mice lacking the transcriptional regulator CCAAT /enhancer binding protein [delta].** by Sterneck E, Paylor R, Jackson-Lewis V, Libbey M, Przedborski S, Tessarollo L, Crawley JN, Johnson PF.; 1998 Sep 1;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=27994

- **Trace fear conditioning involves hippocampal [alpha]5 GABAA receptors.** by Crestani F, Keist R, Fritschy JM, Benke D, Vogt K, Prut L, Bluthmann H, Mohler H, Rudolph U.; 2002 Jun 25;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=124409
- **Working memory and fear conditioning.** by Carter RM, Hofstotter C, Tsuchiya N, Koch C.; 2003 Feb 4;
  http://www.pubmedcentral.gov/articlerender.fcgi?tool=pmcentrez&artid=298784

The National Library of Medicine: PubMed

One of the quickest and most comprehensive ways to find academic studies in both English and other languages is to use PubMed, maintained by the National Library of Medicine.[6] The advantage of PubMed over previously mentioned sources is that it covers a greater number of domestic and foreign references. It is also free to use. If the publisher has a Web site that offers full text of its journals, PubMed will provide links to that site, as well as to sites offering other related data. User registration, a subscription fee, or some other type of fee may be required to access the full text of articles in some journals.

To generate your own bibliography of studies dealing with fear, simply go to the PubMed Web site at **http://www.ncbi.nlm.nih.gov/pubmed**. Type "fear" (or synonyms) into the search box, and click "Go." The following is the type of output you can expect from PubMed for fear (hyperlinks lead to article summaries):

- **"Feel the fear and do it anyway": the hard business of developing Shared Governance.**
  Author(s): Burnhope C, Edmonstone J.
  Source: Journal of Nursing Management. 2003 May; 11(3): 147-57.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12694361&dopt=Abstract

- **"Fools" rush in where genome giants fear to tread.**
  Author(s): Schubert C.
  Source: Nature Medicine. 2003 April; 9(4): 377.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12669043&dopt=Abstract

- **1 hz rTMS over the right prefrontal cortex reduces vigilant attention to unmasked but not to masked fearful faces.**
  Author(s): van Honk J, Schutter DJ, d'Alfonso AA, Kessels RP, de Haan EH.
  Source: Biological Psychiatry. 2002 August 15; 52(4): 312-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12208638&dopt=Abstract

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[6] PubMed was developed by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM) at the National Institutes of Health (NIH). The PubMed database was developed in conjunction with publishers of biomedical literature as a search tool for accessing literature citations and linking to full-text journal articles at Web sites of participating publishers. Publishers that participate in PubMed supply NLM with their citations electronically prior to or at the time of publication.

- **A few details still missing. President unfurls Medicare reform strategy to crowd of skeptics who fear fallout on provider payments and quality of care.**
  Author(s): Becker C, Tieman J.
  Source: Modern Healthcare. 2003 March 10; 33(10): 6-7, 14-5, 1.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12666364&dopt=Abstract

- **A functional MRI study of human amygdala responses to facial expressions of fear versus anger.**
  Author(s): Whalen PJ, Shin LM, McInerney SC, Fischer H, Wright CI, Rauch SL.
  Source: Emotion (Washington, D.C.). 2001 March; 1(1): 70-83.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12894812&dopt=Abstract

- **A multiethnic study of the relationship between fears and concerns and refusal rates.**
  Author(s): Verble M, Bowen GR, Kay N, Mitoff J, Shafer TJ, Worth J.
  Source: Progress in Transplantation (Aliso Viejo, Calif.). 2002 September; 12(3): 185-90.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12371044&dopt=Abstract

- **A new fear: biological warfare.**
  Author(s): Damle SG.
  Source: J Indian Soc Pedod Prev Dent. 2001 December; 19(4): V. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12396086&dopt=Abstract

- **A real fear of failure.**
  Author(s): Hobson K.
  Source: U.S. News & World Report. 2003 December 1; 135(19): 64-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14712608&dopt=Abstract

- **A twin study of the genetics of fear conditioning.**
  Author(s): Hettema JM, Annas P, Neale MC, Kendler KS, Fredrikson M.
  Source: Archives of General Psychiatry. 2003 July; 60(7): 702-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12860774&dopt=Abstract

- **Actual and potential violence: communities gripped in the culture of fear.**
  Author(s): Yearwood EL.
  Source: Journal of Child and Adolescent Psychiatric Nursing : Official Publication of the Association of Child and Adolescent Psychiatric Nurses, Inc. 2003 July-September; 16(3): 131-2.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14603989&dopt=Abstract

- **Acute administration of nutritionally sourced tryptophan increases fear recognition.**
  Author(s): Attenburrow MJ, Williams C, Odontiadis J, Reed A, Powell J, Cowen PJ, Harmer CJ.
  Source: Psychopharmacology. 2003 August; 169(1): 104-7. Epub 2003 April 29.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12719963&dopt=Abstract

- **Affective blindsight: intact fear conditioning to a visual cue in a cortically blind patient.**
  Author(s): Hamm AO, Weike AI, Schupp HT, Treig T, Dressel A, Kessler C.
  Source: Brain; a Journal of Neurology. 2003 February; 126(Pt 2): 267-75.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12538396&dopt=Abstract

- **Aging and fear of crime: an experimental approach to an apparent paradox.**
  Author(s): Ziegler R, Mitchell DB.
  Source: Experimental Aging Research. 2003 April-June; 29(2): 173-87.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12623727&dopt=Abstract

- **Aid workers fear impending disaster in Basra.**
  Author(s): Schiermeier Q, Kramer T.
  Source: Nature. 2003 April 3; 422(6931): 459.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12673213&dopt=Abstract

- **Allaying parental fears over the MMR vaccine scare.**
  Author(s): Moreton J.
  Source: Community Nurse. 2000 June; 6(5): 67-70. Review. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12778540&dopt=Abstract

- **Amygdala and anterior cingulate cortex activation during affective startle modulation: a PET study of fear.**
  Author(s): Pissiota A, Frans O, Michelgard A, Appel L, Langstrom B, Flaten MA, Fredrikson M.
  Source: The European Journal of Neuroscience. 2003 September; 18(5): 1325-31.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12956731&dopt=Abstract

- **Amygdaloid regional cerebral blood flow and subjective fear during symptom provocation in anxiety disorders.**
  Author(s): Fredrikson M, Furmark T.
  Source: Annals of the New York Academy of Sciences. 2003 April; 985: 341-7. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12724169&dopt=Abstract

- **An evaluation of midwives' counseling of pregnant women in fear of childbirth.**
  Author(s): Ryding EL, Persson A, Onell C, Kvist L.
  Source: Acta Obstetricia Et Gynecologica Scandinavica. 2003 January; 82(1): 10-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12580833&dopt=Abstract

- **An examination of the decline in fear and disgust during exposure-based treatment.**
  Author(s): Smits JA, Telch MJ, Randall PK.
  Source: Behaviour Research and Therapy. 2002 November; 40(11): 1243-53.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12384321&dopt=Abstract

- **Animal behavior case of the month. Fearful behavior.**
  Author(s): Pryor P.
  Source: J Am Vet Med Assoc. 2003 September 15; 223(6): 790-2. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14507094&dopt=Abstract

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  Author(s): Nasilowska-Barud A.
  Source: Ann Univ Mariae Curie Sklodowska [med]. 2002; 57(2): 505-13.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12898887&dopt=Abstract

- **Anxiety and fear. Discriminant validity in the child and adolescent practitioner's perspective.**
  Author(s): Pavuluri MN, Henry D, Allen K.
  Source: European Child & Adolescent Psychiatry. 2002 December; 11(6): 273-80.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12541006&dopt=Abstract

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  Author(s): Antai-Otong D.
  Source: Nursing. 2003 December; 33(12): 36-41; Quiz 42.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14657725&dopt=Abstract

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  Author(s): Dykens EM.
  Source: Developmental Neuropsychology. 2003; 23(1-2): 291-316.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12730029&dopt=Abstract

- **Anxiolytic effects of a novel group II metabotropic glutamate receptor agonist (LY354740) in the fear-potentiated startle paradigm in humans.**
  Author(s): Grillon C, Cordova J, Levine LR, Morgan CA 3rd.
  Source: Psychopharmacology. 2003 August; 168(4): 446-54. Epub 2003 April 23.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12709777&dopt=Abstract

- **Are there differences in oral health and oral health behavior between individuals with high and low dental fear?**
  Author(s): Schuller AA, Willumsen T, Holst D.
  Source: Community Dentistry and Oral Epidemiology. 2003 April; 31(2): 116-21.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12641592&dopt=Abstract

- **Automatic processing in spider phobia: implicit fear associations over the course of treatment.**
  Author(s): Teachman BA, Woody SR.
  Source: Journal of Abnormal Psychology. 2003 February; 112(1): 100-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12653418&dopt=Abstract

- **Avoiding your greatest fear--malpractice.**
  Author(s): Coy K, Stratton R.
  Source: J Okla Dent Assoc. 2002 Fall; 93(2): 18-27.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12420406&dopt=Abstract

- **Balance, muscle strength, and fear of falling in older adults.**
  Author(s): Binda SM, Culham EG, Brouwer B.
  Source: Experimental Aging Research. 2003 April-June; 29(2): 205-19.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12623729&dopt=Abstract

- **Body dysmorphic disorder--a fear of imagined ugliness.**
  Author(s): Jefferys DE, Castle DJ.
  Source: Aust Fam Physician. 2003 September; 32(9): 722-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14524210&dopt=Abstract

- **Brain death. Fear has basis in reason.**
  Author(s): Potts M.
  Source: Bmj (Clinical Research Ed.). 2002 September 14; 325(7364): 598.
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  Author(s): Muris P, Merckelbach H, Ollendick TH, King NJ, Meesters C, van Kessel C.
  Source: Behaviour Research and Therapy. 2002 November; 40(11): 1317-26.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12384326&dopt=Abstract

- **When fear becomes panic.**
  Author(s): Hayes P.
  Source: Clinical Nursing Research. 2003 November; 12(4): 299-303.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14620688&dopt=Abstract

- **Where teachers fear to tread.**
  Author(s): Smith G.
  Source: Nurs Times. 2002 July 30-August 5; 98(31): 22-3. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12192750&dopt=Abstract

- **Which came first: social prejudice or fear of disease?**
  Author(s): Gebbie KM.
  Source: Aids Read. 1999 May-June; 9(3): 160, 166. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12728900&dopt=Abstract

- **Who's to say that the risk is worth taking? Faced with the fear that their science might be misused, what should a researcher do?**
  Author(s): Bloom S.
  Source: New Scientist (1971). 2002 September 21; 175(2361): 25.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12731538&dopt=Abstract

- **Why do we fear death? The construction and validation of the Reasons for Death Fear Scale.**
  Author(s): Abdel-Khalek AM.
  Source: Death Studies. 2002 October; 26(8): 669-80.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12243198&dopt=Abstract

- **Women who wish breast reconstruction: characteristics, fears, and hopes.**
  Author(s): Keith DJ, Walker MB, Walker LG, Heys SD, Sarkar TK, Hutcheon AW, Eremin O.
  Source: Plastic and Reconstructive Surgery. 2003 March; 111(3): 1051-6; Discussion 1057-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12621174&dopt=Abstract

- **Working memory and fear conditioning.**
  Author(s): Carter RM, Hofstotter C, Tsuchiya N, Koch C.
  Source: Proceedings of the National Academy of Sciences of the United States of America. 2003 February 4; 100(3): 1399-404. Epub 2003 January 27.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12552137&dopt=Abstract

- **Young in a year of fear.**
  Author(s): Quindlen A.
  Source: Newsweek. 2002 November 4; 140(19): 68.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12436854&dopt=Abstract

Academic Periodicals covering Fear

Numerous periodicals are currently indexed within the National Library of Medicine's PubMed database that are known to publish articles relating to fear. To find the latest studies published, go to **http://www.ncbi.nlm.nih.gov/pubmed**, type the name of the periodical into the search box, and click "Go."

If you want complete details about the historical contents of a journal, visit the following Web site: **http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi**. Here, type in the name of the journal or its abbreviation, and you will receive an index of published articles. At **http://locatorplus.gov/**, you can retrieve more indexing information on medical periodicals (e.g. the name of the publisher). Select the button "Search LOCATORplus." Then type in the name of the journal and select the advanced search option "Journal Title Search."

Dissertations on Fear

ProQuest Digital Dissertations, the largest archive of academic dissertations available, is located at the following Web address: **http://wwwlib.umi.com/dissertations**. From this archive, we have compiled the following list covering dissertations devoted to fear. You will see that the information provided includes the dissertation's title, its author, and the institution with which the author is associated. **IMPORTANT NOTE:** When following the search strategy described below, you may discover non-medical dissertations that use the generic term "fear" (or a synonym) in their titles. The following covers recent dissertations found when using this search procedure:

- **A Study of Emotion: Developing Emotional Intelligence; Self-Integration; Relating to Fear, Pain and Desire (Theory, Structure of Reality, Problem-Solving, Contraction/Expansion, Tuning In/Coming Out/Letting Go)** by Payne, Wayne Leon, PhD from The Union for Experimenting Colleges and Universities, 1985, 498 pages
  http://wwwlib.umi.com/dissertations/fullcit/8605928
- **Cognitive Dysfunction, Perceived Memory Impairment, Fear of Mental Incapacitation, and Anxiety and Distress in Older Adults** by Deer, Teresa May, PhD from The Herman M. Finch U. of Health Sciences - the Chicago Medical Sch., 2003, 86 pages
  http://wwwlib.umi.com/dissertations/fullcit/3102139

- **Diastolic Blood Pressure and Heart Rate in Relation to Anger and Fear and Personality Traits** by Bakal, Donald A; PhD from The University of Manitoba (Canada), 1971
  http://wwwlib.umi.com/dissertations/fullcit/NK10380
- **Effect of Behavioral, Cognitive/Behavioral, and Drug Treatments on the Catastrophic Fears of Agoraphobic Patients (Panic-Related Fears, Fear)** by Brouillard, Mary Ellison, PhD from Stanford University, 1989, 167 pages
  http://wwwlib.umi.com/dissertations/fullcit/9011464
- **Effects of Fear, Localization, and Injury Threat in Public Service Advertisements (PSAS) on Intention to Drink and Drive among College Students** by Gotthoffer, Alyse Renee; PhD from University of Florida, 1999, 166 pages
  http://wwwlib.umi.com/dissertations/fullcit/9945973
- **Fear of Crime As a Form of Chronic Apprehension: The Elderly in an Urban Setting** by Yin, Peter Pi-Tak, PhD from University of Minnesota, 1981, 329 pages
  http://wwwlib.umi.com/dissertations/fullcit/8206440
- **Infectious Fear: Tuberculosis, Public Health, and the Logic of Race and Illness in Baltimore, Maryland, 1880--1930** by Roberts, Samuel Kelton, PhD from Princeton University, 2002, 499 pages
  http://wwwlib.umi.com/dissertations/fullcit/3062512
- **The Attitudes and Knowledge of Kubler-Ross's Stages and the Fears of Death and Dying in Junior and Senior Nursing Students: An Exploratory Study** by Molnar, Linda Ann, PhD from Southern Illinois University at Carbondale, 1981, 184 pages
  http://wwwlib.umi.com/dissertations/fullcit/8206479
- **The Effect of Death Education Training upon Fear of Death among Hospice Volunteers** by Werner, Jacqueline Shea, DSW from Adelphi University, School of Social Work, 1990, 195 pages
  http://wwwlib.umi.com/dissertations/fullcit/9022335
- **The Effectiveness of Varying Levels of Physically and Socially Threatening Fear Appeals in a Drug Prevention Context (Public Service Announcements, Threatening Messages)** by Schoenbachler, Denise D., PhD from University of Kentucky, 1992, 263 pages
  http://wwwlib.umi.com/dissertations/fullcit/9310494
- **The Influence of Need for Achievement, Fear of Success in Nursing, Need for Affiliation, and Organizational Role Conflict upon the Professional Performance of Clinical Nurse Specialists** by Wilson, Cathleen Krueger, PhD from Marquette University, 1985, 256 pages
  http://wwwlib.umi.com/dissertations/fullcit/8516288
- **The Influence of Speaker Credibility on the Effectiveness of Fear Appeal in Persuasive Oral Communication.** by Hutsell, Walter Eugene, PhD from The Florida State University, 1976, 130 pages
  http://wwwlib.umi.com/dissertations/fullcit/7628619
- **The Use of Q-methodology to Assess the Possibility That Fear Is a Barrier Preventing the Use of Mental Health Services by African American Men** by Smith, Jeffrey Maurice; PhD from Kent State University, 2000, 168 pages
  http://wwwlib.umi.com/dissertations/fullcit/9980582

CHAPTER 2. NUTRITION AND FEAR

Overview

In this chapter, we will show you how to find studies dedicated specifically to nutrition and fear.

Finding Nutrition Studies on Fear

The National Institutes of Health's Office of Dietary Supplements (ODS) offers a searchable bibliographic database called the IBIDS (International Bibliographic Information on Dietary Supplements; National Institutes of Health, Building 31, Room 1B29, 31 Center Drive, MSC 2086, Bethesda, Maryland 20892-2086, Tel: 301-435-2920, Fax: 301-480-1845, E-mail: ods@nih.gov). The IBIDS contains over 460,000 scientific citations and summaries about dietary supplements and nutrition as well as references to published international, scientific literature on dietary supplements such as vitamins, minerals, and botanicals.[7] The IBIDS includes references and citations to both human and animal research studies.

As a service of the ODS, access to the IBIDS database is available free of charge at the following Web address: **http://ods.od.nih.gov/databases/ibids.html**. Once you have entered the search area, you have three choices: (1) IBIDS Consumer Database, (2) Full IBIDS Database, or (3) Peer Reviewed Citations Only.

Now that you have selected a database, click on the "Advanced" tab. An advanced search allows you to retrieve up to 100 fully explained references in a comprehensive format. Type "fear" (or synonyms) into the search box, and click "Go." To narrow the search, you can also select the "Title" field.

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[7] Adapted from **http://ods.od.nih.gov**. IBIDS is produced by the Office of Dietary Supplements (ODS) at the National Institutes of Health to assist the public, healthcare providers, educators, and researchers in locating credible, scientific information on dietary supplements. IBIDS was developed and will be maintained through an interagency partnership with the Food and Nutrition Information Center of the National Agricultural Library, U.S. Department of Agriculture.

The following is a typical result when searching for recently indexed consumer information on fear:

- **Diabetes Fear of Injecting and Self-Testing Questionnaire: a psychometric evaluation.**
  Author(s): Institute for Research in Extramural Medicine (EMGO-Institute), Department of Medical Psychology, Vrije Universiteit, Amsterdam, The Netherlands. ed.mollema.emgo@med.vu.nl
  Source: Mollema, E D Snoek, F J Pouwer, F Heine, R J van der Ploeg, H M Diabetes-Care. 2000 June; 23(6): 765-9 0149-5992

The following information is typical of that found when using the "Full IBIDS Database" to search for "fear" (or a synonym):

- **A role for the PI-3 kinase signaling pathway in fear conditioning and synaptic plasticity in the amygdala.**
  Author(s): Department of Pharmacology, College of Medicine, National Cheng Kung University, Tainan City, Taiwan.
  Source: Lin, C H Yeh, S H Lin, C H Lu, K T Leu, T H Chang, W C Gean, P W Neuron. 2001 September 13; 31(5): 841-51 0896-6273
- **Amygdalar nmda receptors are critical for the expression of multiple conditioned fear responses.**
  Author(s): Department of Psychology, Yale University, New Haven, Connecticut 06520-8205, USA.
  Source: Lee, H J Choi, J S Brown, T H Kim, J J J-Neurosci. 2001 June 1; 21(11): 4116-24 1529-2401
- **Bicuculline administration into ventromedial hypothalamus: effects on fear and regional brain monoamines and GABA concentrations in rats.**
  Author(s): Department of Neurophysiology, Nencki Institute of Experimental Biology, Warsaw, Poland.
  Source: Zagrodzka, J Romaniuk, A Wieczorek, M Boguszewski, P Acta-Neurobiol-Exp-(Warsz). 2000; 60(3): 333-43 0065-1400
- **Cholinergic modulation of pavlovian fear conditioning: effects of intrahippocampal scopolamine infusion.**
  Author(s): Department of Psychology and Brain Research Institute, University of California, Los Angeles 90095-1563, USA.
  Source: Gale, G D Anagnostaras, S G Fanselow, M S Hippocampus. 2001; 11(4): 371-6 1050-9631
- **Contribution of amygdala neurons containing peptides and calcium-binding proteins to fear-potentiated startle and exploration-related anxiety in inbred Roman high- and low-avoidance rats.**
  Author(s): Otto-von-Guericke Universitat, Institut fur Anatomie, Leipziger Strasse 44, D-39120 Magdeburg, Germany. deniz.yilmazer-hanke@medizin.uni-magdeburg.de
  Source: Yilmazer Hanke, Deniz M Faber Zuschratter, Heidi Linke, Rudiger Schwegler, Herbert Eur-J-Neurosci. 2002 April; 15(7): 1206-18 0953-816X
- **Covert self-reinforcers, fear of consequences, and health behavior.**
  Author(s): Department of Psychology, University of Louisville, KY 40292, USA. Birkimer@Louisville.edu
  Source: Birkimer, J C Bledsoe, L K J-Soc-Psychol. 1999 October; 139(5): 654-64 0022-4545

- **Differential effects of naloxone on neuroendocrine responses to fear-related emotional stress.**
  Author(s): Department of Physiology, Jichi Medical School, Tochigi-ken, Japan.
  Source: Onaka, T Yagi, K Exp-Brain-Res. 1990; 81(1): 53-8 0014-4819
- **Does the pineal gland play a role in neuroendocrine fear responses?**
  Author(s): Department of Physiology, Jichi Medical School, Minamikawachi-machi, Tochigi-ken, Japan.
  Source: Yagi, K Onaka, T Neuroreport. 1999 March 17; 10(4): 771-4 0959-4965
- **Effects of an infusion of morphine into the accumbens nucleus upon acquisition of hypoalgesic and fear responses in rats exposed to a heart stressor.**
  Author(s): School of Psychology, University of New South Wales, Kensington, Australia.
  Source: Westbrook, R F Harris, J A Good, A J Paxinos, G Q-J-Exp-Psychol-B. 1992 August; 45(2): 99-124 0272-4995
- **Effects of suramin on neuroendocrine and behavioural responses to conditioned fear stimuli.**
  Author(s): Department of Physiology, Jichi Medical School, Tochigi-ken, Japan.
  Source: Zou, C J Onaka, T O Yagi, K Neuroreport. 1998 April 20; 9(6): 997-9 0959-4965
- **Effects of TRH on acoustic startle, conditioned fear and active avoidance in rats.**
  Author(s): Department of Psychology and Neuroscience Program, University of Delaware, Newark, DE 19716, USA.
  Source: Thompson, B L Rosen, J B Neuropeptides. 2000 February; 34(1): 38-44 0143-4179
- **Endogenous dipeptide cycloprolylglycine shows selective anxiolytic activity in animals with manifest fear reaction.**
  Author(s): Institute of Pharmacology, Russian Academy of Medical Sciences, Moscow.
  Source: Seredenin, S B Gudasheva, T A Boiko, S S Kovalev, G I Voronin, M V Yarkova, M A Bull-Exp-Biol-Med. 2002 April; 133(4): 360-2 0007-4888
- **Expressed emotion and panic-fear in the prediction of diet treatment compliance.**
  Author(s): Mental Health Unit, North Manchester General Hospital, Crumpsall, UK.
  Source: Flanagan, D A Wagner, H L Br-J-Clin-Psychol. 1991 September; 30 (Pt 3)231-40 0144-6657
- **Facilitation of conditioned fear extinction by systemic administration or intra-amygdala infusions of D-cycloserine as assessed with fear-potentiated startle in rats.**
  Author(s): Department of Psychiatry and Behavioral Sciences, Emory University, Atlanta, Georgia 30322, USA. dlwalke@emory.edu
  Source: Walker, David L Ressler, Kerry J Lu, Kwok Tung Davis, Michael J-Neurosci. 2002 March 15; 22(6): 2343-51 1529-2401
- **Fear conditioning-induced alterations of phospholipase C-beta1a protein level and enzyme activity in rat hippocampal formation and medial frontal cortex.**
  Author(s): Department of Neurosciences, University of New Mexico, Albuquerque, New Mexico 87131-5223, USA.
  Source: Weeber, E J Savage, D D Sutherland, R J Caldwell, K K Neurobiol-Learn-Mem. 2001 September; 76(2): 151-82 1074-7427
- **Fear of bloating: Beans needn't be bland or embarrassing.**
  Source: Liebman, Bonnie. Nutr-Action. Washington : Center for Science in the Public Interest. Jan/February 1983. volume 10 (1) page 12-14. ill., charts.
- **Fear of eggs.**
  Source: Consum-Rep-Consum-Union-U-S. Yonkers, N.Y. : The Union. October 1989. volume 54 (10) page 650-652. charts. 0010-7174

- **Fear of fat, disregulated-restrained eating, and body-esteem: prevalence and gender differences among eight- to ten-year-old children.**
  Author(s): Division of Counseling Psychology, University of Southern California, Los Angeles, USA.
  Source: Shapiro, S Newcomb, M Loeb, T B J-Clin-Child-Psychol. 1997 December; 26(4): 358-65 0047-228X
- **Fear of fat: Medical evidence.**
  Source: Gunner, Karen. Consum-Rep-Consum-Union-U-S. Mount Vernon : The Union. August 1985. volume 50 (8) page 455-457. ill., charts. 0010-7174
- **Fear of forgetting.**
  Source: Schardt, D. Schmidt, S. Nutrition-action-health-letter (USA). (May 1997). volume 24(4) page 3-6. aging ginkgo biloba choline cephalins 0885-7792
- **Fear of hypoglycemia in type 1 (insulin-dependent) diabetic patients.**
  Author(s): N.C. Paulescu Institute of Diabetes, Nutrition and Metabolic Diseases, Bucharest, Romania.
  Source: Costea, M Ionescu Tirgoviste, C Cheta, D Mincu, I Rom-J-Intern-Med. 1993 Oct-December; 31(4): 291-5 1220-4749
- **Fear of mastectomy: the most common factor responsible for late presentation of carcinoma of the breast in Nigeria.**
  Author(s): Department of Radiation Biology and Radiotherapy, Lagos University Teaching Hospital, Nigeria.
  Source: Ajekigbe, A T Clin-Oncol-(R-Coll-Radiol). 1991 March; 3(2): 78-80 0936-6555
- **Fear of negative evaluation and gender interact to predict alcoholic beverage preference.**
  Author(s): Department of Psychology, Southern Illinois University 62901, USA. corcoran@siu.edu
  Source: Corcoran, K J Segrist, D J Addict-Behavolume 1998 Jul-August; 23(4): 509-15 0306-4603
- **GABAergic antagonists block the inhibitory effects of serotonin in the lateral amygdala: a mechanism for modulation of sensory inputs related to fear conditioning.**
  Author(s): Center for Neural Science, New York University, New York, New York 10003, USA.
  Source: Stutzmann, G E LeDoux, J E J-Neurosci. 1999 June 1; 19(11): RC8 1529-2401
- **Histamine H3 receptor-mediated impairment of contextual fear conditioning and in-vivo inhibition of cholinergic transmission in the rat basolateral amygdala.**
  Author(s): Dipartimento di Farmacologia Preclinica e Clinica, V.le G. Pieraccini 6, Universita di Firenze, 50139 Firenze, Italy. bpassani@pharm.unifi.it
  Source: Passani, M B Cangioli, I Baldi, E Bucherelli, C Mannaioni, P F Blandina, P Eur-J-Neurosci. 2001 November; 14(9): 1522-32 0953-816X
- **Hope, fear, and "miracle" cures.**
  Source: Pessagno, R A Clin-J-Oncol-Nurs. 1998 July; 2(3): 105-6 1092-1095
- **If you want to quit smoking but fear the weight gain.**
  Source: Tufts-Univ-diet-nutr-lett. New York, N.Y. : Tufts University Diet and Nutrition Letter, 1983-c1997. January 1996. volume 13 (11) page 6-7. 0747-4105

- **Impaired fear conditioning but enhanced seizure sensitivity in rats given repeated experience of withdrawal from alcohol.**
  Author(s): Sussex Centre for Research in Alcohol, Alcoholism and Drug Dependence, School of Biological Sciences, University of Sussex, Falmer, Brighton, BN1 9QG, UK. dns@biols.susx.ac.uk
  Source: Stephens, D N Brown, G Duka, T Ripley, T L Eur-J-Neurosci. 2001 December; 14(12): 2023-31 0953-816X

- **In vivo neurotransmitter release in the locus coeruleus--effects of hyperforin, inescapable shock and fear.**
  Author(s): Department of Pharmacology and Toxicology, University of Innsbruck, Austria.
  Source: Philippu, A Pharmacopsychiatry. 2001 July; 34 Suppl 1: S111-5 0176-3679

- **Injections of the NMDA receptor antagonist aminophosphonopentanoic acid into the lateral nucleus of the amygdala block the expression of fear-potentiated startle and freezing.**
  Author(s): Tierphysiologie, Universitat Tubingen, D-72076 Tubingen, Germany. markus.fendt@uni-tuebingen.de
  Source: Fendt, M J-Neurosci. 2001 June 1; 21(11): 4111-5 1529-2401

- **Intrahippocampal scopolamine impairs both acquisition and consolidation of contextual fear conditioning.**
  Author(s): Department of Psychology, University of Utah, Salt Lake City 84112, USA. g.wallenstein@m.cc.utah.edu
  Source: Wallenstein, G V Vago, D R Neurobiol-Learn-Mem. 2001 May; 75(3): 245-52 1074-7427

- **Kainic acid lesions disrupt fear-mediated memory processing.**
  Author(s): Department of Psychology, Northern Kentucky University, BEP 359, Nunn Drive, Highland Heights, KY 41099, USA. bardgettm@nku.edu
  Source: Yin, Henry Bardgett, Mark E Csernansky, John G Neurobiol-Learn-Mem. 2002 May; 77(3): 389-401 1074-7427

- **L-type voltage-gated calcium channels are required for extinction, but not for acquisition or expression, of conditional fear in mice.**
  Author(s): Interdepartmental Program in Neuroscience, University of California, Los Angeles, Los Angeles, California 90095-1761, USA.
  Source: Cain, C K Blouin, A M Barad, M J-Neurosci. 2002 October 15; 22(20): 9113-21 1529-2401

- **Mitogen-activated protein kinase cascade in the basolateral nucleus of amygdala is involved in extinction of fear-potentiated startle.**
  Author(s): Department of Psychiatry and Behavioral Science, Emory University, Atlanta, Georgia 30322, USA.
  Source: Lu, K T Walker, D L Davis, M J-Neurosci. 2001 August 15; 21(16): RC162 1529-2401

- **Must we really fear toxicity of conventional amphotericin B in oncological patients?**
  Author(s): Department of Internal Medicine - Hemato-Oncology, Masaryk University Hospital, Brno-Bohunice, Czech Republic.
  Source: Mayer, J Doubek, M Vorlicek, J Support-Care-Cancer. 1999 January; 7(1): 51-5 0941-4355

- **Neurotoxic lesions of the lateral nucleus of the amygdala decrease conditioned fear but not unconditioned fear of a predator odor: comparison with electrolytic lesions.**
  Author(s): Department of Psychology and Neuroscience Program, University of Delaware, Newark, Delaware 19716, USA.
  Source: Wallace, K J Rosen, J B J-Neurosci. 2001 May 15; 21(10): 3619-27 1529-2401
- **NMDA-mediated social learning of fear-induced conditioned analgesia to biting flies.**
  Author(s): Department of Psychology and Neuroscience Program, University of Western Ontario, London, Canada.
  Source: Kavaliers, M Colwell, D D Choleris, E Neuroreport. 2001 March 26; 12(4): 663-7 0959-4965
- **No interactive effects of naltrexone and benzodiazepines on pain during phobic fear.**
  Author(s): Department of Medical Psychology, Maastricht University, The Netherlands. sabine.janssen@mp.unimaas.nl
  Source: Janssen, S A Arntz, A Behav-Res-Ther. 1999 Jan; 37(1): 77-86 0005-7967
- **Positive and negative motivation in nucleus accumbens shell: bivalent rostrocaudal gradients for GABA-elicited eating, taste "liking"/"disliking" reactions, place preference/avoidance, and fear.**
  Author(s): Department of Psychology, University of Michigan, Ann Arbor, Michigan 48109-1109, USA. sheilar@umich.edu
  Source: Reynolds, Sheila M Berridge, Kent C J-Neurosci. 2002 August 15; 22(16): 7308-20 1529-2401
- **Regulation of synaptic plasticity genes during consolidation of fear conditioning.**
  Author(s): Department of Psychiatry and Behavioral Sciences, Center for Behavioral Neuroscience, Emory University School of Medicine, Atlanta, Georgia 30322, USA. kressle@emory.edu
  Source: Ressler, K J Paschall, G Zhou, X L Davis, M J-Neurosci. 2002 September 15; 22(18): 7892-902 1529-2401
- **The fear of healthy eating: understanding the paranoia.**
  Source: Bidlack, W R Taylor, S J-Pediatr-Health-Care. 1992 Nov-December; 6(6): 355-60 0891-5245
- **The group I metabotropic glutamate receptor mGluR5 is required for fear memory formation and long-term potentiation in the lateral amygdala.**
  Author(s): W. M. Keck Foundation Laboratory of Neurobiology, Center for Neural Science, New York University, New York, New York 10003, USA.
  Source: Rodrigues, Sarina M Bauer, Elizabeth P Farb, Claudia R Schafe, Glenn E LeDoux, Joseph E J-Neurosci. 2002 June 15; 22(12): 5219-29 1529-2401
- **Vasopressin in the lateral septum promotes elemental conditioning to the detriment of contextual fear conditioning in mice.**
  Author(s): Laboratoire de Neurosciences Comportementales et Cognitives, CNRS UMR 5807, Ave des Facultes, 33405 Talence, France. a.desmedt@neurocog.u-bordeaux.fr
  Source: Desmedt, A Garcia, R Jaffard, R Eur-J-Neurosci. 1999 November; 11(11): 3913-21 0953-816X
- **Visual pathways involved in fear conditioning measured with fear-potentiated startle: behavioral and anatomic studies.**
  Author(s): Department of Psychiatry and Behavior Science and Center for Behavior Neuroscience, Emory University School of Medicine, Atlanta, Georgia 30322, USA. cshi@emory.edu

Source: Shi, C Davis, M J-Neurosci. 2001 December 15; 21(24): 9844-55 1529-2401

Federal Resources on Nutrition

In addition to the IBIDS, the United States Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA) provide many sources of information on general nutrition and health. Recommended resources include:

- healthfinder®, HHS's gateway to health information, including diet and nutrition: **http://www.healthfinder.gov/scripts/SearchContext.asp?topic=238&page=0**
- The United States Department of Agriculture's Web site dedicated to nutrition information: **www.nutrition.gov**
- The Food and Drug Administration's Web site for federal food safety information: **www.foodsafety.gov**
- The National Action Plan on Overweight and Obesity sponsored by the United States Surgeon General: **http://www.surgeongeneral.gov/topics/obesity/**
- The Center for Food Safety and Applied Nutrition has an Internet site sponsored by the Food and Drug Administration and the Department of Health and Human Services: **http://vm.cfsan.fda.gov/**
- Center for Nutrition Policy and Promotion sponsored by the United States Department of Agriculture: **http://www.usda.gov/cnpp/**
- Food and Nutrition Information Center, National Agricultural Library sponsored by the United States Department of Agriculture: **http://www.nal.usda.gov/fnic/**
- Food and Nutrition Service sponsored by the United States Department of Agriculture: **http://www.fns.usda.gov/fns/**

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering food and nutrition. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=174&layer=&from=subcats**
- Family Village: **http://www.familyvillage.wisc.edu/med_nutrition.html**
- Google: **http://directory.google.com/Top/Health/Nutrition/**
- Healthnotes: **http://www.healthnotes.com/**
- Open Directory Project: **http://dmoz.org/Health/Nutrition/**
- Yahoo.com: **http://dir.yahoo.com/Health/Nutrition/**
- WebMD®Health: **http://my.webmd.com/nutrition**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,00.html**

The following is a specific Web list relating to fear; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **Minerals**

  Cisplatin
  Source: Healthnotes, Inc.; www.healthnotes.com

  Creatine
  Source: Prima Communications, Inc.www.personalhealthzone.com

  Selenium
  Source: Prima Communications, Inc.www.personalhealthzone.com

- **Food and Diet**

  Monkfish
  Source: Healthnotes, Inc.; www.healthnotes.com

  Shark
  Source: Healthnotes, Inc.; www.healthnotes.com

CHAPTER 3. ALTERNATIVE MEDICINE AND FEAR

Overview

In this chapter, we will begin by introducing you to official information sources on complementary and alternative medicine (CAM) relating to fear. At the conclusion of this chapter, we will provide additional sources.

The Combined Health Information Database

The Combined Health Information Database (CHID) is a bibliographic database produced by health-related agencies of the U.S. federal government (mostly from the National Institutes of Health) that can offer concise information for a targeted search. The CHID database is updated four times a year at the end of January, April, July, and October. Check the titles, summaries, and availability of CAM-related information by using the "Simple Search" option at the following Web site: **http://chid.nih.gov/simple/simple.html**. In the drop box at the top, select "Complementary and Alternative Medicine." Then type "fear" (or synonyms) in the second search box. We recommend that you select 100 "documents per page" and to check the "whole records" options. The following was extracted using this technique:

- **Spirituality of Patients Recovering from an Acute Myocardial Infarction: A Grounded Theory Study**

  Source: Journal of Holistic Nursing. 17(1): 34-53. March 1999.

  Summary: This journal article describes a study of the meaning of spirituality to patients recovering from an acute myocardial infarction (AMI), and their perceptions of how spirituality influences recovery. Data were collected through interviews with 13 patients hospitalized with an AMI. The Glaserian method of grounded theory analysis was used to analyze responses and develop a theory. Spirituality was described as a life-giving force nurtured by receiving presence from God, nature, family, friends, and community. This core category, receiving presence, was the most influential element in enhancing the life-giving force of spirituality and in positively influencing recovery. Supporting categories included developing faith, discovering meaning and purpose, and giving the gift of self. The following five phases to discovering meaning and purpose were identified: facing mortality, releasing **fear** and turmoil, identifying and making lifestyle

changes, seeking divine purpose, and making meaning in daily life. Spirituality influenced recovery by providing the participants with inner strength, comfort, peace, wellness, wholeness, and enhanced coping. The implications for holistic nursing are discussed. The article has 1 figure, 2 tables, and 34 references. (AA-M).

- **Herbal Medicine Boom: Understanding What Patients Are Taking**

  Source: Cleveland Clinic Journal of Medicine. 65(3): 129-134. March 1998.

  Summary: This journal article is designed to help physicians guide their patients in the use of herbal medicines. The first section outlines the reasons why people take herbal medicines, including a **fear** or distrust of physicians, the belief that natural is better, disappointment with allopathic care, and cultural influences. The second section lists some of the most commonly used herbal medications, their reputed effects, and what is known about possible side effects and drug interactions. The herbal medicines are ginseng, garlic, ginkgo, echinacea, ma huang, saw palmetto, St. John's wort, valerian, and yohimbe. The final section explains why herbal medicine should be regulated; and proposes that manufacturers should be required to ensure the standardization, purity, and consistency of their products. The article includes a list of practical suggestions to offer patients about the use of herbal medicines, and 30 references.

National Center for Complementary and Alternative Medicine

The National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (**http://nccam.nih.gov/**) has created a link to the National Library of Medicine's databases to facilitate research for articles that specifically relate to fear and complementary medicine. To search the database, go to the following Web site: **http://www.nlm.nih.gov/nccam/camonpubmed.html**. Select "CAM on PubMed." Enter "fear" (or synonyms) into the search box. Click "Go." The following references provide information on particular aspects of complementary and alternative medicine that are related to fear:

- **1 hz rTMS over the right prefrontal cortex reduces vigilant attention to unmasked but not to masked fearful faces.**
  Author(s): van Honk J, Schutter DJ, d'Alfonso AA, Kessels RP, de Haan EH.
  Source: Biological Psychiatry. 2002 August 15; 52(4): 312-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12208638&dopt=Abstract

- **A comparison of cognitive therapy, applied relaxation, and nitrous oxide sedation in the treatment of dental fear.**
  Author(s): Willumsen T, Vassend O, Hoffart A.
  Source: Acta Odontologica Scandinavica. 2001 October; 59(5): 290-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11680648&dopt=Abstract

- **A programme for the treatment of severe dental fear. Report of three cases.**
  Author(s): Smyth JS.
  Source: Aust Dent J. 1999 December; 44(4): 275-8.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10687237&dopt=Abstract

- **A role for amygdaloid PKA and PKC in the acquisition of long-term conditional fear memories in rats.**
  Author(s): Goosens KA, Holt W, Maren S.
  Source: Behavioural Brain Research. 2000 September; 114(1-2): 145-52.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10996055&dopt=Abstract

- **Acid-sensing ion channel 1 is localized in brain regions with high synaptic density and contributes to fear conditioning.**
  Author(s): Wemmie JA, Askwith CC, Lamani E, Cassell MD, Freeman JH Jr, Welsh MJ.
  Source: The Journal of Neuroscience : the Official Journal of the Society for Neuroscience. 2003 July 2; 23(13): 5496-502.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12843249&dopt=Abstract

- **Acoustic startle and fear-potentiated startle in alcohol-preferring (P) and -nonpreferring (NP) lines of rats.**
  Author(s): Mckinzie DL, Sajdyk TJ, Mcbride WJ, Murphy JM, Lumeng L, Li TK, Shekhar A.
  Source: Pharmacology, Biochemistry, and Behavior. 2000 April; 65(4): 691-6.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10764924&dopt=Abstract

- **Acoustic startle and fear-potentiated startle in rats selectively bred for fast and slow kindling rates: relation to monoamine activity.**
  Author(s): Anisman H, Kelly O, Hayley S, Borowski T, Merali Z, McIntyre DC.
  Source: The European Journal of Neuroscience. 2000 December; 12(12): 4405-16.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11122351&dopt=Abstract

- **Acoustic startle, prepulse inhibition, and fear-potentiated startle measured in rhesus monkeys.**
  Author(s): Winslow JT, Parr LA, Davis M.
  Source: Biological Psychiatry. 2002 June 1; 51(11): 859-66.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12022958&dopt=Abstract

- **Activation of ERK/MAP kinase in the amygdala is required for memory consolidation of pavlovian fear conditioning.**
  Author(s): Schafe GE, Atkins CM, Swank MW, Bauer EP, Sweatt JD, LeDoux JE.
  Source: The Journal of Neuroscience : the Official Journal of the Society for Neuroscience. 2000 November 1; 20(21): 8177-87.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11050141&dopt=Abstract

- **Acute withdrawal from repeated cocaine treatment enhances latent inhibition of a conditioned fear response.**
  Author(s): Murphy CA, Heidbreder C, Feldon J.

Source: Behavioural Pharmacology. 2001 February; 12(1): 13-23.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11270508&dopt=Abstract

- **Alcohol-induced memory impairment in trace fear conditioning: a hippocampus-specific effect.**
  Author(s): Weitemier AZ, Ryabinin AE.
  Source: Hippocampus. 2003; 13(3): 305-15.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12722971&dopt=Abstract

- **Alterations in hippocampal GAP-43 phosphorylation and protein level following contextual fear conditioning.**
  Author(s): Young EA, Owen EH, Meiri KF, Wehner JM.
  Source: Brain Research. 2000 March 31; 860(1-2): 95-103.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10727627&dopt=Abstract

- **Amygdalar nmda receptors are critical for the expression of multiple conditioned fear responses.**
  Author(s): Lee HJ, Choi JS, Brown TH, Kim JJ.
  Source: The Journal of Neuroscience : the Official Journal of the Society for Neuroscience. 2001 June 1; 21(11): 4116-24.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11356900&dopt=Abstract

- **An electrophysiological characterization of ventral tegmental area dopaminergic neurons during differential pavlovian fear conditioning in the awake rabbit.**
  Author(s): Guarraci FA, Kapp BS.
  Source: Behavioural Brain Research. 1999 March; 99(2): 169-79.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10512583&dopt=Abstract

- **An infusion of bupivacaine into the nucleus accumbens disrupts the acquisition but not the expression of contextual fear conditioning.**
  Author(s): Haralambous T, Westbrook RF.
  Source: Behavioral Neuroscience. 1999 October; 113(5): 925-40.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10571476&dopt=Abstract

- **Anterograde amnesia for Pavlovian fear conditioning and the role of one-trial overshadowing: effects of preconditioning exposures to morphine in the rat.**
  Author(s): McNally GP, Westbrook RF.
  Source: Journal of Experimental Psychology. Animal Behavior Processes. 2003 July; 29(3): 222-32.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12884681&dopt=Abstract

- **Anxiogenic-like effects of opiate withdrawal seen in the fear-potentiated startle test, an interdisciplinary probe for drug-related motivational states.**
  Author(s): Fendt M, Mucha RF.
  Source: Psychopharmacology. 2001 May; 155(3): 242-50.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11432686&dopt=Abstract

- **Associative plasticity in neurons of the lateral amygdala during auditory fear conditioning.**
  Author(s): Blair HT, Tinkelman A, Moita MA, LeDoux JE.
  Source: Annals of the New York Academy of Sciences. 2003 April; 985: 485-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12724183&dopt=Abstract

- **Auditory fear conditioning increases CS-elicited spike firing in lateral amygdala neurons even after extensive overtraining.**
  Author(s): Maren S.
  Source: The European Journal of Neuroscience. 2000 November; 12(11): 4047-54.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11069601&dopt=Abstract

- **Blockade of NMDA receptors in the amygdala prevents latent inhibition of fear-conditioning.**
  Author(s): Schauz C, Koch M.
  Source: Learning & Memory (Cold Spring Harbor, N.Y.). 2000 November-December; 7(6): 393-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11112798&dopt=Abstract

- **Cellular imaging of zif268 expression in the hippocampus and amygdala during contextual and cued fear memory retrieval: selective activation of hippocampal CA1 neurons during the recall of contextual memories.**
  Author(s): Hall J, Thomas KL, Everitt BJ.
  Source: The Journal of Neuroscience : the Official Journal of the Society for Neuroscience. 2001 March 15; 21(6): 2186-93.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11245703&dopt=Abstract

- **Cerebellar role in fear-conditioning consolidation.**
  Author(s): Sacchetti B, Baldi E, Lorenzini CA, Bucherelli C.
  Source: Proceedings of the National Academy of Sciences of the United States of America. 2002 June 11; 99(12): 8406-11. Epub 2002 May 28.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12034877&dopt=Abstract

- **Changes in the auditory-evoked potentials induced by fear-evoking stimulations.**
  Author(s): Brandao ML, Coimbra NC, Osaki MY.

Source: Physiology & Behavior. 2001 February; 72(3): 365-72.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11274679&dopt=Abstract

- **Classical fear conditioning in functional neuroimaging.**
Author(s): Buchel C, Dolan RJ.
Source: Current Opinion in Neurobiology. 2000 April; 10(2): 219-23. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10753800&dopt=Abstract

- **Clonidine injections into the lateral nucleus of the amygdala block acquisition and expression of fear-potentiated startle.**
Author(s): Schulz B, Fendt M, Schnitzler HU.
Source: The European Journal of Neuroscience. 2002 January; 15(1): 151-7.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11860515&dopt=Abstract

- **Close linkage between calcium/calmodulin kinase II alpha/beta and NMDA-2A receptors in the lateral amygdala and significance for retrieval of auditory fear conditioning.**
Author(s): Moriya T, Kouzu Y, Shibata S, Kadotani H, Fukunaga K, Miyamoto E, Yoshioka T.
Source: The European Journal of Neuroscience. 2000 September; 12(9): 3307-14.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10998114&dopt=Abstract

- **Comparison of the effects of diazepam on the fear-potentiated startle reflex and the fear-inhibited light reflex in man.**
Author(s): Bitsios P, Philpott A, Langley RW, Bradshaw CM, Szabadi E.
Source: Journal of Psychopharmacology (Oxford, England). 1999; 13(3): 226-34.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10512076&dopt=Abstract

- **Conditioned memory modulation, freezing, and avoidance as measures of amygdala-mediated conditioned fear.**
Author(s): Holahan MR, White NM.
Source: Neurobiology of Learning and Memory. 2002 March; 77(2): 250-75.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11848722&dopt=Abstract

- **Contextual and auditory fear conditioning are mediated by the lateral, basal, and central amygdaloid nuclei in rats.**
Author(s): Goosens KA, Maren S.
Source: Learning & Memory (Cold Spring Harbor, N.Y.). 2001 May-June; 8(3): 148-55.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11390634&dopt=Abstract

- **Damage to the lateral and central, but not other, amygdaloid nuclei prevents the acquisition of auditory fear conditioning.**
Author(s): Nader K, Majidishad P, Amorapanth P, LeDoux JE.

Source: Learning & Memory (Cold Spring Harbor, N.Y.). 2001 May-June; 8(3): 156-63.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11390635&dopt=Abstract

- **Deficits in trace cued fear conditioning in galanin-treated rats and galanin-overexpressing transgenic mice.**
  Author(s): Kinney JW, Starosta G, Holmes A, Wrenn CC, Yang RJ, Harris AP, Long KC, Crawley JN.
  Source: Learning & Memory (Cold Spring Harbor, N.Y.). 2002 July-August; 9(4): 178-90.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12177231&dopt=Abstract

- **Deficits of spatial and non-spatial memory and of auditory fear conditioning following anterior thalamic lesions in mice: comparison with chronic alcohol consumption.**
  Author(s): Celerier A, Ognard R, Decorte L, Beracochea D.
  Source: The European Journal of Neuroscience. 2000 July; 12(7): 2575-84.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10947832&dopt=Abstract

- **Defying gravity and fear: the prevention of falls in community-dwelling older adults.**
  Author(s): Baumann SL.
  Source: Clin Excell Nurse Pract. 1999 September; 3(5): 254-61. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10763622&dopt=Abstract

- **Dental fear. Aren't you tired of it?**
  Author(s): Ackley DC.
  Source: Dent Today. 2003 January; 22(1): 96-102. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12616898&dopt=Abstract

- **Destruction of the inferior colliculus disrupts the production and inhibition of fear conditioned to an acoustic stimulus.**
  Author(s): Heldt SA, Falls WA.
  Source: Behavioural Brain Research. 2003 September 15; 144(1-2): 175-85.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12946608&dopt=Abstract

- **Development of reorganization of the auditory cortex caused by fear conditioning: effect of atropine.**
  Author(s): Ji W, Suga N.
  Source: Journal of Neurophysiology. 2003 September; 90(3): 1904-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12966181&dopt=Abstract

- **Differential contribution of some cortical sites to the formation of memory traces supporting fear conditioning.**
  Author(s): Sacchetti B, Baldi E, Lorenzini CA, Bucherelli C.

Source: Experimental Brain Research. Experimentelle Hirnforschung. Experimentation Cerebrale. 2002 September; 146(2): 223-32. Epub 2002 July 23.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12195524&dopt=Abstract

- **Differential effects of alprazolam on the baseline and fear-potentiated startle reflex in humans: a dose-response study.**
Author(s): Riba J, Rodriguez-Fornells A, Urbano G, Morte A, Antonijoan R, Barbanoj MJ.
Source: Psychopharmacology. 2001 October; 157(4): 358-67.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11605094&dopt=Abstract

- **Differential fear conditioning induces reciprocal changes in the sensory responses of lateral amygdala neurons to the CS(+) and CS(-).**
Author(s): Collins DR, Pare D.
Source: Learning & Memory (Cold Spring Harbor, N.Y.). 2000 March-April; 7(2): 97-103.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10753976&dopt=Abstract

- **Dorsal hippocampus and classical fear conditioning to tone and context in rats: effects of local NMDA-receptor blockade and stimulation.**
Author(s): Bast T, Zhang WN, Feldon J.
Source: Hippocampus. 2003; 13(6): 657-75.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12962312&dopt=Abstract

- **Dynamics of intracellular dopamine contents in the rat brain during the formation of conditioned contextual fear and extinction of an acoustic startle reaction.**
Author(s): Storozheva ZI, Afanas'ev II, Proshin AT, Kudrin VS.
Source: Neuroscience and Behavioral Physiology. 2003 May; 33(4): 307-12.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12774830&dopt=Abstract

- **Effect of lesions in the lateral nucleus of the amygdala on fear conditioning using auditory and visual conditioned stimuli in rats.**
Author(s): Tazumi T, Okaichi H.
Source: Neuroscience Research. 2002 June; 43(2): 163-70.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12067752&dopt=Abstract

- **Effect of worrisome and relaxing thinking on fearful emotional processing.**
Author(s): Peasley-Miklus C, Vrana SR.
Source: Behaviour Research and Therapy. 2000 February; 38(2): 129-44.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10660999&dopt=Abstract

- **Effects of animal-assisted therapy on patients' anxiety, fear, and depression before ECT.**
Author(s): Barker SB, Pandurangi AK, Best AM.

Source: The Journal of Ect. 2003 March; 19(1): 38-44.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12621276&dopt=Abstract

- **Effects of cognitive therapy, applied relaxation and nitrous oxide sedation. A five-year follow-up study of patients treated for dental fear.**
  Author(s): Willumsen T, Vassend O.
  Source: Acta Odontologica Scandinavica. 2003 April; 61(2): 93-9.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12790506&dopt=Abstract

- **Effects of dental fear treatment on general distress. The role of personality variables and treatment method.**
  Author(s): Vassend O, Willumsen T, Hoffart A.
  Source: Behavior Modification. 2000 September; 24(4): 580-99.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10992613&dopt=Abstract

- **Effects of distraction and guided threat reappraisal on fear reduction during exposure-based treatments for specific fears.**
  Author(s): Kamphuis JH, Telch MJ.
  Source: Behaviour Research and Therapy. 2000 December; 38(12): 1163-81.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11104181&dopt=Abstract

- **Effects of dorsal striatum lesions in tone fear conditioning and contextual fear conditioning.**
  Author(s): Ferreira TL, Moreira KM, Ikeda DC, Bueno OF, Oliveira MG.
  Source: Brain Research. 2003 October 10; 987(1): 17-24.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14499941&dopt=Abstract

- **Effects of Tai Chi exercise on balance, functional mobility, and fear of falling among older women.**
  Author(s): Taggart HM.
  Source: Applied Nursing Research : Anr. 2002 November; 15(4): 235-42.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12444582&dopt=Abstract

- **Effects of the phytoestrogen coumestrol on locomotor and fear-related behaviors in female mice.**
  Author(s): Garey J, Morgan MA, Frohlich J, McEwen BS, Pfaff DW.
  Source: Hormones and Behavior. 2001 August; 40(1): 65-76.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11467885&dopt=Abstract

- **Effects of TRH on acoustic startle, conditioned fear and active avoidance in rats.**
  Author(s): Thompson BL, Rosen JB.

Source: Neuropeptides. 2000 February; 34(1): 38-44.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10688967&dopt=Abstract

- **Escape from fear-based medicine: women's resources provides intuitive pathways.**
Author(s): Becker NB.
Source: Alternative Therapies in Health and Medicine. 1999 November; 5(6): 102-4.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10550909&dopt=Abstract

- **Exposure to a theta-burst patterned magnetic field impairs memory acquisition and consolidation for contextual but not discrete conditioned fear in rats.**
Author(s): McKay BE, Persinger MA, Koren SA.
Source: Neuroscience Letters. 2000 October 6; 292(2): 99-102.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10998558&dopt=Abstract

- **Expression and conditioned inhibition of fear-potentiated startle after stimulation and blockade of AMPA/Kainate and GABA(A) receptors in the dorsal periaqueductal gray.**
Author(s): Fendt M.
Source: Brain Research. 2000 October 13; 880(1-2): 1-10.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11032984&dopt=Abstract

- **Facilitation of conditioned fear extinction by systemic administration or intra-amygdala infusions of D-cycloserine as assessed with fear-potentiated startle in rats.**
Author(s): Walker DL, Ressler KJ, Lu KT, Davis M.
Source: The Journal of Neuroscience : the Official Journal of the Society for Neuroscience. 2002 March 15; 22(6): 2343-51.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11896173&dopt=Abstract

- **Facing fear of cancer.**
Author(s): Havers N.
Source: Nursing Standard : Official Newspaper of the Royal College of Nursing. 2002 July 24; 16(45): 22-3.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12219414&dopt=Abstract

- **Fast spiking and regular spiking neural correlates of fear conditioning in the medial prefrontal cortex of the rat.**
Author(s): Baeg EH, Kim YB, Jang J, Kim HT, Mook-Jung I, Jung MW.
Source: Cerebral Cortex (New York, N.Y. : 1991). 2001 May; 11(5): 441-51.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11313296&dopt=Abstract

- **Fear activation and habituation patterns as early process predictors of response to prolonged exposure treatment in PTSD.**
Author(s): van Minnen A, Hagenaars M.

Source: Journal of Traumatic Stress. 2002 October; 15(5): 359-67.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12392223&dopt=Abstract

- **Fear and anxiety: animal models and human cognitive psychophysiology.**
  Author(s): Lang PJ, Davis M, Ohman A.
  Source: Journal of Affective Disorders. 2000 December; 61(3): 137-59. Review.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11163418&dopt=Abstract

- **Fear conditioning in C57/BL/6 and DBA/2 mice: variability in nucleus accumbens function according to the strain predisposition to show contextual- or cue-based responding.**
  Author(s): Ammassari-Teule M, Passino E, Restivo L, de Marsanich B.
  Source: The European Journal of Neuroscience. 2000 December; 12(12): 4467-74.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11122357&dopt=Abstract

- **Fear conditioning-induced alterations of phospholipase C-beta1a protein level and enzyme activity in rat hippocampal formation and medial frontal cortex.**
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  Author(s): Gorman C.
  Source: Time. 2002 June 10; 159(23): 46-54.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12066497&dopt=Abstract

- **The similarities and diversities of signal pathways leading to consolidation of conditioning and consolidation of extinction of fear memory.**
  Author(s): Lin CH, Yeh SH, Lu HY, Gean PW.
  Source: The Journal of Neuroscience : the Official Journal of the Society for Neuroscience. 2003 September 10; 23(23): 8310-7.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12967993&dopt=Abstract

- **The treatment of fear of flying: a controlled study of imaginal and virtual reality graded exposure therapy.**
  Author(s): Wiederhold BK, Jang DP, Gevirtz RG, Kim SI, Kim IY, Wiederhold MD.
  Source: Ieee Transactions on Information Technology in Biomedicine : a Publication of the Ieee Engineering in Medicine and Biology Society. 2002 September; 6(3): 218-23.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12381038&dopt=Abstract

- **The ventral hippocampus and fear conditioning in rats. Different anterograde amnesias of fear after tetrodotoxin inactivation and infusion of the GABA(A) agonist muscimol.**
  Author(s): Bast T, Zhang WN, Feldon J.
  Source: Experimental Brain Research. Experimentelle Hirnforschung. Experimentation Cerebrale. 2001 July; 139(1): 39-52.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11482842&dopt=Abstract

- **Three-year follow-up for virtual reality exposure for fear of flying.**
  Author(s): Wiederhold BK, Wiederhold MD.
  Source: Cyberpsychology & Behavior : the Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society. 2003 August; 6(4): 441-5.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14511458&dopt=Abstract

- **Time-dependent inhibition of hippocampal LTP in vitro following contextual fear conditioning in the rat.**
  Author(s): Sacchetti B, Lorenzini CA, Baldi E, Bucherelli C, Roberto M, Tassoni G, Brunelli M.

Source: The European Journal of Neuroscience. 2002 January; 15(1): 143-50.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11860514&dopt=Abstract

- **Vasopressin in the lateral septum promotes elemental conditioning to the detriment of contextual fear conditioning in mice.**
  Author(s): Desmedt A, Garcia R, Jaffard R.
  Source: The European Journal of Neuroscience. 1999 November; 11(11): 3913-21.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10583480&dopt=Abstract

- **Witchcraft, medicine and the Inquisition in sixteenth-century Venice: II. Fear death by water: Girolamo Donzellini and the Venetian Inquisition.**
  Author(s): Palmer R.
  Source: Soc Soc Hist Med Bull (Lond). 1987 December; 41: 10-1. No Abstract Available.
  http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11621349&dopt=Abstract

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering CAM and related topics. The following is a representative sample:

- Alternative Medicine Foundation, Inc.: **http://www.herbmed.org/**
- AOL: **http://search.aol.com/cat.adp?id=169&layer=&from=subcats**
- Chinese Medicine: **http://www.newcenturynutrition.com/**
- drkoop.com®: **http://www.drkoop.com/InteractiveMedicine/IndexC.html**
- Family Village: **http://www.familyvillage.wisc.edu/med_altn.htm**
- Google: **http://directory.google.com/Top/Health/Alternative/**
- Healthnotes: **http://www.healthnotes.com/**
- MedWebPlus:
  http://medwebplus.com/subject/Alternative_and_Complementary_Medicine
- Open Directory Project: **http://dmoz.org/Health/Alternative/**
- HealthGate: **http://www.tnp.com/**
- WebMD®Health: **http://my.webmd.com/drugs_and_herbs**
- WholeHealthMD.com: **http://www.wholehealthmd.com/reflib/0,1529,00.html**
- Yahoo.com: **http://dir.yahoo.com/Health/Alternative_Medicine/**

The following is a specific Web list relating to fear; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **General Overview**

  Angina
  Source: Integrative Medicine Communications; www.drkoop.com

  Anorexia Nervosa
  Source: Integrative Medicine Communications; www.drkoop.com

  Anxiety
  Source: Integrative Medicine Communications; www.drkoop.com

  Anxiety and Panic Attacks
  Source: Prima Communications, Inc.www.personalhealthzone.com

  Bulimia Nervosa
  Source: Integrative Medicine Communications; www.drkoop.com

  Colds and Flus
  Source: Prima Communications, Inc.www.personalhealthzone.com

  Colorectal Cancer
  Source: Integrative Medicine Communications; www.drkoop.com

  Depression
  Source: Healthnotes, Inc.; www.healthnotes.com

  Endocarditis
  Source: Integrative Medicine Communications; www.drkoop.com

  Food Poisoning
  Source: Integrative Medicine Communications; www.drkoop.com

  Hypochondriasis
  Source: Integrative Medicine Communications; www.drkoop.com

  Infantile Colic
  Source: Integrative Medicine Communications; www.drkoop.com

  Insect Bites and Stings
  Source: Integrative Medicine Communications; www.drkoop.com

  Insomnia
  Source: Integrative Medicine Communications; www.drkoop.com

  Intermittent Claudication
  Alternative names: Peripheral Vascular Disease
  Source: Prima Communications, Inc.www.personalhealthzone.com

Menopausal Symptoms (Other Than Osteoporosis)
Source: Prima Communications, Inc.www.personalhealthzone.com

Menopause
Source: Integrative Medicine Communications; www.drkoop.com

Motion Sickness
Source: Integrative Medicine Communications; www.drkoop.com

Pancreatitis
Source: Integrative Medicine Communications; www.drkoop.com

Pericarditis
Source: Integrative Medicine Communications; www.drkoop.com

Post Traumatic Stress Disorder
Source: Integrative Medicine Communications; www.drkoop.com

PTSD
Source: Integrative Medicine Communications; www.drkoop.com

Schizophrenia
Source: Healthnotes, Inc.; www.healthnotes.com

Sleeplessness
Source: Integrative Medicine Communications; www.drkoop.com

Stress
Source: Integrative Medicine Communications; www.drkoop.com

- **Alternative Therapy**

Applied Kinesiology
Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,711,00.html

Art Therapy
Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,671,00.html

Ayurveda
Source: Integrative Medicine Communications; www.drkoop.com

Bach Flower Remedies
Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,673,00.html

Body Oriented Emotional Release Psychotherapy
Alternative names: Neo-Reichian emotional release work
Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.
Hyperlink: http://www.canoe.ca/AltmedDictionary/b.html

Dance Therapy
Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,687,00.html

Deep Emotional Release Bodywork
Alternative names: D.E.R.B. Deep Emotional Cellular Release Bodywork Deep Emotional Release Bodywork System
Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.
Hyperlink: http://www.canoe.ca/AltmedDictionary/d.html

Enneagram System
Alternative names: Enneagram Enneatype system
Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.
Hyperlink: http://www.canoe.ca/AltmedDictionary/e.html

Going Home
Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.
Hyperlink: http://www.canoe.ca/AltmedDictionary/g.html

Hypnotherapy
Source: Integrative Medicine Communications; www.drkoop.com

IIP Consciousness Development Program
Source: The Canoe version of A Dictionary of Alternative-Medicine Methods, by Priorities for Health editor Jack Raso, M.S., R.D.
Hyperlink: http://www.canoe.ca/AltmedDictionary/i.html

Spirituality
Source: Integrative Medicine Communications; www.drkoop.com

Trager Approach
Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,741,00.html

Writing Therapy
Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,745,00.html

Yoga
Source: Integrative Medicine Communications; www.drkoop.com

Yoga
Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com
Hyperlink:
http://www.wholehealthmd.com/refshelf/substances_view/0,1525,746,00.html

- **Chinese Medicine**

Naolejing
Alternative names: Naolejing Syrup
Source: Pharmacopoeia Commission of the Ministry of Health, People's Republic of China

- **Herbs and Supplements**

Chemotherapy
Source: Healthnotes, Inc.; www.healthnotes.com

Dehydroepiandrosterone (DHEA)
Source: Healthnotes, Inc.; www.healthnotes.com

Docetaxel
Source: Healthnotes, Inc.; www.healthnotes.com

Echinacea
Source: Prima Communications, Inc.www.personalhealthzone.com

Fluorouracil
Source: Healthnotes, Inc.; www.healthnotes.com

Methotrexate
Source: Healthnotes, Inc.; www.healthnotes.com

Neem
Source: Prima Communications, Inc.www.personalhealthzone.com

Paclitaxel
Source: Healthnotes, Inc.; www.healthnotes.com

Phenothiazines
Source: Prima Communications, Inc.www.personalhealthzone.com

Thioridazine
Source: Healthnotes, Inc.; www.healthnotes.com

Wild Indigo
Source: The Canadian Internet Directory for Holistic Help, WellNet, Health and Wellness Network; www.wellnet.ca

General References

A good place to find general background information on CAM is the National Library of Medicine. It has prepared within the MEDLINEplus system an information topic page dedicated to complementary and alternative medicine. To access this page, go to the MEDLINEplus site at **http://www.nlm.nih.gov/medlineplus/alternativemedicine.html**. This Web site provides a general overview of various topics and can lead to a number of general sources.

CHAPTER 4. CLINICAL TRIALS AND FEAR

Overview

In this chapter, we will show you how to keep informed of the latest clinical trials concerning fear.

Recent Trials on Fear

The following is a list of recent trials dedicated to fear.[8] Further information on a trial is available at the Web site indicated.

- **Brain Changes in Fear**

  Condition(s): Anxiety Disorders

  Study Status: This study is currently recruiting patients.

  Sponsor(s): National Institute of Mental Health (NIMH)

  Purpose - Excerpt: The purpose of this study is to use brain imaging technology to investigate brain changes in people exposed to predictable versus unpredictable unpleasant stimuli. Unpleasant events that can be predicted evoke a response of fear, whereas unpredictable, unpleasant stimuli cause chronic anxiety not associated with a specific event. Information gained from this study may help in the development of more effective treatments for anxiety disorders. When confronted with fearful events, people eventually develop fear of specific cues that were associated with these events as well as to the environmental context in which the fearful event occurred. Evidence suggests that cued fear and contextual fear model different aspects of anxiety. However, studies that examine the way the brain affects expression of contextual fear have not been conducted. This study will use magnetic resonance imaging (MRI) or Magneto-encephalography (MEG) to compare the brain activity underlying fear brought on by predictable and unpredictable aversive stimuli.

  Study Type: Observational

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00047853

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[8] These are listed at **www.ClinicalTrials.gov**.

- **Fear Conditioning Using Computer-Generated Virtual Reality**

  Condition(s): Anxiety Disorder

  Study Status: This study is currently recruiting patients.

  Sponsor(s): National Institute of Mental Health (NIMH)

  Purpose - Excerpt: The purpose of this study is to use a computer-generated virtual reality environment to study fear conditioning. Fear conditioning is used to explore the causes and persistence of anxiety and anxiety disorders. When confronted with fearful or unpleasant events, people can develop fear of specific cues that were associated with these events as well as to the environmental context in which the events occurred via a process called classical or aversive conditioning. Advances in computer-generated visual stimulations could facilitate the design of new aversive conditioning studies. This study will develop a virtual reality environment to examine human contextual fear conditioning in the laboratory. During the procedure, moderately painful stimuli will be administered. Participants in this study will be screened with a medical history, physical examination, psychiatric evaluation, and hearing test. Participants will wear headphones and special goggles that will enable them to view a virtual reality environment. Measures will be taken during the study to see how the brain adapts to environmental stimuli.

  Study Type: Observational

  Contact(s): see Web site below

  Web Site: http://clinicaltrials.gov/ct/show/NCT00025844

Keeping Current on Clinical Trials

The U.S. National Institutes of Health, through the National Library of Medicine, has developed ClinicalTrials.gov to provide current information about clinical research across the broadest number of diseases and conditions.

The site was launched in February 2000 and currently contains approximately 5,700 clinical studies in over 59,000 locations worldwide, with most studies being conducted in the United States. ClinicalTrials.gov receives about 2 million hits per month and hosts approximately 5,400 visitors daily. To access this database, simply go to the Web site at **http://www.clinicaltrials.gov/** and search by "fear" (or synonyms).

While ClinicalTrials.gov is the most comprehensive listing of NIH-supported clinical trials available, not all trials are in the database. The database is updated regularly, so clinical trials are continually being added. The following is a list of specialty databases affiliated with the National Institutes of Health that offer additional information on trials:

- For clinical studies at the Warren Grant Magnuson Clinical Center located in Bethesda, Maryland, visit their Web site: **http://clinicalstudies.info.nih.gov/**
- For clinical studies conducted at the Bayview Campus in Baltimore, Maryland, visit their Web site: **http://www.jhbmc.jhu.edu/studies/index.html**
- For cancer trials, visit the National Cancer Institute: **http://cancertrials.nci.nih.gov/**
- For eye-related trials, visit and search the Web page of the National Eye Institute: **http://www.nei.nih.gov/neitrials/index.htm**

- For heart, lung and blood trials, visit the Web page of the National Heart, Lung and Blood Institute: **http://www.nhlbi.nih.gov/studies/index.htm**
- For trials on aging, visit and search the Web site of the National Institute on Aging: **http://www.grc.nia.nih.gov/studies/index.htm**
- For rare diseases, visit and search the Web site sponsored by the Office of Rare Diseases: **http://ord.aspensys.com/asp/resources/rsch_trials.asp**
- For alcoholism, visit the National Institute on Alcohol Abuse and Alcoholism: **http://www.niaaa.nih.gov/intramural/Web_dicbr_hp/particip.htm**
- For trials on infectious, immune, and allergic diseases, visit the site of the National Institute of Allergy and Infectious Diseases: **http://www.niaid.nih.gov/clintrials/**
- For trials on arthritis, musculoskeletal and skin diseases, visit newly revised site of the National Institute of Arthritis and Musculoskeletal and Skin Diseases of the National Institutes of Health: **http://www.niams.nih.gov/hi/studies/index.htm**
- For hearing-related trials, visit the National Institute on Deafness and Other Communication Disorders: **http://www.nidcd.nih.gov/health/clinical/index.htm**
- For trials on diseases of the digestive system and kidneys, and diabetes, visit the National Institute of Diabetes and Digestive and Kidney Diseases: **http://www.niddk.nih.gov/patient/patient.htm**
- For drug abuse trials, visit and search the Web site sponsored by the National Institute on Drug Abuse: **http://www.nida.nih.gov/CTN/Index.htm**
- For trials on mental disorders, visit and search the Web site of the National Institute of Mental Health: **http://www.nimh.nih.gov/studies/index.cfm**
- For trials on neurological disorders and stroke, visit and search the Web site sponsored by the National Institute of Neurological Disorders and Stroke of the NIH: **http://www.ninds.nih.gov/funding/funding_opportunities.htm#Clinical_Trials**

CHAPTER 5. PATENTS ON FEAR

Overview

Patents can be physical innovations (e.g. chemicals, pharmaceuticals, medical equipment) or processes (e.g. treatments or diagnostic procedures). The United States Patent and Trademark Office defines a patent as a grant of a property right to the inventor, issued by the Patent and Trademark Office.[9] Patents, therefore, are intellectual property. For the United States, the term of a new patent is 20 years from the date when the patent application was filed. If the inventor wishes to receive economic benefits, it is likely that the invention will become commercially available within 20 years of the initial filing. It is important to understand, therefore, that an inventor's patent does not indicate that a product or service is or will be commercially available. The patent implies only that the inventor has "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States. While this relates to U.S. patents, similar rules govern foreign patents.

In this chapter, we show you how to locate information on patents and their inventors. If you find a patent that is particularly interesting to you, contact the inventor or the assignee for further information. **IMPORTANT NOTE:** When following the search strategy described below, you may discover non-medical patents that use the generic term "fear" (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on fear, we have not necessarily excluded non-medical patents in this bibliography.

Patent Applications on Fear

As of December 2000, U.S. patent applications are open to public viewing.[10] Applications are patent requests which have yet to be granted. (The process to achieve a patent can take several years.) The following patent applications have been filed since December 2000 relating to fear:

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[9] Adapted from the United States Patent and Trademark Office: **http://www.uspto.gov/web/offices/pac/doc/general/whatis.htm**.

[10] This has been a common practice outside the United States prior to December 2000.

- **Apparatus for measuring vital functions**

  Inventor(s): Alametsa, Jarmo; (Tampere, FI), Koivuluoma, Mikko; (Lampaala, FI), Ruotsalainen, Ulla; (Helsinki, FI), Varri, Alpo; (Tampere, FI)

  Correspondence: Swidler Berlin Shereff Friedman, Llp; 3000 K Street, NW; Box IP; Washington; DC; 20007; US

  Patent Application Number: 20030233034

  Date filed: June 13, 2003

  Abstract: The invention relates to an apparatus for measuring the vital functions of a patient, which apparatus comprises at least a measuring chair (20) or a corresponding means suitable for sitting, which measuring chair further comprises one or more measuring sensors (2, 3, 6, 7) for measuring one or more vital functions of the patient sitting in the measuring chair, in a non-invasive manner from the outside of the patient's body. According to the invention, said one or more measuring sensors (2, 3, 6, 7) are placed in the structures of the measuring chair (20) in a substantially unnoticeable way, and the measuring chair (20) is preferably designed to resemble an ordinary chair intended for non-medical use, or a corresponding furniture-like means suitable for sitting. By means of the invention, it is possible to reduce the distortion caused by **fear** of doctors in the measurement results. The invention is particularly suitable, for example, for ballistocardiographic measurements and/or measurements relating to pulmonary functions.

  Excerpt(s): The invention relates to an apparatus for measuring vital functions according to the preamble of claim 1. In the following, a person subject to measurements and examination will be called briefly and generally a patient. However, it should be noted that this term is not intended to limit the invention solely to diagnostics relating to the treatment of a disease of said person but, as it will be disclosed below, also other measurements and investigations relating to the vital functions of the person are widely feasible. Consequently, the measurements and examinations to be taken by the apparatus according to the invention can also be used to evaluate, for example, the physical condition of a completely healthy person. In practice, the vital functions of the person under examination, i.e. the patient, are typically measured by attaching one or more measuring sensors to the patent in a sitting or lying position. By the measuring sensors, the vital function of the patient to be examined, which may be an electrical, physical or another phenomenon, is converted to such a form that makes it possible to analyse and diagnose said vital function. In practice, however, the measuring of the vital functions by means of sensors attached to the patient is normally applicable to such measurements only, which also involve, in addition to the patient, a person to take the measurement. The attachment of the measuring sensors to the patient may also require particular expertise which, for example, a general practitioner does not always necessarily have. Furthermore, the attachment of the measuring sensors to the patient requires time and, in most cases, at least partial undressing of the patient.

  Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

- **Method of quantifying hemoglobin and method of measuring glycation ratio of hemoglobin**

  Inventor(s): Yagi, Yuji; (Kyoto, JP), Yonehara, Satoshi; (Kyoto, JP)

  Correspondence: Merchant & Gould PC; P.O. Box 2903; Minneapolis; MN; 55402-0903; US

  Patent Application Number: 20030186449

  Date filed: March 20, 2003

  Abstract: A method of determining Hb is provided, by which an amount of Hb can be determined easily and accurately without **fear** of damage to the environment. Hemoglobin in a sample is denatured with a tetrazolium compound to give denatured hemoglobin, and an amount of an optical change in the sample is measured at an absorption wavelength specific to the denatured hemoglobin. Using the amount of the optical change thus measured, an amount of the hemoglobin in the sample can be determined. The amount of the optical change preferably is measured at a wavelength in a range from 520 to 670 nm. According to this method, an amount of Hb can be determined with high accuracy as shown in FIG. 1.

  Excerpt(s): The present invention relates to a method of determining an amount of hemoglobin (Hb) in a sample. Hb in the blood plays an important role in transporting oxygen from the lungs to organs and thus relates to diseases such as leukemia, anemia, and the like, for example. Therefore, determining an amount of Hb has been considered very important in the field of a clinical analysis. On the other hand, glycated Hb serves as an important index for the diagnosis, treatment, etc. of diabetes because it reflects previous blood glucose levels in vivo. Therefore, determining a ratio of glycated Hb also has been considered important. For determining the ratio of glycated Hb, it is necessary to determine the amount of Hb. Examples of a method of determining Hb include measuring an absorbance of Hb. However, the Hb that is not yet denatured (hereinafter, referred to as "undenatured Hb") exhibits an absorption maximum at different wavelengths depending on its state, e.g., the state where it is bound to oxygen, the state where it is not bound to oxygen, etc. Therefore, it is difficult to determine an amount of Hb accurately by merely measuring the absorbance of the Hb. On this account, conventionally, a method has been employed in which the absorbance of Hb is measured after the Hb has been denatured so as to be stabilized. Examples of such a method include a cyanmethemoglobin method (HiCN method), azide metohemoglobin method, sodium lauryl sulfate method (SLS method), alkaline hematin method, and the like. Among these, the HiCN method, which is an international standard method, is employed particularly widely. In this HiCN method, a reagent containing potassium ferricyanide and potassium cyanide is added to blood so that Hb is converted into stable cyanmethemoglobin, and the absorbance is measured at a predetermined wavelength (540 nm) to determine the amount of the Hb.

  Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

- **Post operative knee flexer**

  Inventor(s): Cunningham, James J.; (Dover, FL)

  Correspondence: James J. Cunningham; 13001 Sydney Road; Dover; FL; 33527-5966; US

  Patent Application Number: 20030171196

  Date filed: February 12, 2002

Abstract: This machine is solely operated by the paitient under the supervision and coaching of a professional physical therapist. After a total knee replacement a physical therapist is assigned to the paitient to bring back the mobility of the knee function.This is done by the therapist to stretch the tendons and the ligaments to normal flexability. The therapist sits the paitient on a bench and while holding thigh tight to the bench they forcibly push the lower leg with a free hand to achieve the required bend. This causes the paitient a great deal of pain and anxiety. This procedure is necessary to bring the tendons back to normal flexability. My invention allows the paitient to accomplish this without the **fear** of pain and shortens the time of recovery.

Excerpt(s): 1. Structure material of proto-type- primarily wood--2'.times.4" First grade douglas fir. Alternate Aluminum Tubing: 2".times.4" reinforced at tension points. 2. Galvanized 3/8 carriage bolt and nuts. 3. Galvanized 31" pulley wheels (with keepers).

Web site: http://appft1.uspto.gov/netahtml/PTO/search-bool.html

Keeping Current

In order to stay informed about patents and patent applications dealing with fear, you can access the U.S. Patent Office archive via the Internet at the following Web address: **http://www.uspto.gov/patft/index.html**. You will see two broad options: (1) Issued Patent, and (2) Published Applications. To see a list of issued patents, perform the following steps: Under "Issued Patents," click "Quick Search." Then, type "fear" (or synonyms) into the "Term 1" box. After clicking on the search button, scroll down to see the various patents which have been granted to date on fear.

You can also use this procedure to view pending patent applications concerning fear. Simply go back to **http://www.uspto.gov/patft/index.html**. Select "Quick Search" under "Published Applications." Then proceed with the steps listed above.

CHAPTER 6. BOOKS ON FEAR

Overview

This chapter provides bibliographic book references relating to fear. In addition to online booksellers such as **www.amazon.com** and **www.bn.com**, excellent sources for book titles on fear include the Combined Health Information Database and the National Library of Medicine. Your local medical library also may have these titles available for loan.

Book Summaries: Federal Agencies

The Combined Health Information Database collects various book abstracts from a variety of healthcare institutions and federal agencies. To access these summaries, go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. You will need to use the "Detailed Search" option. To find book summaries, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer. For the format option, select "Monograph/Book." Now type "fear" (or synonyms) into the "For these words:" box. You should check back periodically with this database which is updated every three months. The following is a typical result when searching for books on fear:

- **AIDS, Fear and Infection Control**

  Contact: Tetrahedron Incorporated, 10B Drumlin Rd, PO Box 402, Rockport, MA, 01966, (800) 336-9266.

  Summary: As part of a seminar offered by Dr. Leonard Horowitz, this manual is designed to give dentists practical knowledge, skills, and materials to educate patients about infection control and AIDS. It focuses on building and maintaining a profitable dental practice. The manual was developed based upon a marketing program designed to reassure and educate patients about dental clinic safety procedures and infection control techniques that protect them against HIV. The manual includes: 1) a behavioral survey for members of the dental team regarding AIDS and infection control; 2) information on the psychosocial factors and compliance with universal precautions; 3) sample patient education letters covering AIDS and infection control, risk communication and HIV testing, and the costs to the patient for infection control; 4) information on patient and legal risk management issues, specifically, informed consent;

5) a list of resources and references; and 6) an appendix that covers primary care, post HIV-exposure management, and HIV counseling and testing.

- **I Am Not A Victim: One Man's Triumph Over Fear and AIDS**

  Contact: Hay House, PO Box 5100, Carlsbad, CA, 92018-5100, (800) 654-5126.

  Summary: This biography is the personal journey of a long-term survivor of AIDS. The self-discovery he undergoes in dealing with fear and loss changes his viewpoint on life and death. Through the healing with love approach of Louise Hays, the author is able to develop a positive outlook and begin his physical and spiritual healing. The support group, Hayride, helps the author face complex emotions and issues, and he starts his own support group, Healing Feeling. Practical tips on nutrition and meditation are included with a list of books the author finds helpful. In addition, visualization and affirmation techniques are described.

- **A Long - Term Care Story: Fear is More Contagious Than AIDS**

  Source: Managing AIDS Services & Resources.

  Contact: University of South Carolina, School of Public Health, AIDS Education Prevention, Columbia, SC, 29208, (803) 777-4845.

  Summary: This book chapter describes the response of the administration and staff of a nursing home in Asbury Methodist Village in the suburbs of Washington, D.C., to an 87-year-old resident who tested positive for HIV-antibodies. It tells about the educational program to provide factual information to the staff about Human immunodeficiency virus (HIV) and Acquired immunodeficiency syndrome (AIDS), and role modeling of care by the senior staff members.

- **AIDS, Fear, and Society: Challenging the Dreaded Disease**

  Contact: Taylor & Francis, Publishers, 1101 Vermont Ave Ste 200, Washington, DC, 20005-3521, (202) 289-2174.

  Summary: This book examines the fear and dread invoked by AIDS and the stigma associated with the disease that attaches to patients, their families, and their caregivers. The book takes the position that this and other diseases are more than medical phenomena or individual catastrophes but are profound social events that change societal conditions. The first section of the book reviews the nature and history of other "dreaded" diseases over history such as leprosy, tuberculosis, cancer, and smallpox. The second section considers AIDS as the archetype of the dreaded disease, examining the panic and fear associated with its diagnosis.

- **Beginning Again. SIDS Families Share Their Hopes Dreams Fears and Joy**

  Source: Escondido, CA: Beachcomber Press. 1995. 86 pp.

  Contact: Available from Beachcomber Press, P.O. Box 300578, Escondido, CA 92030-0578. (760) 747-4429, mom2127@aol.com (E-mail). $10.95 plus $2.00 shipping and handling. ISBN 0-9630341-1-1.

  Summary: This book is based on the results of a survey of over 100 families who experienced a sudden infant death syndrome (SIDS) death and went on to have another child. The time span between the babies' death and the next pregnancy ranged from 1 month to 3 years, although most of the mothers were pregnant within a year. Part 1 describes the anguish that parents went through after the death of their baby and their

longing to have another child; the disagreements that many couples had over this issue; how talking about another pregnancy with family and friends was a part of the decisionmaking process; and how discussions with the family's pediatrician about the death and subsequent pregnancy could be comforting or disturbing. Part 2 presents the feelings of worry and anxiety that accompanied the subsequent pregnancy and the problems that a few of the mothers had during this time. These problems included placenta previa, premature labor, gestational diabetes, and miscarriage. Part 2 also reports on how the surviving siblings reacted to the death, and on parents' dreams about the death. Part 3 reveals the joy and worry that parents experienced at the arrival of the subsequent child, their tendency to 'overprotect' this child, their experience with home monitoring, and older siblings' reactions to the new baby. Seven years after the survey the author sent a followup letter to as many parents as she could contact. Part 4, the result of this followup, is a compilation of comments from parents on the special qualities of their subsequent child/children and how the fear of SIDS altered their way of raising them. Quotes from parents on their feelings and experiences appear throughout the book. The original questionnaire is included.

- **Serenity: Challenging the Fear of AIDS -- From Despair to Hope**

  Contact: Celestial Arts Publishing, PO Box 7123, Berkeley, CA, 94707, (510) 524-1801.

  Summary: This monograph confronts the fear, psychological factors, and stress factors of living in the era of Human immunodeficiency virus (HIV). Insights into new habits, new attitudes, and new health practices, through which serenity can be achieved, are offered. The first four chapters ("Serenity," "Longing," "Memory," and "Awakening") outline the effect of Acquired immunodeficiency syndrome (AIDS) on the homosexual community in terms of the stresses placed upon it, and the subsequent problems and changes its members have confronted. The fifth chapter, "Reality," discusses the importance of facing the facts about AIDS in order to take action against it. The following chapter, "Surrender," describes the various pitfalls and dangers that line the path through the morass, as well as ways to avoid them. The final chapters, "Transformation" and "Hope," recommend ways of making personal decisions that will maximize health and ensure the ability to live well through the AIDS epidemic. The monograph also contains a list of resources, including books and community organizations, that deal with AIDS.

- **The Third Epidemic: Repercussions of the Fear of AIDS**

  Contact: Panos Institute, 1701 K St NW Ste 1100 11th Fl, Washington, DC, 20006, (202) 223-7949, http://www.panosinst.org.

  Summary: This monograph discusses HIV/AIDS and how it has touched off a parallel epidemic of fear, denial, and prejudice. It opens by describing when and where HIV/AIDS began and how it spreads. It also examines the social climate of the disease which include blame, stigmatism, and discrimination. The monograph describes how people in many parts of the world are overcoming their fear and finding ways to fight the disease without also fighting those who are infected with it. It focuses on the steps individuals have made by protecting the blood supply from HIV infection. It also discusses AIDS in the workplace, health care, international travel, myths of casual contact transmission, the law and human rights, and international views about the epidemic. It concludes with an overview of the epidemic as seen in Africa, South America, the Caribbean, Europe, and Asia.

- **From Fear to Hope: AIDS Care and Prevention at Chikankata Hospital, Zambia**

  Contact: TALC, PO Box 49, St. Albans.

  Summary: This monograph outlines the unique characteristics of Acquired immunodeficiency syndrome (AIDS) and Human immunodeficiency virus (HIV) in Africa, as well as the inadequacy of existing national health policies. It describes the AIDS program at the Salvation Army Hospital at Chikankata, Zambia. The program provides home-based care by utilizing family participation in the patient's treatment. The hospital's mobile team visits the patients in their homes, offering medical, nursing, psychological, and pastoral care to Persons with AIDS (PWA's) and their families. The hospital advocates adoption of a national strategy combining home-care and counseling for patients and family members, and community counseling to promote modification of prevalent sexual behaviors that spread HIV. This monograph is one of a series describing the efforts played by nongovernmental organizations in preventing HIV and controlling AIDS in developing countries.

- **Mortal Fear: Meditations on Death and AIDS**

  Contact: Cowley Publications, 980 Memorial Dr, Cambridge, MA, 02138, (617) 876-3507.

  Summary: This monograph presents spiritual resource materials for pastors and counselors to comfort Persons with AIDS (PWA's). It provides meditations and sermons on different aspects of Acquired immunodeficiency syndrome (AIDS) as a disease and addresses fear of death.

- **Knowledge and Fear Among Health Workers: the San Francisco Experience**

  Source: AIDS and Prevention and Control, Invited Presentations and Papers From the World Summit of Ministers of Health on Programmes for AIDS Prevention; London, January 26-27, 1988.

  Contact: Pergamon Press, 660 White Plains Rd, Tarrytown, NY, 10591, (914) 524-9200.

  Summary: This presentation was given at the World Summit of Ministers of Health on Programmes for AIDS Prevention held in London, January 26-27, 1988. The summit was jointly organized by the World Health Organization and the United Kingdom Government. Based on experiences with homosexual Acquired immunodeficiency syndrome (AIDS) patients in San Francisco, the author discusses the challenges facing physicians, other health care workers, and the health care system. Care of AIDS patients is complicated by personal and societal biases, the multidisciplinary nature of the treatment, psychosocial problems of the patients, stresses related to the incurable nature of the illness and the risk of exposure, and social and ethical dilemmas. These problems may require a modification of the health care system, with an increased emphasis on providing support for staff and a wider distribution of AIDS care throughout the community.

- **How communities can bring up youth free from fear and violence**

  Source: Washington, DC: National Crime Prevention Council. 1995. 62 pp.

  Contact: Available from NCPC Fulfillment Center, National Crime Prevention Council, 1700 K Street, N.W., Second Floor, Washington, DC 20006-3817. Telephone: (202) 466-6272 or (800) 627-2911 / fax: (202) 296-1356 / e-mail: webmaster@ncpc.org / Web site: http://www.ncpc.org. $11.95 plus 10 percent shipping and handling; New York residents add 7 percent sales tax; DC residents add 6.75 percent sales tax.

Summary: This publication considers the reach and scope of violence, its impact on children and adolescents, and its costs to the community; and it presents strategies to intervene and prevent the effects of violence on youth. It provides a background on the extent of the problem, causes of violence, and the role of community-based partnerships in preventing it. It reviews prevention strategies in general, and it reviews comprehensive approaches that have been developed in San Antonio, Minneapolis, Boston, Savannah, and Little Rock. It also includes resource lists of organizations and publications.

Book Summaries: Online Booksellers

Commercial Internet-based booksellers, such as Amazon.com and Barnes&Noble.com, offer summaries which have been supplied by each title's publisher. Some summaries also include customer reviews. Your local bookseller may have access to in-house and commercial databases that index all published books (e.g. Books in Print®). **IMPORTANT NOTE:** When following the link below, you may discover non-medical books that use the generic term "fear" (or a synonym) in their titles.

- Amazon.com: **http://www.amazon.com/exec/obidos/external-search?tag=icongroupinterna&keyword=fear&mode=books**

Chapters on Fear

In order to find chapters that specifically relate to fear, an excellent source of abstracts is the Combined Health Information Database. You will need to limit your search to book chapters and fear using the "Detailed Search" option. Go to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find book chapters, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Book Chapter." Type "fear" (or synonyms) into the "For these words:" box. The following is a typical result when searching for book chapters on fear:

- **Treating Fearful Children**

  Source: in Milgrom, P.; Weinstein, P.; Getz, T. Treating Fearful Dental Patients: A Patient Management Handbook. 2nd ed. Seattle, WA: Continuing Education, University of Washington. p. 285-323.

  Contact: Available from Continuing Dental Education. University of Washington, P.O. Box 357137, Seattle, WA 98195. (202) 543-5448; Fax (206) 543-6465. PRICE: $33.00 plus shipping and handling; bulk rates available. ISBN: 1880291010.

  Summary: This chapter on treating fearful children is from a handbook on managing fearful dental patients. Topics covered include creating a safe environment, assessment procedures, preventive steps worth taking, effective management in the operatory, and pharmacological management techniques in this population. The authors stress that altering the child's perceptions, through careful introduction to dentistry and attention to communication itself, will yield cooperative children with minimal fear. The authors provide detailed, step-by-step strategies and recommended conversations appropriate to each situation covered. The chapter concludes with a list of study questions and exercises with which the reader can review the chapter.

CHAPTER 7. MULTIMEDIA ON FEAR

Overview

In this chapter, we show you how to keep current on multimedia sources of information on fear. We start with sources that have been summarized by federal agencies, and then show you how to find bibliographic information catalogued by the National Library of Medicine.

Video Recordings

An excellent source of multimedia information on fear is the Combined Health Information Database. You will need to limit your search to "Videorecording" and "fear" using the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find video productions, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Videorecording (videotape, videocassette, etc.)." Type "fear" (or synonyms) into the "For these words:" box. The following is a typical result when searching for video recordings on fear:

- **An Epidemic of Fear: AIDS in the Workplace**

  Contact: Impact AIDS, 1069 Dutton Ave, Santa Rosa, CA, 95407, (707) 542-6297, http://www.journeyhome.com/impactaids.

  Summary: Directed toward employers concerned with meeting the challenges posed by Acquired immunodeficiency syndrome (AIDS) in the workplace, this videorecording presents model AIDS policy guidelines and principles and their implications for employees and businesses. Myths and fears about the Human immunodeficiency virus (HIV) are allayed, and social and cultural factors affecting an understanding of AIDS and HIV-related illnesses are examined. Included are discussion of the legal rights of seropositive persons to be free from discrimination in employee screening, selection, and termination, as well as in matters of confidentiality and reasonable accommodation for the disabling symptoms associated with AIDS. The responsibility of employers to present accurate information to their employees about AIDS is emphasized, as also is the need for compassionate employee assistance programs for those who are seropositive that support them emotionally and financially as any other valued employee faced with a life-threatening illness.

- **Assessment and treatment of fearful dental patients**

  Source: Seattle, Washington: Dental Public Health Sciences, University of Washington; and UW Video Services. 1997. 1 videotape (30 minutes, VHS 1/2 inch).

  Contact: Available from University of Washington, Continuing Dental Education, School of Dentistry, P.O. Box 357137, Seattle, WA 98795. Telephone: (206) 543-5448 / fax: (206) 543-6465. $60.00 plus $5.00 shipping and handling, combination of text and videotape is $85.00 plus $5.00 shipping and handling.

  Summary: This video demonstrates techniques dental professionals can use when treating fearful patients. The video has sections on the following: assessment of fear, case consultation, treatment strategies, coping skills, needle desensitization, and gagging. Dental professionals are shown interacting with fearful patients, using such techniques as rehearsing, guided imagery, and breathing exercises.

- **Peer Education Not Fear Education**

  Contact: AIDS Community Television, 12 Wooster St, New York, NY, 10013.

  Summary: This video discusses the benefits of sexuality education and contrasts it to abstinence-based education as a means of preventing the human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) among adolescents and young adults. The video presents adolescents discussing sex as a natural act and states that adolescence is a time of sexual exploration. It shows clips of videos and television interviews in which abstinence-based education is explained by religious leaders and parochial school teachers. Peer educators examine the meaning of sexual abstinence and the effectiveness of condoms. The peer educators offer their opinions on the benefits of sexuality education and state that condom efficacy can be improved if teens are taught how to use them. Persons who advocate peer sexuality education for adolescents state that abstinence-based education is popular because it plays on the fears of parents and educators, whereas sexuality education addresses issues based on contemporary realities. Adolescents identify the persons from whom they have learned the most about HIV/AIDS, sexuality, and sex. The peer educators discuss the reasons why they think it is important for teens to learn about sex, sexuality, and HIV/AIDS from other teens. The video also looks at the controversies around what some view as fear-based abstinence-only curricula, which exclude birth control and disease prevention information, that were implemented in Jacksonville, FL and Vista, CA. Various professionals in the fields of sex education and reproductive issues discuss the legal challenge to the adoption of the curriculum in Jacksonville, FL.

- **Facts vs Fear: AIDS in the Workplace**

  Contact: American Media, Incorporated, 1454 30th St, West Des Moines, IA, 50265, (515) 224-0919.

  Summary: This videorecording begins with two people gossiping about a third employee who may have Acquired immunodeficiency syndrome (AIDS). They are concerned for their own health, since they use the same office equipment and restrooms as he does. Facts about transmission of the Human immunodeficiency virus (HIV) are then presented, and their fears are dispelled.

- **AIDS - Fighting Fear With Facts**

  Contact: University of British Columbia, Biomedical Communications, Media Sales, 2194 Health Sciences Mall, Rm B32, Vancouver, (604) 822-5545.

Summary: This videorecording details the basic facts about Acquired immunodeficiency syndrome (AIDS). It discusses the Human immunodeficiency virus (HIV), its makeup, its effect on the human body, the destruction of the immune system, and opportunistic diseases arising as a consequence of this destruction. Modes of transmission in high-risk groups are explained, involving IV-needle sharing and multiple sex partners. Methods of prevention are described, involving condom use and responsible sexual behavior. It is noted throughout the videorecording that transmission of HIV cannot occur through casual contact. It is stressed that health-care workers should implement universal precautions when handling certain body fluids.

- **Facing Our Fears: Mental Health Professionals Speak**

  Contact: University of California San Francisco, AIDS Health Project, PO Box 0884, San Francisco, CA, 94143-0884, (415) 476-6430.

  Summary: This videorecording is a series of interviews with six mental-health professionals who specialize in treating Persons with AIDS (PWA's). These six people explain how they manage their own stress, which is caused by dealing regularly with death and dying and their fears of being infected with the Human immunodeficiency virus (HIV).

- **Overcoming Irrational Fear of AIDS**

  Contact: Leo Media Incorporated, 110 W Main St, Urbana, IL, 61801-2715, (217) 384-4838, http://www.leomed.com.

  Summary: This videorecording is a training tool which assists health care workers in overcoming fears of Acquired immunodeficiency syndrome (AIDS) that can interfere with their work performance and personal lives. Dr. Arthur Lange, a consultant on stress management and communication, guides a group of health-care professionals in examining their thoughts and feelings on this subject. The videorecording is designed to help the practitioner deal with anxiety in carrying out procedures. It also will help them overcome difficulty in reconciling professional responsibility with uncomfortable feelings or disapproval of patients' lifestyles, and helps them manage stress from pressure by spouses and other family members who do not comprehend the professional's commitment to care. In addition, it helps them come to terms with complex feelings about terminal illness. Finally, it helps them conduct a realistic appraisal of the probability of contamination and distinguish between reasonable caution and irrational response. (Producer's abstract.).

- **Homophobia in Health Care: Facts, Fears, and Solutions**

  Contact: Gay Community Social Service, Seattle Lesbian and Gay Nurses Alliance, PO Box 22228, Seattle, WA, 98122, (206) 322-2873.

  Summary: This videorecording presents four dramatizations of interactions which actually occurred between homosexual individuals and health care providers. Dr. G. Dorsey Green, a Seattle, WA, psychologist, states that homophobia (aversion to homosexuals) is similar in many ways to other phobias, such as an irrational fear of heights or animals. Her discussion is interspersed with the stories of two male homosexual couples where one partner is hospitalized; and a visiting nurse who overlooks the suicidal depression of an elderly female who has lost her partner of 40 years. The videorecording also tells the story of a female obstetrician who does not explain normal reactions of late pregnancy to a lesbian who has chosen to have a child by artificial insemination. Dr. Green concludes with the message that health care

workers need to examine stereotypes of homosexual people and their own fears, and to educate themselves and their peers so that all clients, including those with Acquired immunodeficiency syndrome (AIDS), can receive equally good health care.

- **I'm Not Afraid of Me: The Barbara Bryon Story**

  Contact: Alaska Native Health Board, HIV/AIDS Prevention Project, 3700 Woodland Dr Ste 500, Anchorage, AK, 99517-2567, (907) 562-6006, http://www.anhb.org.

  Summary: This videorecording tells the story of Alaska Native Barbara Bryon and her 6-year-old daughter, Doriann. Both have HIV infection, but show no symptoms. Family members talk of their love and support, while Barbara tells how she became infected through a heterosexual affair before Doriann was born. She discusses their treatment with azidothymidine (AZT) and their determination to maintain a positive attitude and to beat AIDS. Barbara tells of her early days of depression and denial following her diagnosis, and how she overcame both her own feelings and the fears of her friends. Throughout the videorecording, the need for caring and understanding is emphasized.

- **Working Beyond Fear**

  Contact: American Red Cross National Headquarters, American Red Cross, National Headquarters, Health and Safety Services, Office of HIV/AIDS Education, 8111 Gatehouse Rd 6th Fl, Falls Church, VA, 22042-1203, (703) 206-6707, http://www.redcross.org/.

  Summary: This videorecording, narrated by actor Robert Vaughn, is broken into segments that discuss HIV, its makeup, and its actions inside the body, which result in the gradual destruction of the immune system. Next, it discusses issues in transmission of the disease, examining the concept of high-risk groups and high-risk behavior. The video continues with role-playing of workplace issues, illustrating colleagues and coworkers as they explore the idea of working with an HIV-positive individual.

- **Managing the Fear of AIDS: Behavioral Health Management Training**

  Contact: GWC Incorporated, PO Box 5023, Cahokia, IL, 62206-5023, (618) 337-9300, http://www.gwcinc.com.

  Summary: This videotape examines what managers and supervisors can do to implement a workplace program to effectively manage human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) policies and programs. It provides information regarding why HIV/AIDS policies are needed, what they should entail, and how to carry them out effectively in the workplace.

Audio Recordings

The Combined Health Information Database contains abstracts on audio productions. To search CHID, go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find audio productions, use the drop boxes at the bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Sound Recordings." Type "fear" (or synonyms) into the "For these words:" box. The following is a typical result when searching for sound recordings on fear:

- **AIDS Explained - An Epidemic of Fear**

  Contact: Real to Reel, PO Box 4695, Freehold, NJ, 07728.

  Summary: This film examines acquired immunodeficiency syndrome (AIDS). It features Larry Gostin from the Harvard School of Public Health and Dr. Judith Smolanoff. (Producer's abstract).

- **Facing Our Fears: Helping Staff Deal With AIDS Issues**

  Source: Taking Action on AIDS.

  Contact: Walker Trieschman Center, Child Welfare League of America, 300 Congress St Ste 305, Quincy, MA, 02169, (617) 769-4010, http://www.cwla.org.

  Summary: This sound recording, part of a series, addresses the fears of staff who work in group care facilities for adolescents. It says that workers need to overcome these fears about Acquired immunodeficiency syndrome (AIDS) so that they can better work with clients, and that a sound Human immunodeficiency virus (HIV) policy and an ongoing education program should help. Most people resist talking openly about their lifestyles and their personal risks due to fears of discrimination and labeling. The AIDS educator should tell staff it's all right to think about themselves first, and clients later. Through anonymous questions and small-group discussion, a good AIDS education program should address personal risk factors and condom use. The sound recording mentions a classroom visit by a Person with AIDS (PWA) and videos as good teaching tools. The remainder of the sound recording briefly looks at some of the fears that staff may face, such as concern about universal precautions and HIV transmission in the workplace. It says that staff should be taught to talk about subjects they feel uneasy about, such as condom use and sexual intercourse. Staff should learn to admit when they don't know the answer to a client's question, and should be taught where to go for more information. The sound recording also says it is important for staff to feel that the administration is doing all it can to protect clients and staff. Also, it says, staff need to learn to understand adolescent subcultures. Often they feel some clients are simply impossible to reach, while the difficulty really stems from a lack of knowledge of the cultural context of the client's lifestyle. Financial worries are also considered.

CHAPTER 8. RESEARCHING MEDICATIONS

Overview

While a number of hard copy or CD-ROM resources are available for researching medications, a more flexible method is to use Internet-based databases. Broadly speaking, there are two sources of information on approved medications: public sources and private sources. We will emphasize free-to-use public sources.

U.S. Pharmacopeia

Because of historical investments by various organizations and the emergence of the Internet, it has become rather simple to learn about the medications recommended for fear. One such source is the United States Pharmacopeia. In 1820, eleven physicians met in Washington, D.C. to establish the first compendium of standard drugs for the United States. They called this compendium the U.S. Pharmacopeia (USP). Today, the USP is a non-profit organization consisting of 800 volunteer scientists, eleven elected officials, and 400 representatives of state associations and colleges of medicine and pharmacy. The USP is located in Rockville, Maryland, and its home page is located at **http://www.usp.org/**. The USP currently provides standards for over 3,700 medications. The resulting USP DI® Advice for the Patient® can be accessed through the National Library of Medicine of the National Institutes of Health. The database is partially derived from lists of federally approved medications in the Food and Drug Administration's (FDA) Drug Approvals database, located at **http://www.fda.gov/cder/da/da.htm**.

While the FDA database is rather large and difficult to navigate, the Phamacopeia is both user-friendly and free to use. It covers more than 9,000 prescription and over-the-counter medications. To access this database, simply type the following hyperlink into your Web browser: **http://www.nlm.nih.gov/medlineplus/druginformation.html**. To view examples of a given medication (brand names, category, description, preparation, proper use, precautions, side effects, etc.), simply follow the hyperlinks indicated within the United States Pharmacopeia (USP).

Below, we have compiled a list of medications associated with fear. If you would like more information on a particular medication, the provided hyperlinks will direct you to ample documentation (e.g. typical dosage, side effects, drug-interaction risks, etc.). The following

drugs have been mentioned in the Pharmacopeia and other sources as being potentially applicable to fear:

Fentanyl

- **Systemic - U.S. Brands:** Actiq
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/203780.html
- **Transdermal-Systemic - U.S. Brands:** Duragesic
  http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202702.html

Commercial Databases

In addition to the medications listed in the USP above, a number of commercial sites are available by subscription to physicians and their institutions. Or, you may be able to access these sources from your local medical library.

Mosby's Drug Consult™

Mosby's Drug Consult™ database (also available on CD-ROM and book format) covers 45,000 drug products including generics and international brands. It provides prescribing information, drug interactions, and patient information. Subscription information is available at the following hyperlink: **http://www.mosbysdrugconsult.com/**.

PDR*health*

The PDR*health* database is a free-to-use, drug information search engine that has been written for the public in layman's terms. It contains FDA-approved drug information adapted from the Physicians' Desk Reference (PDR) database. PDR*health* can be searched by brand name, generic name, or indication. It features multiple drug interactions reports. Search PDR*health* at **http://www.pdrhealth.com/drug_info/index.html**.

Other Web Sites

Drugs.com (**www.drugs.com**) reproduces the information in the Pharmacopeia as well as commercial information. You may also want to consider the Web site of the Medical Letter, Inc. (**http://www.medletter.com/**) which allows users to download articles on various drugs and therapeutics for a nominal fee.

If you have any questions about a medical treatment, the FDA may have an office near you. Look for their number in the blue pages of the phone book. You can also contact the FDA through its toll-free number, 1-888-INFO-FDA (1-888-463-6332), or on the World Wide Web at **www.fda.gov**.

APPENDICES

APPENDIX A. PHYSICIAN RESOURCES

Overview

In this chapter, we focus on databases and Internet-based guidelines and information resources created or written for a professional audience.

NIH Guidelines

Commonly referred to as "clinical" or "professional" guidelines, the National Institutes of Health publish physician guidelines for the most common diseases. Publications are available at the following by relevant Institute[11]:

- Office of the Director (OD); guidelines consolidated across agencies available at **http://www.nih.gov/health/consumer/conkey.htm**
- National Institute of General Medical Sciences (NIGMS); fact sheets available at **http://www.nigms.nih.gov/news/facts/**
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines: **http://www.nlm.nih.gov/medlineplus/healthtopics.html**
- National Cancer Institute (NCI); guidelines available at **http://www.cancer.gov/cancerinfo/list.aspx?viewid=5f35036e-5497-4d86-8c2c-714a9f7c8d25**
- National Eye Institute (NEI); guidelines available at **http://www.nei.nih.gov/order/index.htm**
- National Heart, Lung, and Blood Institute (NHLBI); guidelines available at **http://www.nhlbi.nih.gov/guidelines/index.htm**
- National Human Genome Research Institute (NHGRI); research available at **http://www.genome.gov/page.cfm?pageID=10000375**
- National Institute on Aging (NIA); guidelines available at **http://www.nia.nih.gov/health/**

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[11] These publications are typically written by one or more of the various NIH Institutes.

- National Institute on Alcohol Abuse and Alcoholism (NIAAA); guidelines available at **http://www.niaaa.nih.gov/publications/publications.htm**
- National Institute of Allergy and Infectious Diseases (NIAID); guidelines available at **http://www.niaid.nih.gov/publications/**
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS); fact sheets and guidelines available at **http://www.niams.nih.gov/hi/index.htm**
- National Institute of Child Health and Human Development (NICHD); guidelines available at **http://www.nichd.nih.gov/publications/pubskey.cfm**
- National Institute on Deafness and Other Communication Disorders (NIDCD); fact sheets and guidelines at **http://www.nidcd.nih.gov/health/**
- National Institute of Dental and Craniofacial Research (NIDCR); guidelines available at **http://www.nidr.nih.gov/health/**
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK); guidelines available at **http://www.niddk.nih.gov/health/health.htm**
- National Institute on Drug Abuse (NIDA); guidelines available at **http://www.nida.nih.gov/DrugAbuse.html**
- National Institute of Environmental Health Sciences (NIEHS); environmental health information available at **http://www.niehs.nih.gov/external/facts.htm**
- National Institute of Mental Health (NIMH); guidelines available at **http://www.nimh.nih.gov/practitioners/index.cfm**
- National Institute of Neurological Disorders and Stroke (NINDS); neurological disorder information pages available at **http://www.ninds.nih.gov/health_and_medical/disorder_index.htm**
- National Institute of Nursing Research (NINR); publications on selected illnesses at **http://www.nih.gov/ninr/news-info/publications.html**
- National Institute of Biomedical Imaging and Bioengineering; general information at **http://grants.nih.gov/grants/becon/becon_info.htm**
- Center for Information Technology (CIT); referrals to other agencies based on keyword searches available at **http://kb.nih.gov/www_query_main.asp**
- National Center for Complementary and Alternative Medicine (NCCAM); health information available at **http://nccam.nih.gov/health/**
- National Center for Research Resources (NCRR); various information directories available at **http://www.ncrr.nih.gov/publications.asp**
- Office of Rare Diseases; various fact sheets available at **http://rarediseases.info.nih.gov/html/resources/rep_pubs.html**
- Centers for Disease Control and Prevention; various fact sheets on infectious diseases available at **http://www.cdc.gov/publications.htm**

NIH Databases

In addition to the various Institutes of Health that publish professional guidelines, the NIH has designed a number of databases for professionals.[12] Physician-oriented resources provide a wide variety of information related to the biomedical and health sciences, both past and present. The format of these resources varies. Searchable databases, bibliographic citations, full-text articles (when available), archival collections, and images are all available. The following are referenced by the National Library of Medicine:[13]

- **Bioethics:** Access to published literature on the ethical, legal, and public policy issues surrounding healthcare and biomedical research. This information is provided in conjunction with the Kennedy Institute of Ethics located at Georgetown University, Washington, D.C.: **http://www.nlm.nih.gov/databases/databases_bioethics.html**
- **HIV/AIDS Resources:** Describes various links and databases dedicated to HIV/AIDS research: **http://www.nlm.nih.gov/pubs/factsheets/aidsinfs.html**
- **NLM Online Exhibitions:** Describes "Exhibitions in the History of Medicine": **http://www.nlm.nih.gov/exhibition/exhibition.html**. Additional resources for historical scholarship in medicine: **http://www.nlm.nih.gov/hmd/hmd.html**
- **Biotechnology Information:** Access to public databases. The National Center for Biotechnology Information conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information for the better understanding of molecular processes affecting human health and disease: **http://www.ncbi.nlm.nih.gov/**
- **Population Information:** The National Library of Medicine provides access to worldwide coverage of population, family planning, and related health issues, including family planning technology and programs, fertility, and population law and policy: **http://www.nlm.nih.gov/databases/databases_population.html**
- **Cancer Information:** Access to cancer-oriented databases: **http://www.nlm.nih.gov/databases/databases_cancer.html**
- **Profiles in Science:** Offering the archival collections of prominent twentieth-century biomedical scientists to the public through modern digital technology: **http://www.profiles.nlm.nih.gov/**
- **Chemical Information:** Provides links to various chemical databases and references: **http://sis.nlm.nih.gov/Chem/ChemMain.html**
- **Clinical Alerts:** Reports the release of findings from the NIH-funded clinical trials where such release could significantly affect morbidity and mortality: **http://www.nlm.nih.gov/databases/alerts/clinical_alerts.html**
- **Space Life Sciences:** Provides links and information to space-based research (including NASA): **http://www.nlm.nih.gov/databases/databases_space.html**
- **MEDLINE:** Bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, the healthcare system, and the pre-clinical sciences: **http://www.nlm.nih.gov/databases/databases_medline.html**

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[12] Remember, for the general public, the National Library of Medicine recommends the databases referenced in MEDLINE*plus* (**http://medlineplus.gov/** or **http://www.nlm.nih.gov/medlineplus/databases.html**).

[13] See **http://www.nlm.nih.gov/databases/databases.html**.

- **Toxicology and Environmental Health Information (TOXNET):** Databases covering toxicology and environmental health: **http://sis.nlm.nih.gov/Tox/ToxMain.html**
- **Visible Human Interface:** Anatomically detailed, three-dimensional representations of normal male and female human bodies: **http://www.nlm.nih.gov/research/visible/visible_human.html**

The Combined Health Information Database

A comprehensive source of information on clinical guidelines written for professionals is the Combined Health Information Database. You will need to limit your search to one of the following: Brochure/Pamphlet, Fact Sheet, or Information Package, and "fear" using the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For the publication date, select "All Years." Select your preferred language and the format option "Fact Sheet." Type "fear" (or synonyms) into the "For these words:" box. The following is a sample result:

- **Understanding Fear of Contagion Among Physicians Who Care for HIV Patients**

  Contact: University of Rochester Medical Center, Strong Health, Highland Hospital, Family Medicine Center, 885 South Ave, Rochester, NY, 14620-2399, (716) 442-7470, http://www.urmc.rochester.edu/fammed/index.html.

  Summary: This paper examines fear of infection as a potential deterrent to primary care physicians' providing services to Human immunodeficiency virus (HIV) infected patients. The study outlined in this paper examines physicians' perceptions of fear and risk, and the ways in which they cope with those fears. The paper explains the methodology of the study, which involved interviewing 30 primary care physicians who were caring for HIV patients. The study showed that fear of infection was common, in spite of the physicians' low self-assessment of risk. Most considered the risk acceptable, but for some, it took a high emotional toll. Some of the physicians interviewed labelled their fears as irrational, and some said they were overattentive to infection-control measures. Others, however, said they used universal precautions inconsistently. The study did show that physicians continued to care for HIV patients in spite of their fears and the fears of their family members. It concludes that some physicians are poorly equipped to deal with their own fears, and says there is a need to examine in greater depth the relationship between fear of infection and willingness to provide care.

- **Promoting Condoms to College Students: Using Positive Messages Versus Fear Messages**

  Contact: Caspen Company, PO Box 919, Chapel Hill, NC, 27510, (919) 929-5761.

  Summary: This unpublished masters thesis reviews the literature regarding fear messages and critiques theories underlying the use of fear messages. The research also explores alternatives for making condom use appealing. A primary alternative is contraceptive social marketing (CSM), which relies on commercial marketing techniques and focuses on using positive messages. A theoretical framework for CSM is found in the AIDS risk-reduction model. Four condom promotion programs based on CSM are outlined in this thesis paper. Specific promotion messages are explored in a set of focus groups with college students. These include fear, positive, and neutral information messages. These results indicate that the positive messages are perceived to be as

effective as the fear messages improving condom use: about half the respondents perceived the positive messages to be most effective, half perceived the fear messages most effective. None perceived the neutral information messages to be most effective. The present research indicates numerous reasons for considering the use of positive messages in place of fear messages for promoting condoms to college students.

The NLM Gateway[14]

The NLM (National Library of Medicine) Gateway is a Web-based system that lets users search simultaneously in multiple retrieval systems at the U.S. National Library of Medicine (NLM). It allows users of NLM services to initiate searches from one Web interface, providing one-stop searching for many of NLM's information resources or databases.[15] To use the NLM Gateway, simply go to the search site at **http://gateway.nlm.nih.gov/gw/Cmd**. Type "fear" (or synonyms) into the search box and click "Search." The results will be presented in a tabular form, indicating the number of references in each database category.

Results Summary

Category	Items Found
Journal Articles	24209
Books / Periodicals / Audio Visual	1647
Consumer Health	302
Meeting Abstracts	1414
Other Collections	148
Total	27720

HSTAT[16]

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.[17] These documents include clinical practice guidelines, quick-reference guides for clinicians, consumer health brochures, evidence reports and technology assessments from the Agency for Healthcare Research and Quality (AHRQ), as well as AHRQ's Put Prevention Into Practice.[18] Simply search by "fear" (or synonyms) at the following Web site: **http://text.nlm.nih.gov**.

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[14] Adapted from NLM: **http://gateway.nlm.nih.gov/gw/Cmd?Overview.x**.

[15] The NLM Gateway is currently being developed by the Lister Hill National Center for Biomedical Communications (LHNCBC) at the National Library of Medicine (NLM) of the National Institutes of Health (NIH).

[16] Adapted from HSTAT: **http://www.nlm.nih.gov/pubs/factsheets/hstat.html**.

[17] The HSTAT URL is **http://hstat.nlm.nih.gov/**.

[18] Other important documents in HSTAT include: the National Institutes of Health (NIH) Consensus Conference Reports and Technology Assessment Reports; the HIV/AIDS Treatment Information Service (ATIS) resource documents; the Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Treatment (SAMHSA/CSAT) Treatment Improvement Protocols (TIP) and Center for Substance Abuse Prevention (SAMHSA/CSAP) Prevention Enhancement Protocols System (PEPS); the Public Health Service (PHS) Preventive Services Task Force's *Guide to Clinical Preventive Services*; the independent, nonfederal Task Force on Community Services' *Guide to Community Preventive Services*; and the Health Technology Advisory Committee (HTAC) of the Minnesota Health Care Commission (MHCC) health technology evaluations.

Coffee Break: Tutorials for Biologists[19]

Coffee Break is a general healthcare site that takes a scientific view of the news and covers recent breakthroughs in biology that may one day assist physicians in developing treatments. Here you will find a collection of short reports on recent biological discoveries. Each report incorporates interactive tutorials that demonstrate how bioinformatics tools are used as a part of the research process. Currently, all Coffee Breaks are written by NCBI staff.[20] Each report is about 400 words and is usually based on a discovery reported in one or more articles from recently published, peer-reviewed literature.[21] This site has new articles every few weeks, so it can be considered an online magazine of sorts. It is intended for general background information. You can access the Coffee Break Web site at the following hyperlink: **http://www.ncbi.nlm.nih.gov/Coffeebreak/**.

Other Commercial Databases

In addition to resources maintained by official agencies, other databases exist that are commercial ventures addressing medical professionals. Here are some examples that may interest you:

- **CliniWeb International:** Index and table of contents to selected clinical information on the Internet; see **http://www.ohsu.edu/cliniweb/**.
- **Medical World Search:** Searches full text from thousands of selected medical sites on the Internet; see **http://www.mwsearch.com/**.

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[19] Adapted from **http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html**.

[20] The figure that accompanies each article is frequently supplied by an expert external to NCBI, in which case the source of the figure is cited. The result is an interactive tutorial that tells a biological story.

[21] After a brief introduction that sets the work described into a broader context, the report focuses on how a molecular understanding can provide explanations of observed biology and lead to therapies for diseases. Each vignette is accompanied by a figure and hypertext links that lead to a series of pages that interactively show how NCBI tools and resources are used in the research process.

APPENDIX B. PATIENT RESOURCES

Overview

Official agencies, as well as federally funded institutions supported by national grants, frequently publish a variety of guidelines written with the patient in mind. These are typically called "Fact Sheets" or "Guidelines." They can take the form of a brochure, information kit, pamphlet, or flyer. Often they are only a few pages in length. Since new guidelines on fear can appear at any moment and be published by a number of sources, the best approach to finding guidelines is to systematically scan the Internet-based services that post them.

Patient Guideline Sources

The remainder of this chapter directs you to sources which either publish or can help you find additional guidelines on topics related to fear. Due to space limitations, these sources are listed in a concise manner. Do not hesitate to consult the following sources by either using the Internet hyperlink provided, or, in cases where the contact information is provided, contacting the publisher or author directly.

The National Institutes of Health

The NIH gateway to patients is located at **http://health.nih.gov/**. From this site, you can search across various sources and institutes, a number of which are summarized below.

Topic Pages: MEDLINEplus

The National Library of Medicine has created a vast and patient-oriented healthcare information portal called MEDLINEplus. Within this Internet-based system are "health topic pages" which list links to available materials relevant to fear. To access this system, log on to **http://www.nlm.nih.gov/medlineplus/healthtopics.html**. From there you can either search using the alphabetical index or browse by broad topic areas. Recently, MEDLINEplus listed the following when searched for "fear":

- Other guides

  Family Issues
  http://www.nlm.nih.gov/medlineplus/familyissues.html

  Panic Disorder
  http://www.nlm.nih.gov/medlineplus/panicdisorder.html

  Post-Traumatic Stress Disorder
  http://www.nlm.nih.gov/medlineplus/posttraumaticstressdisorder.html

  Teen Mental Health
  http://www.nlm.nih.gov/medlineplus/teenmentalhealth.html

You may also choose to use the search utility provided by MEDLINEplus at the following Web address: **http://www.nlm.nih.gov/medlineplus/**. Simply type a keyword into the search box and click "Search." This utility is similar to the NIH search utility, with the exception that it only includes materials that are linked within the MEDLINEplus system (mostly patient-oriented information). It also has the disadvantage of generating unstructured results. We recommend, therefore, that you use this method only if you have a very targeted search.

The Combined Health Information Database (CHID)

CHID Online is a reference tool that maintains a database directory of thousands of journal articles and patient education guidelines on fear. CHID offers summaries that describe the guidelines available, including contact information and pricing. CHID's general Web site is **http://chid.nih.gov/**. To search this database, go to **http://chid.nih.gov/detail/detail.html**. In particular, you can use the advanced search options to look up pamphlets, reports, brochures, and information kits. The following was recently posted in this archive:

- **Traumatic Brain Injury: Every Parent's Fear**

  Source: in DeFeo, A.B., ed. Parent Articles 2. San Antonio, TX: Communication Skill Builders. 1995. p. 179-180.

  Contact: Available from Communication Skill Builders. Customer Service, 555 Academic Court, San Antonio, TX 78204-2498. (800) 211-8378; Fax (800) 232-1223. PRICE: $55.00 plus shipping and handling. Order Number 076-163-0732.

  Summary: In this fact sheet, from a communication skills book for parents, a parent of a child with a traumatic brain injury (TBI) discusses the emotions and psychological factors that may affect the parents of children with TBI. Topics covered include the author's family's story, coping immediately after the trauma occurs, later recovery, speech and language re-development, psychosocial concerns as the child progresses, the role of speech language therapy, dealing with the rehabilitation and insurance communities, and the need for parents to find their own support network. The author encourages parents to educate themselves, to draw on other parents for support, and to act as their child's advocate.

- **AIDS: Fight Fear With Facts**

  Contact: North Carolina Department of Health and Human Services, Division of Public Health, Epidemiology Section, 1902 Mail Service Center, Raleigh, NC, 27699-1902, (919) 733-3421, http://www.schs.state.nc.us/epi.

  Summary: Ten common myths about Acquired immunodeficiency syndrome (AIDS) are presented in this fact sheet and rebutted. Myths that are dispelled include the beliefs that only drug abusers or homosexuals are at risk, Human immunodeficiency virus (HIV) can be transmitted through casual contact or by donating blood, blood transfusions put people at high risk, and children with AIDS are a threat to schoolmates. The risk of contracting AIDS through insects is dismissed, as is the risk through kissing and through treating Persons with AIDS (PWA's). The meaning of positive test results and the appropriateness of quarantine are addressed.

- **Dental Fears Research Clinic**

  Source: Kansas City, MO: School of Dentistry, University of Missouri-Kansas City. 199x. 2 p.

  Contact: Available from Special Patient Center. School of Dentistry, University of Missouri-Kansas City, 650 East 25th Street, Kansas City, MO 64108. (816) 235-2160. PRICE: Single copy free.

  Summary: This brochure describes the Dental Fears Research Clinic at the University of Missouri-Kansas City School of Dentistry. The Clinic has three primary goals: providing dental care, teaching, and research. The Clinic helps individuals overcome their fears about dentistry and teaches patients how to accept treatment more comfortably. The brochure describes the activities of the Clinic; what a patient at the Clinic can expect; how treatment charges are determined, including the role of insurance; and how new patients are incorporated into the Clinic's schedule.

- **I Can't Cope With My Fear of AIDS**

  Contact: Gay Mens Health Crisis, 119 W 24th St Tisch Bldg, New York, NY, 10011-1995, (212) 367-1205, http://www.gmhc.org.

  Summary: This brochure offers suggestions and strategies for physically well people living with an unhealthy fear of Human immunodeficiency virus (HIV) infection and Acquired immunodeficiency syndrome (AIDS). Symptoms of unhealthy fear, anxiety, and depression are listed and suggestions for behavior modification to nurture a healthy, reasonable attitude are outlined.

- **Putting the Fun Back in Your Sex Life and Taking Out the Fear**

  Contact: AIDS Foundation Houston Incorporated, 3202 Weslayan Annex, Houston, TX, 77027-5748, (713) 623-6796, http://www.aidshelp.org.

  Summary: This brochure outlines the components of safer sexual conduct as a way of preventing the transmission of Human immunodeficiency virus (HIV), the etiologic agent of Acquired immunodeficiency syndrome (AIDS). Proper condom use is described, as are the advantages of taking the HIV-antibody test.

- **AIDS (Acquired Immune Deficiency Syndrome): Facts Not Fear**

  Contact: Papua New Guinea Department of Health, STD/AIDS Unit, PO Box 3991, Boroko.

Summary: This brochure provides basic information about Acquired immunodeficiency syndrome (AIDS). It tells what AIDS is and its symptoms, how Human immunodeficiency virus (HIV) is and is not transmitted, and how to avoid HIV infection. It also points out that there is no cure or vaccine at the present time.

- **Love Without Fear of AIDS : How Young People Can Protect Themselves Against AIDS**

  Contact: AIDS Information Switzerland, PO Box 3176, Zurich, http://www.aids-info.ch.

  Summary: This brochure provides young adults and adolescents with general information about the human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS). The brochure describes HIV/AIDS and explains the ways that HIV is transmitted from person to person. The brochure covers how the HIV antibody test works. It discusses the ways that one can avoid getting HIV/AIDS such as careful choice of and communication with a partner, HIV testing, the use of a condom during each sexual encounter, and the avoidance of drug or alcohol use.

- **Why Should I Know About AIDS? You Can Help Stop the Epidemic of Fear**

  Contact: University of Wisconsin Milwaukee, Norris Health Center, PO Box 413, Milwaukee, WI, 53201-0413, (414) 229-4716, http://www.uwm.edu/Dept/Norris.

  Summary: This brochure uses cartoon figures to present basic information about the nature of Acquired immunodeficiency syndrome (AIDS), high-risk groups, and AIDS transmission. It stresses that AIDS cannot be transmitted through casual contact.

- **Fear Is in the Air. AIDS Is Not**

  Contact: GROW A Community Service Corporation, 341-11 S College Rd Ste 182, Wilmington, NC, 28403, (910) 799-7111.

  Summary: This fact sheet advises the general public that AIDS is not spread casually by sharing utensils, wearing clothes of a person with AIDS, swimming in public pools, or touching. It notes that AIDS is transmitted through exchange of blood or through certain acts of sexual intimacy with a person carrying the AIDS virus. It urges the general public to communicate with sex partners, limit their number, know the high risk groups, and adopt safer sex practices. A national AIDS hotline number is provided.

- **AIDS in the Workplace: Fact vs Fear**

  Contact: Southeast Michigan Coalition on Occupational, Safety and Health, 1550 Howard, Detroit, MI, 48216, (313) 961-3345.

  Summary: This fact sheet gives general information on Acquired immunodeficiency syndrome (AIDS) as it applies to the workplace. It explains ways in which the Human immunodeficiency virus (HIV) is and is not transmitted, and lists groups perceived to be at high risk for infection. The HIV-antibody test is explained, and the importance of infection control for health-care workers emphasized. The fact sheet outlines universal precautions and an employer's obligation to protect employees from AIDS. Workers who face risk of infection with Hepatitis B are told about a vaccine. The fact sheet also outlines employees' rights and urges readers to speak up against discrimination; the role of unions is defined.

- **The Far Right and Fear - Based Abstinence - Only Programs**

  Contact: Sexuality Information and Education Council of the US, 130 W 42nd St Ste 350, New York, NY, 10036-7802, (212) 819-9770, http://www.siecus.org.

  Summary: This fact sheet lists nationally known far right groups whose agendas in general include opposition to comprehensive sexuality education. Many of these far right organizations have focused on local and state battles over textbooks, curricula, television, and candidates, with local school board races being a common target. This list includes the name and address of the far right organizations, and includes the name and title of the chief operating officer. For each entry a description of the mission, sexuality education activities, and illustrative quotes are also included.

- **Beyond Fear: One Inmate's Story About HIV**

  Contact: Channing L. Bete Company Incorporated, 200 State Rd, South Deerfield, MA, 01373-0200, (800) 477-4776, http://www.channing-bete.com.

  Summary: This illustrated booklet presents the first-person account of a young prison inmate whose lifestyle placed him at high risk for HIV infection. While he was incarcerated he learned that he was HIV-positive. The author explains that unprotected sex and intravenous drug use place him at risk of HIV infection. After entering a prison-based drug abuse treatment program, the author learned to face his HIV diagnosis, enhance his physical, emotional, and mental health, and generally improve his outlook on life. The booklet includes basic facts about HIV transmission, the importance of safe sexual behavior, and the avoidance of needle sharing.

Healthfinder™

Healthfinder™ is sponsored by the U.S. Department of Health and Human Services and offers links to hundreds of other sites that contain healthcare information. This Web site is located at **http://www.healthfinder.gov**. Again, keyword searches can be used to find guidelines. The following was recently found in this database:

- **Families Can Help Children Cope with Fear and Anxiety**

  Summary: Whether tragic events touch your family personally or are brought into your home via newspapers and television, you can help children cope with the anxiety that violence, death and disasters can

  Source: SAMHSA's National Mental Health Information Center, Center for Mental Health Services

  http://www.healthfinder.gov/scripts/recordpass.asp?RecordType=0&RecordID=5174

The NIH Search Utility

The NIH search utility allows you to search for documents on over 100 selected Web sites that comprise the NIH-WEB-SPACE. Each of these servers is "crawled" and indexed on an ongoing basis. Your search will produce a list of various documents, all of which will relate in some way to fear. The drawbacks of this approach are that the information is not organized by theme and that the references are often a mix of information for professionals and patients. Nevertheless, a large number of the listed Web sites provide useful background information. We can only recommend this route, therefore, for relatively rare or

specific disorders, or when using highly targeted searches. To use the NIH search utility, visit the following Web page: **http://search.nih.gov/index.html**.

Additional Web Sources

A number of Web sites are available to the public that often link to government sites. These can also point you in the direction of essential information. The following is a representative sample:

- AOL: **http://search.aol.com/cat.adp?id=168&layer=&from=subcats**
- Family Village: **http://www.familyvillage.wisc.edu/specific.htm**
- Google: **http://directory.google.com/Top/Health/Conditions_and_Diseases/**
- Med Help International: **http://www.medhelp.org/HealthTopics/A.html**
- Open Directory Project: **http://dmoz.org/Health/Conditions_and_Diseases/**
- Yahoo.com: **http://dir.yahoo.com/Health/Diseases_and_Conditions/**
- WebMD®Health: **http://my.webmd.com/health_topics**

News Services and Press Releases

One of the simplest ways of tracking press releases on fear is to search the news wires. In the following sample of sources, we will briefly describe how to access each service. These services only post recent news intended for public viewing.

PR Newswire

To access the PR Newswire archive, simply go to **http://www.prnewswire.com/**. Select your country. Type "fear" (or synonyms) into the search box. You will automatically receive information on relevant news releases posted within the last 30 days.

Reuters Health

The Reuters' Medical News and Health eLine databases can be very useful in exploring news archives relating to fear. While some of the listed articles are free to view, others are available for purchase for a nominal fee. To access this archive, go to **http://www.reutershealth.com/en/index.html** and search by "fear" (or synonyms).

The NIH

Within MEDLINEplus, the NIH has made an agreement with the New York Times Syndicate, the AP News Service, and Reuters to deliver news that can be browsed by the public. Search news releases at **http://www.nlm.nih.gov/medlineplus/alphanews_a.html**. MEDLINEplus allows you to browse across an alphabetical index. Or you can search by date at the following Web page: **http://www.nlm.nih.gov/medlineplus/newsbydate.html**. Often, news items are indexed by MEDLINEplus within its search engine.

Business Wire

Business Wire is similar to PR Newswire. To access this archive, simply go to **http://www.businesswire.com/**. You can scan the news by industry category or company name.

Market Wire

Market Wire is more focused on technology than the other wires. To browse the latest press releases by topic, such as alternative medicine, biotechnology, fitness, healthcare, legal, nutrition, and pharmaceuticals, access Market Wire's Medical/Health channel at **http://www.marketwire.com/mw/release_index?channel=MedicalHealth**. Or simply go to Market Wire's home page at **http://www.marketwire.com/mw/home**, type "fear" (or synonyms) into the search box, and click on "Search News." As this service is technology oriented, you may wish to use it when searching for press releases covering diagnostic procedures or tests.

Search Engines

Medical news is also available in the news sections of commercial Internet search engines. See the health news page at Yahoo (**http://dir.yahoo.com/Health/News_and_Media/**), or you can use this Web site's general news search page at **http://news.yahoo.com/**. Type in "fear" (or synonyms). If you know the name of a company that is relevant to fear, you can go to any stock trading Web site (such as **http://www.etrade.com/**) and search for the company name there. News items across various news sources are reported on indicated hyperlinks. Google offers a similar service at **http://news.google.com/**.

BBC

Covering news from a more European perspective, the British Broadcasting Corporation (BBC) allows the public free access to their news archive located at **http://www.bbc.co.uk/**. Search by "fear" (or synonyms).

Newsletter Articles

Use the Combined Health Information Database, and limit your search criteria to "newsletter articles." Again, you will need to use the "Detailed Search" option. Go directly to the following hyperlink: **http://chid.nih.gov/detail/detail.html**. Go to the bottom of the search page where "You may refine your search by." Select the dates and language that you prefer. For the format option, select "Newsletter Article." Type "fear" (or synonyms) into the "For these words:" box. You should check back periodically with this database as it is updated every three months. The following is a typical result when searching for newsletter articles on fear:

- **Helping Families Cope with Dystonia**

  Source: Dystonia Dialogue. 24(1): 20-21. April-May 2001.

  Contact: Available from Dystonia Medical Research Foundation. One East Wacker Drive, Suite 2430, Chicago, IL 60601-1905. (312) 755-0198. Fax (312) 803-0138. E-mail: dystonia@dystonia-foundation.org. Website: www.dystonia-foundation.org.

  Summary: A family coping with a chronic medical condition has specific dynamics with which to deal, including the impact of the medical stressor on the relationships within the family. This newsletter article reviews this issue, focusing on families coping with dystonia (a neurological movement disorder that can also have an impact on communication). The author discusses guilt, **fear,** and communication and behavior. The author notes that resolutions to relationship problems may be simple, such as taking time off from the relationship to regain perspective, getting enough rest and adequate nutrition, plain talk using behavior based requests, keeping a journal of feelings and thoughts, or talking with a sympathetic friend or clergy. The article concludes with a brief section encouraging readers to see the challenges of dystonia as an opportunity to strengthen relationships and foster increased openness.

- **How to Reduce Stress During a Dementia Patient Evaluation: A Nursing Model**

  Source: Caregiver: Newsletter of the Duke Family Support Program. 10(1): 13. March 1990.

  Contact: Available from Duke Family Support Program. Box 3600, Duke University Medical Center, Durham, NC 27710. (919) 660-7510 or (800) 672-4213 (in North Carolina). PRICE: Free to North Carolina residents. $10.00 per year for nonresidents.

  Summary: Nurses who learn as much as possible about an Alzheimer's disease patient before a clinic visit can facilitate efficient evaluation and eliminate much of the patient's anxiety and behavior problems during testing or health procedures. This newsletter article for nurses provides suggestions which are specific to a clinic setting. Observations during the clinic visit may reveal important information for the overall assessment of the patient; some of these are listed. The importance of noting unusual moods (fear; anxiety; confusion; calm; neatness of appearance) during the initial nurse-patient introduction is stressed. Practical tips for dealing with Alzheimer patients are included.

- **From Diagnosis to Dialysis: Kidney School Helps Patients Cope with Kidney Disease**

  Source: Renal Rehabilitation Report. 10(2): S2. Summer 2002.

  Contact: Available from Life Options Rehabilitation Program. Medical Education Institute, Inc, 414 D'Onofrid Drive., Suite 200, Madison, WI 53719. (608) 833-8033. E-mail: lifeoptions@meiresearch.org.

  Summary: People affected by kidney disease encounter a wide range of emotions: sadness, anger, **fear** and uncertainty about the future, even depression. This brief newsletter article describes Kidney School, an online, interactive learning center that can be accessed free, 24 hours a day, at www.kidneyschool.org. Kidney School is designed to inspire, motivate, and empower people with chronic kidney disease and with kidney failure to take an active role in their health care and to improve their chances of living long and well. Kidney School consists of 16 interactive modules, addressing a wide range of topics, from exploring treatment options and anemia to vascular access care and understanding lab tests. Module 5, Coping with Kidney Disease, deals directly with

the emotional aspects of kidney disease. Topics include the typical stages of adjustment, practical strategies for coping, and resources for assistance. Throughout each module, practical tips and quotes from patients help users begin to develop their own coping strategies.

- **Injured? Just Relax!**

  Source: Running and Fitnews. (18)11:1. November 2000.

  Contact: The American Running Association. 4405 East West Hwy., Number 405, Bethesda, MD 20814, 800/776-2732, www.americanrunning.org.

  Summary: Research on the psychological effects of stress on recovery from surgery and other kinds of running injuries shows that anxiety, anger, **fear,** and other sources of stress slow and can complicate recovery and healing. In a study conducted at Ohio State University to examine the physiological changes produced by stress that impair healing, women with higher ratings of perceived stress showed lower levels of two components (interleukins) of the healing process that reduce inflammation and promote healing. The cumulative effect of chronic stress can result in suppression of the immune system, cardiovascular disease, and psychological problems that can increase the stress in life. A sidebar provides tips for injured runners on how to relieve stress.

- **Hypersensitivity to Hearing: Hyperacusis, Phonophobia, and Recruitment**

  Source: Hyperacusis Network. p. 3-10. March 2000.

  Contact: Available from Hyperacusis Network. 444 Edgewood Drive, Green Bay, WI 54302. Fax (920) 468-0168. E-mail: hyacusis@netnet.net. Website: www.hyperacusis.net.

  Summary: Some people have especially sensitive hearing (hyperacusis) and are unable to tolerate ordinary levels of noise. This problem can occur in people with normal hearing, or in those with a hearing loss. This newsletter article discusses the components that can contribute to hypersensitivity of hearing, including phonophobia (fear of loud or painful sounds), and recruitment (the ability of the normal ear to hear quiet sounds and still tolerate relatively loud sounds). Recruitment is due to a reduction in neural elements in the inner ear (usually the hair cells), so that a small change in stimulus intensity produces a bigger change in response of the inner ear. Topics covered include the mechanisms of hyperacusis, the meaning of loudness, hearing tests, the limbic system and emotional response, treatment of hyperacusis with hearing loss, avoidance of silence, wide band noise generators (WNGs), the interplay of hyperacusis and Meniere's disease, and the symptoms of Meniere's disease (vertigo, tinnitus, hearing loss and hyperacusis, and aural fullness).

- **Acoustic Neuroma Association**

  Source: ANA Notes. Acoustic Neuroma Association Notes. Number 66: 1, 6-8. May 1998.

  Contact: Available from Acoustic Neuroma Association (ANA). 600 Peachtree Parkway, Suite 108, Cumming, GA 30041-8211. (770) 205-8211. Fax (770 www.ANAUSA.org.

  Summary: This article describes the Acoustic Neuroma Association (ANA), an organization established to improve the patient's treatment experience and subsequent recovery. The organization believes that by providing realistic and accurate patient information and by offering interaction with other acoustic tumor patients, each patient's experience will be enhanced. Altered levels of hearing and balance or perhaps loss of facial function are often a source of ongoing distress to the acoustic neuroma

patient. The author stresses that most patients find encouragement and support from association with other acoustic neuroma patients; also, realistic patient information can reduce anxiety and **fear** prior to treatment and provide guidance for rehabilitative alternatives and coping strategies later. The article outlines the four purposes of the organization and describes the following components: the Medical Advisory Board, the quarterly newsletter (in which this article appears), the national symposia, the patient education publications, the exhibits, the patient surveys, the local groups, the international affiliations, the Acoustic Neuroma Registry, the national office, and the Internet homepage. The author concludes that advances in technology and increased awareness of unilateral hearing loss as a possible indication of acoustic neuroma sometimes allow for earlier diagnosis and, therefore, smaller tumors (which are easier to treat). However, the ANA still receives many information requests from patients with large tumors with whom rehabilitation or long-term coping strategies may need to be utilized.

- **Psychological Impact of Alzheimer's Disease on the Family**

  Source: Sharing the Caring. [Newsletter] 3(1). Winter 1990.

  Contact: Available from George G. Glenner Alzheimer's Family Centers, Inc. 3702 Fourth Avenue, San Diego, CA 92103-4106. (800) 736-6674. PRICE: Single copies free.

  Summary: This article for families of people with Alzheimer's disease discusses the psychological impact of Alzheimer's on the family. The elusive nature of Alzheimer's can create family conflict. In the early stages of the disease, family members may find themselves unknowingly responding to the patient's inventions and hallucinations. The article describes common negative feelings experienced by family members (e.g. shame, denial, guilt, **fear,** and overprotection) and explains how to counteract these feelings.

- **Childhood Defecation Disorders: Constipation and Soiling**

  Source: Participate. 9(3): 4-6. Fall 2000.

  Contact: Available from International Foundation for Functional Gastrointestinal Disorders (IFFGD). P.O. Box 170864, Milwaukee, WI 53217. (888) 964-2001 or (414) 964-1799. Fax (414) 964-7176. E-mail: iffgd@iffgd.org. Website: www.iffgd.org.

  Summary: This article is the second in a two part series on pediatric functional gastrointestinal (GI) disorders that may prompt parents to bring their child to the doctor for constipation or fecal soiling. In this article, the author focuses on non retentive fecal soiling and functional fecal retention. Functional refers to a disorder where the primary problem is not due to disease or visible tissue damage or inflammation; in this article, the author uses functional to refer to symptoms that occur within the expected range of the body's behavior. Functional fecal retention is defined in children by the passage of large or enormous bowel movements at intervals less than twice per week, and the attempt to avoid having bowel movements on purpose. Accompanying symptoms include soiling of the underclothes, irritability, abdominal cramps, and decreased appetite. Functional fecal retention begins when there is a painful bowel movement and the child learns to **fear** the urge to have a bowel movement. After diagnosis, treatment goals include family and patient education, medication as necessary to assure painless defecation, and the provision of continued availability and interest in the child's problem. Fecal soiling refers to passage of bowel movements into the underclothing, or other inappropriate places. Fecal soiling commonly accompanies functional fecal retention, or after a chronic problem with diarrhea. Functional non retentive (not associated with fecal retention) fecal soiling is diagnosed in children older than 4, who

have bowel movements in places and at times that are inappropriate, at least once a week for 3 months, in the absence of a disease to explain it. Treatment goals are to help the parent to understand that there is no medical disease, and to accept a referral to a mental health professional. Parents need guidance to understand that soiling is a symptom of emotional upset, not simply bad behavior. 1 table.

- **Incontinence in Elders: A Practical Diagnostic and Management Schema**

  Source: IHS Primary Care Provider. 24(5): 73-78. May 1999.

  Contact: Available from Indian Health Service Clinical Support Center. Two Renaissance Square, Suite 780, 40 North Central Avenue, Phoenix, AZ 85004. (602) 364-7777. Fax (602) 364-7788. E-mail: the.provider@phx.ihs.gov. Website: www.ihs.gov.

  Summary: This article reminds readers that urinary incontinence (UI) is not an inevitable consequence of aging, rather it is a treatable condition in the majority of patients. The authors focus on a specific population (Native Americans) and provide a scheme for diagnosis and management of UI in this population. The authors note that many elders **fear** UI, because it is often a primary reason that they may cease community living to be placed in a nursing home. For this reason, health care providers are encouraged to ask their patients specifically about incontinence and to let them know that most incontinence can be successfully treated, so that these elders may regain their dignity and improve their quality of life. The authors summarize the types of incontinence, including stress, urge, functional, overflow, mixed, and transient, then review the diagnostic tests used to evaluate incontinence and determine treatment. The goals of treatment include to preserve the upper urinary tract, to maintain or regain adequate bladder capacity with good compliance, to promote low pressure micturition (urination), to avoid bladder overdistention, to prevent urinary tract infection (UTI), to minimize the use of Foley catheters, and to choose therapy that minimizes the patient's risks while maximizing his or her social, emotional, and vocational acceptability. Treatment options include behavior modification (including Kegel exercises and bladder training), electrostimulation, biofeedback, pharmacotherapy (drugs), surgical procedures, collagen injection, intermittent self catheterization, mechanical plugs and appliances, neuroimplantation (for the spinal cord patient with incontinence), and environmental changes (such as providing a bedside commode). 4 tables. 12 references.

- **SSDI Case Study: Making Employment Work for You**

  Source: Renal Rehabilitation Report. 5(5): 2-3. September-October 1997.

  Contact: Available from Life Options Rehabilitation Program. Medical Education Institute, Inc, 414 D'Onofrid Drive., Suite 200, Madison, WI 53719. (608) 833-8033. E-mail: lifeoptions@meiresearch.org.

  Summary: This article, from a special issue on vocational rehabilitation and employment for dialysis patients, discusses some of the employment-related options for these patients. The author notes that some patients who are willing and able to work decide not to because of real or perceived fears about how choosing to work may affect their lives. Many of these patients **fear** the potential loss of financial benefits they receive, either through Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI). In response to these concerns, the Social Security Administration (SSA) implemented a series of work incentives to help persons with disabilities take greater advantage of employment opportunities. The article provides a case study that illustrates how SSDI work incentives helped one dialysis patient return to and maintain long term employment. The case study emphasizes the importance of working closely

with social workers and the SSA to learn about all the possibilities that are available for people with end-stage renal disease.

- **Know the Truth About Your Teeth**

  Source: Healthy YOUniverse. p. 3. Spring 1997.

  Contact: Available from Healthy YOUniverse. Wellness Council of America, Community Health Plaza, 7101 Newport Avenue, Suite 311, Omaha, NE 68152. (402) 572-3590; Fax (402) 572-3594.

  Summary: This brief article from a wellness newsletter asks readers to answer a quiz about their oral health. Nine questions ask readers about the relationship between dental disease and other systemic disease, the use of x-rays, the parts of the tooth susceptible to decay, the primary cause of gum disease, dental plaque, and the signs and symptoms of gum disease. The latter half of the article provides brief answers to the quiz. The article concludes by encouraging readers to see a dentist and dental hygienist for a complete examination and to begin a regular program of daily oral hygiene, including flossing. The incidence of dental **fear** is briefly mentioned.

- **Urinary Incontinence and Sexuality**

  Source: Quality Care. 16(3): 5. Summer 1998.

  Contact: Available from National Association for Continence. P.O. Box 8310, Spartanburg, SC 29305-8310. (800) 252-3337 or (864) 579-7900. Fax (864) 579-7902.

  Summary: This brief newsletter article reviews the problem of urinary incontinence and its impact on the patient's sexuality. The impact of incontinence may upset an established love life or create particular difficulties with a new relationship. Intimacy is about being close, and incontinence or the **fear** of leakage might be an obstacle, both mentally and physically. Problems may be greatest for those who have known continence but have lost it as a result of a difficult childbirth or surgery. This surgery can include hysterectomy or prolapse surgeries for women and prostatectomy for men. Loss of orgasm can also occur after surgery. There is often embarrassment, anger, and frustration with these adverse outcomes. Some causes for leakage include pelvic floor muscle weakness, overactive bladder contractions, or incomplete bladder emptying. The author notes that incontinence episodes with sex can sometimes be cured, often improved, but always managed by optimal care. The author briefly summarizes the principles of successful management: make sure the bladder and bowel are empty before sexual activity, use warmed lubricating gel, avoid a position that may provoke leakage, and share concerns with the sexual partner. The author encourages readers to work with their health care providers to manage urinary incontinence problems.

- **Expanding the Organ Donor Pool**

  Source: Clinical Strategies: The AKF Newsletter for Nephrology Professionals. 3(2): 6, 15. Fall 1996.

  Contact: Available from American Kidney Fund. 6110 Executive Boulevard, Suite 1010, Rockville, MD 20852. (800) 638-8299 or (301) 881-3052. Fax (301) 881-0898.

  Summary: This newsletter article describes a variety of means to expand the organ donor pool, particularly for kidney transplantation. The author describes recent events that have resulted in a recipient pool that is expanding much faster than the pool of organs available for transplantation. The author emphasizes that recent increases in the

use of living, nonrelated donors have expanded the donor pool at many major transplant centers. Success rates are comparable to living related donors and better than cadaver donors. The author then discusses several ways to increase the potential cadaveric donor organ pool, including public education, expanding donor criteria (particularly using older donor organs), and compensation to donor families. The author notes that the latter idea has been the subject of much controversy. Compensation should not be in the form of cash, as this implies payment for donor organs, but could be in the form of help with burial expenses or contribution to a charity or hospital in the donor's name. The author comments on the unwillingness of more than half of all Americans to donate their organs (according to various opinion polls). Distrust of the health care system, lack of knowledge regarding the need for transplantation, **fear** that everything possible will not be done to save their lives, and **fear** of mutilation are some of the factors contributing to this negative view of donation. The author encourages all transplant community members to do their part to increase the organ donor pool.

- **Hypersensitivity to Sound**

  Source: Hyperacusis Network. p. 5-8. December 1997.

  Contact: Available from Hyperacusis Network. 444 Edgewood Drive, Green Bay, WI 54302. (920) 468-4667; E-mail: dmalcore@mail.wiscnet.net.

  Summary: This newsletter article describes hypersensitivity to sound. After an introduction that explains the testing used to evaluate hearing, the authors discuss the three components that can contribute to sensitive hearing: hyperacusis, phonophobia, and recruitment. Additional topics include the limbic system and related emotional response, the treatment of hyperacusis, the avoidance of silence, wide band noise (WBN) generators (maskers), and the use of retraining in people with hyperacusis. The author emphasizes that where phonophobia (fear of the sound) exists, no permanent change in loudness discomfort can be achieved without a successful behavioral program aimed at reversing inappropriate beliefs responsible for the phobic state. The whole process of desensitization can take quite a long time, commonly six months to a year, but is achievable in most cases. (AA-M).

- **Doctor-Caregiver Communication**

  Source: Caring and Sharing. [Newsletter] 9(4): 9. Winter 1990.

  Contact: Available from Alzheimer's Association, South Central Kansas Chapter. P.O. Box 2763, Wichita, KS 67201. (316) 261-9099. PRICE: Call for price information.

  Summary: This newsletter article discusses the importance of physician-caregiver communication and addressing the caregiver's concerns. The role of the family or caregiver is important in obtaining a medical history of the patient with Alzheimer's disease. Reasons for unsatisfactory communication between the caregiver and physician, from the caregiver's perspective include: difficulty in talking about painful or unpleasant subjects, concern about 'taking up' the physician's time, **fear** of seeming frivolous, and having preconceived ideas and expectations different from the doctor's understanding of the disease. The physician's perspective about unsatisfactory communication may include: overload of patients, the physician's need to protect himself from the emotional impact of the disease and stories, and not knowing the caregiver's level of medical sophistication. To improve communication caregivers should limit questions to the problems and rehearse or write down the questions before meeting with the physician. In addition, caregivers should ask the physician to repeat or explain any unclear words or statements. The physician can assist in communication by

allowing the caregiver to express himself as much as realistically possible, assuming a more friendly rather than business-like attitude, and allowing the caregiver to verbalize his understanding of the disease.

- **Facing Lupus Nephritis**

  Source: Lupus Horizons. 21(2):8-10; Fall 1997.

  Contact: Greater Atlanta Chapter of the Lupus Foundation of America, 150 Interstate North Parkway, NW, Suite 285, Atlanta, GA 30339-2201. (800) 800-4FLA. (770) 952-3891.

  Summary: This newsletter article for health professionals and individuals with lupus focuses on lupus nephritis. Reasons why individuals with lupus may **fear** kidney disease are presented. The types of tests that are useful in the evaluation of patients with suspected nephritis are described, including urinalysis, immunologic tests, and kidney biopsy. In addition, drug therapies that are effective for the treatment of lupus are highlighted, including corticosteroids, chemotherapy, diuretics, and antihypertensives. Dialysis or kidney transplantation may be required if kidney failure develops.

- **Stuttering and Singing: Is There a Connection?**

  Source: Voice Foundation Newsletter. 5(1): 3-4. January 1999.

  Contact: Available from Voice Foundation. 1721 Pine Street, Philadelphia, PA 19103. (215) 735-7999. Fax (215) 735-9293. E-mail: voicefoundation@onrampcom.com.

  Summary: This newsletter article ponders the connection between stuttering and singing. The author comments that people who stutter often do not stutter when singing. The author then reports on her findings from a study to determine why this is so. The author begins by defining stuttering and noting that the cause of the problem is still unknown. The best method of treatment is also an area of considerable disagreement. Many factors including the age of the person who stutters and the type of stuttering are important in choosing appropriate therapy. Treatment approaches include psychotherapy, **fear** reduction, relaxation, more efficient vocal technique, new ways of stuttering, negative reinforcements in the form of time outs as well as positive reinforcement, reducing rate of speech, increasing syllable duration, biofeedback techniques, reading aloud and in unison with others, and even masking the sound of the person's voice (so that the individual cannot hear himself or herself while speaking). Circumstances such as singing, speaking rhythmically, and choral speaking can markedly decrease stuttering. The author concludes by posing some possible reasons why stuttering often disappears with singing.

- **Enhancing Patient Self-Management in Clinical Practice**

  Source: Bulletin on the Rheumatic Diseases. 49(9): 1-4. 2001.

  Contact: Available from Arthritis Foundation. 1330 West Peachtree Street, Atlanta, GA 30309. (404) 872-7100. Fax (404) 872-9559.

  Summary: This newsletter article provides health professionals with information on enhancing self management among patients with arthritis. The article explains the difference between self management education programs and traditional patient education programs. Self management education is more interactive than traditional patient education, and it results in greater improvement in pain, functional disability, and tender joints than education that provides only information. The article then presents an example of self management education, the Arthritis Self Help Course. This

6 week course, which is also known as the Arthritis Self Management Program, focuses on managing pain, disability, **fear,** and depression and on developing more generic self management skills. This program has been shown to be effective in long term pain relief. Exercise and other physical activity are also a priority strategy for arthritis self management. The Surgeon General's report on physical activity and health found that programs of regular moderate aerobic activity or resistance training relieve symptoms and improve function among people with rheumatoid arthritis and osteoarthritis. Studies of physical activity among people with arthritis have demonstrated the efficacy and safety of aerobic exercise. Steps that physicians can take to increase self management among their patients include reinforcing the value of self management activities, recommending that patients participate in self management activities, referring patients to self management resources, and reconsidering their approach to engaging their patients in self management activities. 1 table and 18 references.

Finding Associations

There are several Internet directories that provide lists of medical associations with information on or resources relating to fear. By consulting all of associations listed in this chapter, you will have nearly exhausted all sources for patient associations concerned with fear.

The National Health Information Center (NHIC)

The National Health Information Center (NHIC) offers a free referral service to help people find organizations that provide information about fear. For more information, see the NHIC's Web site at **http://www.health.gov/NHIC/** or contact an information specialist by calling 1-800-336-4797.

Directory of Health Organizations

The Directory of Health Organizations, provided by the National Library of Medicine Specialized Information Services, is a comprehensive source of information on associations. The Directory of Health Organizations database can be accessed via the Internet at **http://www.sis.nlm.nih.gov/Dir/DirMain.html**. It is composed of two parts: DIRLINE and Health Hotlines.

The DIRLINE database comprises some 10,000 records of organizations, research centers, and government institutes and associations that primarily focus on health and biomedicine. To access DIRLINE directly, go to the following Web site: **http://dirline.nlm.nih.gov/**. Simply type in "fear" (or a synonym), and you will receive information on all relevant organizations listed in the database.

Health Hotlines directs you to toll-free numbers to over 300 organizations. You can access this database directly at **http://www.sis.nlm.nih.gov/hotlines/**. On this page, you are given the option to search by keyword or by browsing the subject list. When you have received your search results, click on the name of the organization for its description and contact information.

The Combined Health Information Database

Another comprehensive source of information on healthcare associations is the Combined Health Information Database. Using the "Detailed Search" option, you will need to limit your search to "Organizations" and "fear". Type the following hyperlink into your Web browser: **http://chid.nih.gov/detail/detail.html**. To find associations, use the drop boxes at the bottom of the search page where "You may refine your search by." For publication date, select "All Years." Then, select your preferred language and the format option "Organization Resource Sheet." Type "fear" (or synonyms) into the "For these words:" box. You should check back periodically with this database since it is updated every three months.

The National Organization for Rare Disorders, Inc.

The National Organization for Rare Disorders, Inc. has prepared a Web site that provides, at no charge, lists of associations organized by health topic. You can access this database at the following Web site: **http://www.rarediseases.org/search/orgsearch.html**. Type "fear" (or a synonym) into the search box, and click "Submit Query."

APPENDIX C. FINDING MEDICAL LIBRARIES

Overview

In this Appendix, we show you how to quickly find a medical library in your area.

Preparation

Your local public library and medical libraries have interlibrary loan programs with the National Library of Medicine (NLM), one of the largest medical collections in the world. According to the NLM, most of the literature in the general and historical collections of the National Library of Medicine is available on interlibrary loan to any library. If you would like to access NLM medical literature, then visit a library in your area that can request the publications for you.[22]

Finding a Local Medical Library

The quickest method to locate medical libraries is to use the Internet-based directory published by the National Network of Libraries of Medicine (NN/LM). This network includes 4626 members and affiliates that provide many services to librarians, health professionals, and the public. To find a library in your area, simply visit **http://nnlm.gov/members/adv.html** or call 1-800-338-7657.

Medical Libraries in the U.S. and Canada

In addition to the NN/LM, the National Library of Medicine (NLM) lists a number of libraries with reference facilities that are open to the public. The following is the NLM's list and includes hyperlinks to each library's Web site. These Web pages can provide information on hours of operation and other restrictions. The list below is a small sample of

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[22] Adapted from the NLM: **http://www.nlm.nih.gov/psd/cas/interlibrary.html**.

libraries recommended by the National Library of Medicine (sorted alphabetically by name of the U.S. state or Canadian province where the library is located)[23]:

- **Alabama:** Health InfoNet of Jefferson County (Jefferson County Library Cooperative, Lister Hill Library of the Health Sciences), **http://www.uab.edu/infonet/**
- **Alabama:** Richard M. Scrushy Library (American Sports Medicine Institute)
- **Arizona:** Samaritan Regional Medical Center: The Learning Center (Samaritan Health System, Phoenix, Arizona), **http://www.samaritan.edu/library/bannerlibs.htm**
- **California:** Kris Kelly Health Information Center (St. Joseph Health System, Humboldt), **http://www.humboldt1.com/~kkhic/index.html**
- **California:** Community Health Library of Los Gatos, **http://www.healthlib.org/orgresources.html**
- **California:** Consumer Health Program and Services (CHIPS) (County of Los Angeles Public Library, Los Angeles County Harbor-UCLA Medical Center Library) - Carson, CA, **http://www.colapublib.org/services/chips.html**
- **California:** Gateway Health Library (Sutter Gould Medical Foundation)
- **California:** Health Library (Stanford University Medical Center), **http://www-med.stanford.edu/healthlibrary/**
- **California:** Patient Education Resource Center - Health Information and Resources (University of California, San Francisco), **http://sfghdean.ucsf.edu/barnett/PERC/default.asp**
- **California:** Redwood Health Library (Petaluma Health Care District), **http://www.phcd.org/rdwdlib.html**
- **California:** Los Gatos PlaneTree Health Library, **http://planetreesanjose.org/**
- **California:** Sutter Resource Library (Sutter Hospitals Foundation, Sacramento), **http://suttermedicalcenter.org/library/**
- **California:** Health Sciences Libraries (University of California, Davis), **http://www.lib.ucdavis.edu/healthsci/**
- **California:** ValleyCare Health Library & Ryan Comer Cancer Resource Center (ValleyCare Health System, Pleasanton), **http://gaelnet.stmarys-ca.edu/other.libs/gbal/east/vchl.html**
- **California:** Washington Community Health Resource Library (Fremont), **http://www.healthlibrary.org/**
- **Colorado:** William V. Gervasini Memorial Library (Exempla Healthcare), **http://www.saintjosephdenver.org/yourhealth/libraries/**
- **Connecticut:** Hartford Hospital Health Science Libraries (Hartford Hospital), **http://www.harthosp.org/library/**
- **Connecticut:** Healthnet: Connecticut Consumer Health Information Center (University of Connecticut Health Center, Lyman Maynard Stowe Library), **http://library.uchc.edu/departm/hnet/**

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[23] Abstracted from **http://www.nlm.nih.gov/medlineplus/libraries.html**.

- **Connecticut:** Waterbury Hospital Health Center Library (Waterbury Hospital, Waterbury), **http://www.waterburyhospital.com/library/consumer.shtml**
- **Delaware:** Consumer Health Library (Christiana Care Health System, Eugene du Pont Preventive Medicine & Rehabilitation Institute, Wilmington), **http://www.christianacare.org/health_guide/health_guide_pmri_health_info.cfm**
- **Delaware:** Lewis B. Flinn Library (Delaware Academy of Medicine, Wilmington), **http://www.delamed.org/chls.html**
- **Georgia:** Family Resource Library (Medical College of Georgia, Augusta), **http://cmc.mcg.edu/kids_families/fam_resources/fam_res_lib/frl.htm**
- **Georgia:** Health Resource Center (Medical Center of Central Georgia, Macon), **http://www.mccg.org/hrc/hrchome.asp**
- **Hawaii:** Hawaii Medical Library: Consumer Health Information Service (Hawaii Medical Library, Honolulu), **http://hml.org/CHIS/**
- **Idaho:** DeArmond Consumer Health Library (Kootenai Medical Center, Coeur d'Alene), **http://www.nicon.org/DeArmond/index.htm**
- **Illinois:** Health Learning Center of Northwestern Memorial Hospital (Chicago), **http://www.nmh.org/health_info/hlc.html**
- **Illinois:** Medical Library (OSF Saint Francis Medical Center, Peoria), **http://www.osfsaintfrancis.org/general/library/**
- **Kentucky:** Medical Library - Services for Patients, Families, Students & the Public (Central Baptist Hospital, Lexington), **http://www.centralbap.com/education/community/library.cfm**
- **Kentucky:** University of Kentucky - Health Information Library (Chandler Medical Center, Lexington), **http://www.mc.uky.edu/PatientEd/**
- **Louisiana:** Alton Ochsner Medical Foundation Library (Alton Ochsner Medical Foundation, New Orleans), **http://www.ochsner.org/library/**
- **Louisiana:** Louisiana State University Health Sciences Center Medical Library-Shreveport, **http://lib-sh.lsuhsc.edu/**
- **Maine:** Franklin Memorial Hospital Medical Library (Franklin Memorial Hospital, Farmington), **http://www.fchn.org/fmh/lib.htm**
- **Maine:** Gerrish-True Health Sciences Library (Central Maine Medical Center, Lewiston), **http://www.cmmc.org/library/library.html**
- **Maine:** Hadley Parrot Health Science Library (Eastern Maine Healthcare, Bangor), **http://www.emh.org/hll/hpl/guide.htm**
- **Maine:** Maine Medical Center Library (Maine Medical Center, Portland), **http://www.mmc.org/library/**
- **Maine:** Parkview Hospital (Brunswick), **http://www.parkviewhospital.org/**
- **Maine:** Southern Maine Medical Center Health Sciences Library (Southern Maine Medical Center, Biddeford), **http://www.smmc.org/services/service.php3?choice=10**
- **Maine:** Stephens Memorial Hospital's Health Information Library (Western Maine Health, Norway), **http://www.wmhcc.org/Library/**

- **Manitoba, Canada:** Consumer & Patient Health Information Service (University of Manitoba Libraries), **http://www.umanitoba.ca/libraries/units/health/reference/chis.html**
- **Manitoba, Canada:** J.W. Crane Memorial Library (Deer Lodge Centre, Winnipeg), **http://www.deerlodge.mb.ca/crane_library/about.asp**
- **Maryland:** Health Information Center at the Wheaton Regional Library (Montgomery County, Dept. of Public Libraries, Wheaton Regional Library), **http://www.mont.lib.md.us/healthinfo/hic.asp**
- **Massachusetts:** Baystate Medical Center Library (Baystate Health System), **http://www.baystatehealth.com/1024/**
- **Massachusetts:** Boston University Medical Center Alumni Medical Library (Boston University Medical Center), **http://med-libwww.bu.edu/library/lib.html**
- **Massachusetts:** Lowell General Hospital Health Sciences Library (Lowell General Hospital, Lowell), **http://www.lowellgeneral.org/library/HomePageLinks/WWW.htm**
- **Massachusetts:** Paul E. Woodard Health Sciences Library (New England Baptist Hospital, Boston), **http://www.nebh.org/health_lib.asp**
- **Massachusetts:** St. Luke's Hospital Health Sciences Library (St. Luke's Hospital, Southcoast Health System, New Bedford), **http://www.southcoast.org/library/**
- **Massachusetts:** Treadwell Library Consumer Health Reference Center (Massachusetts General Hospital), **http://www.mgh.harvard.edu/library/chrcindex.html**
- **Massachusetts:** UMass HealthNet (University of Massachusetts Medical School, Worchester), **http://healthnet.umassmed.edu/**
- **Michigan:** Botsford General Hospital Library - Consumer Health (Botsford General Hospital, Library & Internet Services), **http://www.botsfordlibrary.org/consumer.htm**
- **Michigan:** Helen DeRoy Medical Library (Providence Hospital and Medical Centers), **http://www.providence-hospital.org/library/**
- **Michigan:** Marquette General Hospital - Consumer Health Library (Marquette General Hospital, Health Information Center), **http://www.mgh.org/center.html**
- **Michigan:** Patient Education Resouce Center - University of Michigan Cancer Center (University of Michigan Comprehensive Cancer Center, Ann Arbor), **http://www.cancer.med.umich.edu/learn/leares.htm**
- **Michigan:** Sladen Library & Center for Health Information Resources - Consumer Health Information (Detroit), **http://www.henryford.com/body.cfm?id=39330**
- **Montana:** Center for Health Information (St. Patrick Hospital and Health Sciences Center, Missoula)
- **National:** Consumer Health Library Directory (Medical Library Association, Consumer and Patient Health Information Section), **http://caphis.mlanet.org/directory/index.html**
- **National:** National Network of Libraries of Medicine (National Library of Medicine) - provides library services for health professionals in the United States who do not have access to a medical library, **http://nnlm.gov/**
- **National:** NN/LM List of Libraries Serving the Public (National Network of Libraries of Medicine), **http://nnlm.gov/members/**

- **Nevada:** Health Science Library, West Charleston Library (Las Vegas-Clark County Library District, Las Vegas), **http://www.lvccld.org/special_collections/medical/index.htm**
- **New Hampshire:** Dartmouth Biomedical Libraries (Dartmouth College Library, Hanover), **http://www.dartmouth.edu/~biomed/resources.htmld/conshealth.htmld/**
- **New Jersey:** Consumer Health Library (Rahway Hospital, Rahway), **http://www.rahwayhospital.com/library.htm**
- **New Jersey:** Dr. Walter Phillips Health Sciences Library (Englewood Hospital and Medical Center, Englewood), **http://www.englewoodhospital.com/links/index.htm**
- **New Jersey:** Meland Foundation (Englewood Hospital and Medical Center, Englewood), **http://www.geocities.com/ResearchTriangle/9360/**
- **New York:** Choices in Health Information (New York Public Library) - NLM Consumer Pilot Project participant, **http://www.nypl.org/branch/health/links.html**
- **New York:** Health Information Center (Upstate Medical University, State University of New York, Syracuse), **http://www.upstate.edu/library/hic/**
- **New York:** Health Sciences Library (Long Island Jewish Medical Center, New Hyde Park), **http://www.lij.edu/library/library.html**
- **New York:** ViaHealth Medical Library (Rochester General Hospital), **http://www.nyam.org/library/**
- **Ohio:** Consumer Health Library (Akron General Medical Center, Medical & Consumer Health Library), **http://www.akrongeneral.org/hwlibrary.htm**
- **Oklahoma:** The Health Information Center at Saint Francis Hospital (Saint Francis Health System, Tulsa), **http://www.sfh-tulsa.com/services/healthinfo.asp**
- **Oregon:** Planetree Health Resource Center (Mid-Columbia Medical Center, The Dalles), **http://www.mcmc.net/phrc/**
- **Pennsylvania:** Community Health Information Library (Milton S. Hershey Medical Center, Hershey), **http://www.hmc.psu.edu/commhealth/**
- **Pennsylvania:** Community Health Resource Library (Geisinger Medical Center, Danville), **http://www.geisinger.edu/education/commlib.shtml**
- **Pennsylvania:** HealthInfo Library (Moses Taylor Hospital, Scranton), **http://www.mth.org/healthwellness.html**
- **Pennsylvania:** Hopwood Library (University of Pittsburgh, Health Sciences Library System, Pittsburgh), **http://www.hsls.pitt.edu/guides/chi/hopwood/index_html**
- **Pennsylvania:** Koop Community Health Information Center (College of Physicians of Philadelphia), **http://www.collphyphil.org/kooppg1.shtml**
- **Pennsylvania:** Learning Resources Center - Medical Library (Susquehanna Health System, Williamsport), **http://www.shscares.org/services/lrc/index.asp**
- **Pennsylvania:** Medical Library (UPMC Health System, Pittsburgh), **http://www.upmc.edu/passavant/library.htm**
- **Quebec, Canada:** Medical Library (Montreal General Hospital), **http://www.mghlib.mcgill.ca/**

- **South Dakota:** Rapid City Regional Hospital Medical Library (Rapid City Regional Hospital), **http://www.rcrh.org/Services/Library/Default.asp**
- **Texas:** Houston HealthWays (Houston Academy of Medicine-Texas Medical Center Library), **http://hhw.library.tmc.edu/**
- **Washington:** Community Health Library (Kittitas Valley Community Hospital), **http://www.kvch.com/**
- **Washington:** Southwest Washington Medical Center Library (Southwest Washington Medical Center, Vancouver), **http://www.swmedicalcenter.com/body.cfm?id=72**

ONLINE GLOSSARIES

The Internet provides access to a number of free-to-use medical dictionaries. The National Library of Medicine has compiled the following list of online dictionaries:

- ADAM Medical Encyclopedia (A.D.A.M., Inc.), comprehensive medical reference: **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**
- MedicineNet.com Medical Dictionary (MedicineNet, Inc.): **http://www.medterms.com/Script/Main/hp.asp**
- Merriam-Webster Medical Dictionary (Inteli-Health, Inc.): **http://www.intelihealth.com/IH/**
- Multilingual Glossary of Technical and Popular Medical Terms in Eight European Languages (European Commission) - Danish, Dutch, English, French, German, Italian, Portuguese, and Spanish: **http://allserv.rug.ac.be/~rvdstich/eugloss/welcome.html**
- On-line Medical Dictionary (CancerWEB): **http://cancerweb.ncl.ac.uk/omd/**
- Rare Diseases Terms (Office of Rare Diseases): **http://ord.aspensys.com/asp/diseases/diseases.asp**
- Technology Glossary (National Library of Medicine) - Health Care Technology: **http://www.nlm.nih.gov/nichsr/ta101/ta10108.htm**

Beyond these, MEDLINEplus contains a very patient-friendly encyclopedia covering every aspect of medicine (licensed from A.D.A.M., Inc.). The ADAM Medical Encyclopedia can be accessed at **http://www.nlm.nih.gov/medlineplus/encyclopedia.html**. ADAM is also available on commercial Web sites such as drkoop.com (**http://www.drkoop.com/**) and Web MD (**http://my.webmd.com/adam/asset/adam_disease_articles/a_to_z/a**).

Online Dictionary Directories

The following are additional online directories compiled by the National Library of Medicine, including a number of specialized medical dictionaries:

- Medical Dictionaries: Medical & Biological (World Health Organization): **http://www.who.int/hlt/virtuallibrary/English/diction.htm#Medical**
- MEL-Michigan Electronic Library List of Online Health and Medical Dictionaries (Michigan Electronic Library): **http://mel.lib.mi.us/health/health-dictionaries.html**
- Patient Education: Glossaries (DMOZ Open Directory Project): **http://dmoz.org/Health/Education/Patient_Education/Glossaries/**
- Web of Online Dictionaries (Bucknell University): **http://www.yourdictionary.com/diction5.html#medicine**

FEAR DICTIONARY

The definitions below are derived from official public sources, including the National Institutes of Health [NIH] and the European Union [EU].

Abdominal: Having to do with the abdomen, which is the part of the body between the chest and the hips that contains the pancreas, stomach, intestines, liver, gallbladder, and other organs. [NIH]

Abdominal Cramps: Abdominal pain due to spasmodic contractions of the bowel. [NIH]

Abdominal Pain: Sensation of discomfort, distress, or agony in the abdominal region. [NIH]

Aberrant: Wandering or deviating from the usual or normal course. [EU]

Academic Medical Centers: Medical complexes consisting of medical school, hospitals, clinics, libraries, administrative facilities, etc. [NIH]

Accommodation: Adjustment, especially that of the eye for various distances. [EU]

Acetylcholine: A neurotransmitter. Acetylcholine in vertebrates is the major transmitter at neuromuscular junctions, autonomic ganglia, parasympathetic effector junctions, a subset of sympathetic effector junctions, and at many sites in the central nervous system. It is generally not used as an administered drug because it is broken down very rapidly by cholinesterases, but it is useful in some ophthalmological applications. [NIH]

Acetylcholinesterase: An enzyme that catalyzes the hydrolysis of acetylcholine to choline and acetate. In the CNS, this enzyme plays a role in the function of peripheral neuromuscular junctions. EC 3.1.1.7. [NIH]

Acoustic: Having to do with sound or hearing. [NIH]

Acquired Immunodeficiency Syndrome: An acquired defect of cellular immunity associated with infection by the human immunodeficiency virus (HIV), a CD4-positive T-lymphocyte count under 200 cells/microliter or less than 14% of total lymphocytes, and increased susceptibility to opportunistic infections and malignant neoplasms. Clinical manifestations also include emaciation (wasting) and dementia. These elements reflect criteria for AIDS as defined by the CDC in 1993. [NIH]

Acrylamide: A colorless, odorless, highly water soluble vinyl monomer formed from the hydration of acrylonitrile. It is primarily used in research laboratories for electrophoresis, chromatography, and electron microscopy and in the sewage and wastewater treatment industries. [NIH]

Acrylonitrile: A highly poisonous compound used widely in the manufacture of plastics, adhesives and synthetic rubber. [NIH]

Activities of Daily Living: The performance of the basic activities of self care, such as dressing, ambulation, eating, etc., in rehabilitation. [NIH]

Adaptation: 1. The adjustment of an organism to its environment, or the process by which it enhances such fitness. 2. The normal ability of the eye to adjust itself to variations in the intensity of light; the adjustment to such variations. 3. The decline in the frequency of firing of a neuron, particularly of a receptor, under conditions of constant stimulation. 4. In dentistry, (a) the proper fitting of a denture, (b) the degree of proximity and interlocking of restorative material to a tooth preparation, (c) the exact adjustment of bands to teeth. 5. In microbiology, the adjustment of bacterial physiology to a new environment. [EU]

Adenosine: A nucleoside that is composed of adenine and d-ribose. Adenosine or adenosine

derivatives play many important biological roles in addition to being components of DNA and RNA. Adenosine itself is a neurotransmitter. [NIH]

Adjustment: The dynamic process wherein the thoughts, feelings, behavior, and biophysiological mechanisms of the individual continually change to adjust to the environment. [NIH]

Adjuvant: A substance which aids another, such as an auxiliary remedy; in immunology, nonspecific stimulator (e.g., BCG vaccine) of the immune response. [EU]

Adjuvant Therapy: Treatment given after the primary treatment to increase the chances of a cure. Adjuvant therapy may include chemotherapy, radiation therapy, or hormone therapy. [NIH]

Adolescence: The period of life beginning with the appearance of secondary sex characteristics and terminating with the cessation of somatic growth. The years usually referred to as adolescence lie between 13 and 18 years of age. [NIH]

Adrenal Cortex: The outer layer of the adrenal gland. It secretes mineralocorticoids, androgens, and glucocorticoids. [NIH]

Adrenal Medulla: The inner part of the adrenal gland; it synthesizes, stores and releases catecholamines. [NIH]

Adrenergic: Activated by, characteristic of, or secreting epinephrine or substances with similar activity; the term is applied to those nerve fibres that liberate norepinephrine at a synapse when a nerve impulse passes, i.e., the sympathetic fibres. [EU]

Adverse Effect: An unwanted side effect of treatment. [NIH]

Aerobic: In biochemistry, reactions that need oxygen to happen or happen when oxygen is present. [NIH]

Aerobic Exercise: A type of physical activity that includes walking, jogging, running, and dancing. Aerobic training improves the efficiency of the aerobic energy-producing systems that can improve cardiorespiratory endurance. [NIH]

Aerosol: A solution of a drug which can be atomized into a fine mist for inhalation therapy. [EU]

Afferent: Concerned with the transmission of neural impulse toward the central part of the nervous system. [NIH]

Affinity: 1. Inherent likeness or relationship. 2. A special attraction for a specific element, organ, or structure. 3. Chemical affinity; the force that binds atoms in molecules; the tendency of substances to combine by chemical reaction. 4. The strength of noncovalent chemical binding between two substances as measured by the dissociation constant of the complex. 5. In immunology, a thermodynamic expression of the strength of interaction between a single antigen-binding site and a single antigenic determinant (and thus of the stereochemical compatibility between them), most accurately applied to interactions among simple, uniform antigenic determinants such as haptens. Expressed as the association constant (K litres mole -1), which, owing to the heterogeneity of affinities in a population of antibody molecules of a given specificity, actually represents an average value (mean intrinsic association constant). 6. The reciprocal of the dissociation constant. [EU]

Age of Onset: The age or period of life at which a disease or the initial symptoms or manifestations of a disease appear in an individual. [NIH]

Agonist: In anatomy, a prime mover. In pharmacology, a drug that has affinity for and stimulates physiologic activity at cell receptors normally stimulated by naturally occurring substances. [EU]

Agoraphobia: Obsessive, persistent, intense fear of open places. [NIH]

Alertness: A state of readiness to detect and respond to certain specified small changes occurring at random intervals in the environment. [NIH]

Algorithms: A procedure consisting of a sequence of algebraic formulas and/or logical steps to calculate or determine a given task. [NIH]

Alkaline: Having the reactions of an alkali. [EU]

Alkaloid: A member of a large group of chemicals that are made by plants and have nitrogen in them. Some alkaloids have been shown to work against cancer. [NIH]

Allergen: An antigenic substance capable of producing immediate-type hypersensitivity (allergy). [EU]

Allogeneic: Taken from different individuals of the same species. [NIH]

Alternative medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used instead of standard treatments. Alternative medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such as massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Ameliorating: A changeable condition which prevents the consequence of a failure or accident from becoming as bad as it otherwise would. [NIH]

Amino acid: Any organic compound containing an amino (-NH2 and a carboxyl (- COOH) group. The 20 a-amino acids listed in the accompanying table are the amino acids from which proteins are synthesized by formation of peptide bonds during ribosomal translation of messenger RNA; all except glycine, which is not optically active, have the L configuration. Other amino acids occurring in proteins, such as hydroxyproline in collagen, are formed by posttranslational enzymatic modification of amino acids residues in polypeptide chains. There are also several important amino acids, such as the neurotransmitter y-aminobutyric acid, that have no relation to proteins. Abbreviated AA. [EU]

Amino Acid Sequence: The order of amino acids as they occur in a polypeptide chain. This is referred to as the primary structure of proteins. It is of fundamental importance in determining protein conformation. [NIH]

Amnesia: Lack or loss of memory; inability to remember past experiences. [EU]

Amnestic: Nominal aphasia; a difficulty in finding the right name for an object. [NIH]

Amphetamines: Analogs or derivatives of amphetamine. Many are sympathomimetics and central nervous system stimulators causing excitation, vasopression, bronchodilation, and to varying degrees, anorexia, analepsis, nasal decongestion, and some smooth muscle relaxation. [NIH]

Amplification: The production of additional copies of a chromosomal DNA sequence, found as either intrachromosomal or extrachromosomal DNA. [NIH]

Amputation: Surgery to remove part or all of a limb or appendage. [NIH]

Amygdala: Almond-shaped group of basal nuclei anterior to the inferior horn of the lateral ventricle of the brain, within the temporal lobe. The amygdala is part of the limbic system. [NIH]

Anaesthesia: Loss of feeling or sensation. Although the term is used for loss of tactile sensibility, or of any of the other senses, it is applied especially to loss of the sensation of pain, as it is induced to permit performance of surgery or other painful procedures. [EU]

Anal: Having to do with the anus, which is the posterior opening of the large bowel. [NIH]

Analgesic: An agent that alleviates pain without causing loss of consciousness. [EU]

Analogous: Resembling or similar in some respects, as in function or appearance, but not in

origin or development;. [EU]

Anaphase: The third phase of cell division, in which the chromatids separate and migrate to opposite poles of the spindle. [NIH]

Anatomical: Pertaining to anatomy, or to the structure of the organism. [EU]

Anemia: A reduction in the number of circulating erythrocytes or in the quantity of hemoglobin. [NIH]

Anesthetics: Agents that are capable of inducing a total or partial loss of sensation, especially tactile sensation and pain. They may act to induce general anesthesia, in which an unconscious state is achieved, or may act locally to induce numbness or lack of sensation at a targeted site. [NIH]

Animal Husbandry: The science of breeding, feeding, and care of domestic animals; includes housing and nutrition. [NIH]

Animal model: An animal with a disease either the same as or like a disease in humans. Animal models are used to study the development and progression of diseases and to test new treatments before they are given to humans. Animals with transplanted human cancers or other tissues are called xenograft models. [NIH]

Annealing: The spontaneous alignment of two single DNA strands to form a double helix. [NIH]

Anomalies: Birth defects; abnormalities. [NIH]

Anorexia: Lack or loss of appetite for food. Appetite is psychologic, dependent on memory and associations. Anorexia can be brought about by unattractive food, surroundings, or company. [NIH]

Antagonism: Interference with, or inhibition of, the growth of a living organism by another living organism, due either to creation of unfavorable conditions (e. g. exhaustion of food supplies) or to production of a specific antibiotic substance (e. g. penicillin). [NIH]

Anterior Cruciate Ligament: A strong ligament of the knee that originates from the posteromedial portion of the lateral condyle of the femur, passes anteriorly and inferiorly between the condyles, and attaches to the depression in front of the intercondylar eminence of the tibia. [NIH]

Anterograde: Moving or extending forward; called also antegrade. [EU]

Antibodies: Immunoglobulin molecules having a specific amino acid sequence by virtue of which they interact only with the antigen that induced their synthesis in cells of the lymphoid series (especially plasma cells), or with an antigen closely related to it. [NIH]

Antibody: A type of protein made by certain white blood cells in response to a foreign substance (antigen). Each antibody can bind to only a specific antigen. The purpose of this binding is to help destroy the antigen. Antibodies can work in several ways, depending on the nature of the antigen. Some antibodies destroy antigens directly. Others make it easier for white blood cells to destroy the antigen. [NIH]

Anticholinergic: An agent that blocks the parasympathetic nerves. Called also parasympatholytic. [EU]

Antidepressant: A drug used to treat depression. [NIH]

Antigen: Any substance which is capable, under appropriate conditions, of inducing a specific immune response and of reacting with the products of that response, that is, with specific antibody or specifically sensitized T-lymphocytes, or both. Antigens may be soluble substances, such as toxins and foreign proteins, or particulate, such as bacteria and tissue cells; however, only the portion of the protein or polysaccharide molecule known as the

antigenic determinant (q.v.) combines with antibody or a specific receptor on a lymphocyte. Abbreviated Ag. [EU]

Anti-inflammatory: Having to do with reducing inflammation. [NIH]

Antineoplastic: Inhibiting or preventing the development of neoplasms, checking the maturation and proliferation of malignant cells. [EU]

Antioxidant: A substance that prevents damage caused by free radicals. Free radicals are highly reactive chemicals that often contain oxygen. They are produced when molecules are split to give products that have unpaired electrons. This process is called oxidation. [NIH]

Antispasmodic: An agent that relieves spasm. [EU]

Anuria: Inability to form or excrete urine. [NIH]

Anus: The opening of the rectum to the outside of the body. [NIH]

Anxiety: Persistent feeling of dread, apprehension, and impending disaster. [NIH]

Anxiety Disorders: Disorders in which anxiety (persistent feelings of apprehension, tension, or uneasiness) is the predominant disturbance. [NIH]

Anxiolytic: An anxiolytic or antianxiety agent. [EU]

Aorta: The main trunk of the systemic arteries. [NIH]

Aponeurosis: Tendinous expansion consisting of a fibrous or membranous sheath which serves as a fascia to enclose or bind a group of muscles. [NIH]

Apoptosis: One of the two mechanisms by which cell death occurs (the other being the pathological process of necrosis). Apoptosis is the mechanism responsible for the physiological deletion of cells and appears to be intrinsically programmed. It is characterized by distinctive morphologic changes in the nucleus and cytoplasm, chromatin cleavage at regularly spaced sites, and the endonucleolytic cleavage of genomic DNA (DNA fragmentation) at internucleosomal sites. This mode of cell death serves as a balance to mitosis in regulating the size of animal tissues and in mediating pathologic processes associated with tumor growth. [NIH]

Applicability: A list of the commodities to which the candidate method can be applied as presented or with minor modifications. [NIH]

Aqueous: Having to do with water. [NIH]

Arrhythmia: Any variation from the normal rhythm or rate of the heart beat. [NIH]

Arterial: Pertaining to an artery or to the arteries. [EU]

Arteries: The vessels carrying blood away from the heart. [NIH]

Artery: Vessel-carrying blood from the heart to various parts of the body. [NIH]

Articular: Of or pertaining to a joint. [EU]

Aspartate: A synthetic amino acid. [NIH]

Asphyxia: A pathological condition caused by lack of oxygen, manifested in impending or actual cessation of life. [NIH]

Assay: Determination of the amount of a particular constituent of a mixture, or of the biological or pharmacological potency of a drug. [EU]

Astrocytes: The largest and most numerous neuroglial cells in the brain and spinal cord. Astrocytes (from "star" cells) are irregularly shaped with many long processes, including those with "end feet" which form the glial (limiting) membrane and directly and indirectly contribute to the blood brain barrier. They regulate the extracellular ionic and chemical environment, and "reactive astrocytes" (along with microglia) respond to injury. Astrocytes

have high- affinity transmitter uptake systems, voltage-dependent and transmitter-gated ion channels, and can release transmitter, but their role in signaling (as in many other functions) is not well understood. [NIH]

Atrial: Pertaining to an atrium. [EU]

Atrioventricular: Pertaining to an atrium of the heart and to a ventricle. [EU]

Atrium: A chamber; used in anatomical nomenclature to designate a chamber affording entrance to another structure or organ. Usually used alone to designate an atrium of the heart. [EU]

Atropine: A toxic alkaloid, originally from Atropa belladonna, but found in other plants, mainly Solanaceae. [NIH]

Audition: The sense of hearing. [NIH]

Auditory: Pertaining to the sense of hearing. [EU]

Auditory Cortex: Area of the temporal lobe concerned with hearing. [NIH]

Aural: Pertaining to or perceived by the ear, as an aural stimulus. [EU]

Autonomic: Self-controlling; functionally independent. [EU]

Autonomic Nervous System: The enteric, parasympathetic, and sympathetic nervous systems taken together. Generally speaking, the autonomic nervous system regulates the internal environment during both peaceful activity and physical or emotional stress. Autonomic activity is controlled and integrated by the central nervous system, especially the hypothalamus and the solitary nucleus, which receive information relayed from visceral afferents; these and related central and sensory structures are sometimes (but not here) considered to be part of the autonomic nervous system itself. [NIH]

Avoidance Learning: A response to a cue that is instrumental in avoiding a noxious experience. [NIH]

Axons: Nerve fibers that are capable of rapidly conducting impulses away from the neuron cell body. [NIH]

Back Pain: Acute or chronic pain located in the posterior regions of the trunk, including the thoracic, lumbar, sacral, or adjacent regions. [NIH]

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms: round or coccal, rodlike or bacillary, and spiral or spirochetal. [NIH]

Bacterial Infections: Infections by bacteria, general or unspecified. [NIH]

Bacterial Physiology: Physiological processes and activities of bacteria. [NIH]

Bactericidal: Substance lethal to bacteria; substance capable of killing bacteria. [NIH]

Bacteriuria: The presence of bacteria in the urine with or without consequent urinary tract infection. Since bacteriuria is a clinical entity, the term does not preclude the use of urine/microbiology for technical discussions on the isolation and segregation of bacteria in the urine. [NIH]

Basal Ganglia: Large subcortical nuclear masses derived from the telencephalon and located in the basal regions of the cerebral hemispheres. [NIH]

Base: In chemistry, the nonacid part of a salt; a substance that combines with acids to form salts; a substance that dissociates to give hydroxide ions in aqueous solutions; a substance whose molecule or ion can combine with a proton (hydrogen ion); a substance capable of donating a pair of electrons (to an acid) for the formation of a coordinate covalent bond. [EU]

Behavioral Symptoms: Observable manifestions of impaired psychological functioning.

[NIH]

Belladonna: A species of very poisonous Solanaceous plants yielding atropine (hyoscyamine), scopolamine, and other belladonna alkaloids, used to block the muscarinic autonomic nervous system. [NIH]

Benign: Not cancerous; does not invade nearby tissue or spread to other parts of the body. [NIH]

Benzene: Toxic, volatile, flammable liquid hydrocarbon biproduct of coal distillation. It is used as an industrial solvent in paints, varnishes, lacquer thinners, gasoline, etc. Benzene causes central nervous system damage acutely and bone marrow damage chronically and is carcinogenic. It was formerly used as parasiticide. [NIH]

Benzodiazepines: A two-ring heterocyclic compound consisting of a benzene ring fused to a diazepine ring. Permitted is any degree of hydrogenation, any substituents and any H-isomer. [NIH]

Beta-Endorphin: A peptide consisting of amino acid sequence 61-91 of the endogenous pituitary hormone beta-lipotropin. The first four amino acids show a common tetrapeptide sequence with methionine- and leucine enkephalin. The compound shows opiate-like activity. Injection of beta-endorphin induces a profound analgesia of the whole body for several hours. This action is reversed after administration of naloxone. [NIH]

Bilateral: Affecting both the right and left side of body. [NIH]

Bile: An emulsifying agent produced in the liver and secreted into the duodenum. Its composition includes bile acids and salts, cholesterol, and electrolytes. It aids digestion of fats in the duodenum. [NIH]

Biochemical: Relating to biochemistry; characterized by, produced by, or involving chemical reactions in living organisms. [EU]

Biological Warfare: Warfare involving the use of living organisms or their products as disease etiologic agents against people, animals, or plants. [NIH]

Biopsy: Removal and pathologic examination of specimens in the form of small pieces of tissue from the living body. [NIH]

Biotechnology: Body of knowledge related to the use of organisms, cells or cell-derived constituents for the purpose of developing products which are technically, scientifically and clinically useful. Alteration of biologic function at the molecular level (i.e., genetic engineering) is a central focus; laboratory methods used include transfection and cloning technologies, sequence and structure analysis algorithms, computer databases, and gene and protein structure function analysis and prediction. [NIH]

Bioterrorism: The use of biological agents in terrorism. This includes the malevolent use of bacteria, viruses, or toxins against people, animals, or plants. [NIH]

Biphasic: Having two phases; having both a sporophytic and a gametophytic phase in the life cycle. [EU]

Bivalent: Pertaining to a group of 2 homologous or partly homologous chromosomes during the zygotene stage of prophase to the first metaphase in meiosis. [NIH]

Bladder: The organ that stores urine. [NIH]

Blastocyst: The mammalian embryo in the post-morula stage in which a fluid-filled cavity, enclosed primarily by trophoblast, contains an inner cell mass which becomes the embryonic disc. [NIH]

Bloating: Fullness or swelling in the abdomen that often occurs after meals. [NIH]

Blood Coagulation: The process of the interaction of blood coagulation factors that results in

an insoluble fibrin clot. [NIH]

Blood Glucose: Glucose in blood. [NIH]

Blood Platelets: Non-nucleated disk-shaped cells formed in the megakaryocyte and found in the blood of all mammals. They are mainly involved in blood coagulation. [NIH]

Blood pressure: The pressure of blood against the walls of a blood vessel or heart chamber. Unless there is reference to another location, such as the pulmonary artery or one of the heart chambers, it refers to the pressure in the systemic arteries, as measured, for example, in the forearm. [NIH]

Blood transfusion: The administration of blood or blood products into a blood vessel. [NIH]

Blood vessel: A tube in the body through which blood circulates. Blood vessels include a network of arteries, arterioles, capillaries, venules, and veins. [NIH]

Body Fluids: Liquid components of living organisms. [NIH]

Body Image: Individuals' personal concept of their bodies as objects in and bound by space, independently and apart from all other objects. [NIH]

Bowel: The long tube-shaped organ in the abdomen that completes the process of digestion. There is both a small and a large bowel. Also called the intestine. [NIH]

Bowel Movement: Body wastes passed through the rectum and anus. [NIH]

Brachytherapy: A collective term for interstitial, intracavity, and surface radiotherapy. It uses small sealed or partly-sealed sources that may be placed on or near the body surface or within a natural body cavity or implanted directly into the tissues. [NIH]

Brain Stem: The part of the brain that connects the cerebral hemispheres with the spinal cord. It consists of the mesencephalon, pons, and medulla oblongata. [NIH]

Branch: Most commonly used for branches of nerves, but applied also to other structures. [NIH]

Breakdown: A physical, metal, or nervous collapse. [NIH]

Breast reconstruction: Surgery to rebuild a breast's shape after a mastectomy. [NIH]

Breathing Exercises: Therapeutic exercises aimed to deepen inspiration or expiration or even to alter the rate and rhythm of respiration. [NIH]

Breeding: The science or art of changing the constitution of a population of plants or animals through sexual reproduction. [NIH]

Bronchi: The larger air passages of the lungs arising from the terminal bifurcation of the trachea. [NIH]

Buccal: Pertaining to or directed toward the cheek. In dental anatomy, used to refer to the buccal surface of a tooth. [EU]

Buffers: A chemical system that functions to control the levels of specific ions in solution. When the level of hydrogen ion in solution is controlled the system is called a pH buffer. [NIH]

Bupivacaine: A widely used local anesthetic agent. [NIH]

Bupropion: A unicyclic, aminoketone antidepressant. The mechanism of its therapeutic actions is not well understood, but it does appear to block dopamine uptake. The hydrochloride is available as an aid to smoking cessation treatment. [NIH]

Cadaver: A dead body, usually a human body. [NIH]

Caesarean section: A surgical incision through the abdominal and uterine walls in order to deliver a baby. [NIH]

Caffeine: A methylxanthine naturally occurring in some beverages and also used as a pharmacological agent. Caffeine's most notable pharmacological effect is as a central nervous system stimulant, increasing alertness and producing agitation. It also relaxes smooth muscle, stimulates cardiac muscle, stimulates diuresis, and appears to be useful in the treatment of some types of headache. Several cellular actions of caffeine have been observed, but it is not entirely clear how each contributes to its pharmacological profile. Among the most important are inhibition of cyclic nucleotide phosphodiesterases, antagonism of adenosine receptors, and modulation of intracellular calcium handling. [NIH]

Calcium: A basic element found in nearly all organized tissues. It is a member of the alkaline earth family of metals with the atomic symbol Ca, atomic number 20, and atomic weight 40. Calcium is the most abundant mineral in the body and combines with phosphorus to form calcium phosphate in the bones and teeth. It is essential for the normal functioning of nerves and muscles and plays a role in blood coagulation (as factor IV) and in many enzymatic processes. [NIH]

Calcium Channels: Voltage-dependent cell membrane glycoproteins selectively permeable to calcium ions. They are categorized as L-, T-, N-, P-, Q-, and R-types based on the activation and inactivation kinetics, ion specificity, and sensitivity to drugs and toxins. The L- and T-types are present throughout the cardiovascular and central nervous systems and the N-, P-, Q-, & R-types are located in neuronal tissue. [NIH]

Calcium-Binding Proteins: Proteins to which calcium ions are bound. They can act as transport proteins, regulator proteins or activator proteins. [NIH]

Calmodulin: A heat-stable, low-molecular-weight activator protein found mainly in the brain and heart. The binding of calcium ions to this protein allows this protein to bind to cyclic nucleotide phosphodiesterases and to adenyl cyclase with subsequent activation. Thereby this protein modulates cyclic AMP and cyclic GMP levels. [NIH]

Carbon Dioxide: A colorless, odorless gas that can be formed by the body and is necessary for the respiration cycle of plants and animals. [NIH]

Carcinoma: Cancer that begins in the skin or in tissues that line or cover internal organs. [NIH]

Cardiac: Having to do with the heart. [NIH]

Cardiorespiratory: Relating to the heart and lungs and their function. [EU]

Cardiovascular: Having to do with the heart and blood vessels. [NIH]

Cardiovascular disease: Any abnormal condition characterized by dysfunction of the heart and blood vessels. CVD includes atherosclerosis (especially coronary heart disease, which can lead to heart attacks), cerebrovascular disease (e.g., stroke), and hypertension (high blood pressure). [NIH]

Carotene: The general name for a group of pigments found in green, yellow, and leafy vegetables, and yellow fruits. The pigments are fat-soluble, unsaturated aliphatic hydrocarbons functioning as provitamins and are converted to vitamin A through enzymatic processes in the intestinal wall. [NIH]

Catecholamine: A group of chemical substances manufactured by the adrenal medulla and secreted during physiological stress. [NIH]

Catheterization: Use or insertion of a tubular device into a duct, blood vessel, hollow organ, or body cavity for injecting or withdrawing fluids for diagnostic or therapeutic purposes. It differs from intubation in that the tube here is used to restore or maintain patency in obstructions. [NIH]

Catheters: A small, flexible tube that may be inserted into various parts of the body to inject

or remove liquids. [NIH]

Caudal: Denoting a position more toward the cauda, or tail, than some specified point of reference; same as inferior, in human anatomy. [EU]

Caudate Nucleus: Elongated gray mass of the neostriatum located adjacent to the lateral ventricle of the brain. [NIH]

Causal: Pertaining to a cause; directed against a cause. [EU]

Cell: The individual unit that makes up all of the tissues of the body. All living things are made up of one or more cells. [NIH]

Cell Death: The termination of the cell's ability to carry out vital functions such as metabolism, growth, reproduction, responsiveness, and adaptability. [NIH]

Cell Division: The fission of a cell. [NIH]

Cell membrane: Cell membrane = plasma membrane. The structure enveloping a cell, enclosing the cytoplasm, and forming a selective permeability barrier; it consists of lipids, proteins, and some carbohydrates, the lipids thought to form a bilayer in which integral proteins are embedded to varying degrees. [EU]

Cell proliferation: An increase in the number of cells as a result of cell growth and cell division. [NIH]

Central Nervous System: The main information-processing organs of the nervous system, consisting of the brain, spinal cord, and meninges. [NIH]

Cerebellum: Part of the metencephalon that lies in the posterior cranial fossa behind the brain stem. It is concerned with the coordination of movement. [NIH]

Cerebral: Of or pertaining of the cerebrum or the brain. [EU]

Cerebral Aqueduct: Narrow channel in the mesencephalon that connects the third and fourth ventricles. [NIH]

Cerebral Cortex: The thin layer of gray matter on the surface of the cerebral hemisphere that develops from the telencephalon and folds into gyri. It reaches its highest development in man and is responsible for intellectual faculties and higher mental functions. [NIH]

Cerebrospinal: Pertaining to the brain and spinal cord. [EU]

Cerebrospinal fluid: CSF. The fluid flowing around the brain and spinal cord. Cerebrospinal fluid is produced in the ventricles in the brain. [NIH]

Cerebrovascular: Pertaining to the blood vessels of the cerebrum, or brain. [EU]

Cerebrum: The largest part of the brain. It is divided into two hemispheres, or halves, called the cerebral hemispheres. The cerebrum controls muscle functions of the body and also controls speech, emotions, reading, writing, and learning. [NIH]

Cervical: Relating to the neck, or to the neck of any organ or structure. Cervical lymph nodes are located in the neck; cervical cancer refers to cancer of the uterine cervix, which is the lower, narrow end (the "neck") of the uterus. [NIH]

Cervix: The lower, narrow end of the uterus that forms a canal between the uterus and vagina. [NIH]

Character: In current usage, approximately equivalent to personality. The sum of the relatively fixed personality traits and habitual modes of response of an individual. [NIH]

Chemical Warfare: Tactical warfare using incendiary mixtures, smokes, or irritant, burning, or asphyxiating gases. [NIH]

Chemical Warfare Agents: Chemicals that are used to cause the disturbance, disease, or death of humans during war. [NIH]

Chemotherapy: Treatment with anticancer drugs. [NIH]

Chest Pain: Pressure, burning, or numbness in the chest. [NIH]

Child Care: Care of children in the home or institution. [NIH]

Chimeras: Organism that contains a mixture of genetically different cells. [NIH]

Chin: The anatomical frontal portion of the mandible, also known as the mentum, that contains the line of fusion of the two separate halves of the mandible (symphysis menti). This line of fusion divides inferiorly to enclose a triangular area called the mental protuberance. On each side, inferior to the second premolar tooth, is the mental foramen for the passage of blood vessels and a nerve. [NIH]

Chiropractic: A system of treating bodily disorders by manipulation of the spine and other parts, based on the belief that the cause is the abnormal functioning of a nerve. [NIH]

Choline: A basic constituent of lecithin that is found in many plants and animal organs. It is important as a precursor of acetylcholine, as a methyl donor in various metabolic processes, and in lipid metabolism. [NIH]

Cholinergic: Resembling acetylcholine in pharmacological action; stimulated by or releasing acetylcholine or a related compound. [EU]

Choroid: The thin, highly vascular membrane covering most of the posterior of the eye between the retina and sclera. [NIH]

Chromatin: The material of chromosomes. It is a complex of DNA, histones, and nonhistone proteins (chromosomal proteins, non-histone) found within the nucleus of a cell. [NIH]

Chromosomal: Pertaining to chromosomes. [EU]

Chromosome: Part of a cell that contains genetic information. Except for sperm and eggs, all human cells contain 46 chromosomes. [NIH]

Chronic: A disease or condition that persists or progresses over a long period of time. [NIH]

Chronic Disease: Disease or ailment of long duration. [NIH]

Chronic Fatigue Syndrome: Fatigue caused by the combined effects of different types of prolonged fatigue. [NIH]

Circadian: Repeated more or less daily, i. e. on a 23- to 25-hour cycle. [NIH]

Circadian Rhythm: The regular recurrence, in cycles of about 24 hours, of biological processes or activities, such as sensitivity to drugs and stimuli, hormone secretion, sleeping, feeding, etc. This rhythm seems to be set by a 'biological clock' which seems to be set by recurring daylight and darkness. [NIH]

CIS: Cancer Information Service. The CIS is the National Cancer Institute's link to the public, interpreting and explaining research findings in a clear and understandable manner, and providing personalized responses to specific questions about cancer. Access the CIS by calling 1-800-4-CANCER, or by using the Web site at http://cis.nci.nih.gov. [NIH]

Clamp: A u-shaped steel rod used with a pin or wire for skeletal traction in the treatment of certain fractures. [NIH]

Clear cell carcinoma: A rare type of tumor of the female genital tract in which the inside of the cells looks clear when viewed under a microscope. [NIH]

Clinical Medicine: The study and practice of medicine by direct examination of the patient. [NIH]

Clinical study: A research study in which patients receive treatment in a clinic or other medical facility. Reports of clinical studies can contain results for single patients (case reports) or many patients (case series or clinical trials). [NIH]

Clinical trial: A research study that tests how well new medical treatments or other interventions work in people. Each study is designed to test new methods of screening, prevention, diagnosis, or treatment of a disease. [NIH]

Cloning: The production of a number of genetically identical individuals; in genetic engineering, a process for the efficient replication of a great number of identical DNA molecules. [NIH]

Coca: Any of several South American shrubs of the Erythroxylon genus (and family) that yield cocaine; the leaves are chewed with alum for CNS stimulation. [NIH]

Cocaine: An alkaloid ester extracted from the leaves of plants including coca. It is a local anesthetic and vasoconstrictor and is clinically used for that purpose, particularly in the eye, ear, nose, and throat. It also has powerful central nervous system effects similar to the amphetamines and is a drug of abuse. Cocaine, like amphetamines, acts by multiple mechanisms on brain catecholaminergic neurons; the mechanism of its reinforcing effects is thought to involve inhibition of dopamine uptake. [NIH]

Cochlea: The part of the internal ear that is concerned with hearing. It forms the anterior part of the labyrinth, is conical, and is placed almost horizontally anterior to the vestibule. [NIH]

Cochlear: Of or pertaining to the cochlea. [EU]

Cochlear Diseases: Diseases of the cochlea, the part of the inner ear that is concerned with hearing. [NIH]

Cochlear Implantation: Surgical insertion of an electronic device implanted beneath the skin with electrodes to the cochlear nerve to create sound sensation in persons with sensorineural deafness. [NIH]

Cochlear Nerve: The cochlear part of the 8th cranial nerve (vestibulocochlear nerve). The cochlear nerve fibers originate from neurons of the spiral ganglion and project peripherally to cochlear hair cells and centrally to the cochlear nuclei (cochlear nucleus) of the brain stem. They mediate the sense of hearing. [NIH]

Cofactor: A substance, microorganism or environmental factor that activates or enhances the action of another entity such as a disease-causing agent. [NIH]

Cognition: Intellectual or mental process whereby an organism becomes aware of or obtains knowledge. [NIH]

Cognitive restructuring: A method of identifying and replacing fear-promoting, irrational beliefs with more realistic and functional ones. [NIH]

Cognitive Therapy: A direct form of psychotherapy based on the interpretation of situations (cognitive structure of experiences) that determine how an individual feels and behaves. It is based on the premise that cognition, the process of acquiring knowledge and forming beliefs, is a primary determinant of mood and behavior. The therapy uses behavioral and verbal techniques to identify and correct negative thinking that is at the root of the aberrant behavior. [NIH]

Collagen: A polypeptide substance comprising about one third of the total protein in mammalian organisms. It is the main constituent of skin, connective tissue, and the organic substance of bones and teeth. Different forms of collagen are produced in the body but all consist of three alpha-polypeptide chains arranged in a triple helix. Collagen is differentiated from other fibrous proteins, such as elastin, by the content of proline, hydroxyproline, and hydroxylysine; by the absence of tryptophan; and particularly by the high content of polar groups which are responsible for its swelling properties. [NIH]

Collapse: 1. A state of extreme prostration and depression, with failure of circulation. 2.

Abnormal falling in of the walls of any part of organ. [EU]

Colon: The long, coiled, tubelike organ that removes water from digested food. The remaining material, solid waste called stool, moves through the colon to the rectum and leaves the body through the anus. [NIH]

Colorectal: Having to do with the colon or the rectum. [NIH]

Communicable disease: A disease that can be transmitted by contact between persons. [NIH]

Comorbidity: The presence of co-existing or additional diseases with reference to an initial diagnosis or with reference to the index condition that is the subject of study. Comorbidity may affect the ability of affected individuals to function and also their survival; it may be used as a prognostic indicator for length of hospital stay, cost factors, and outcome or survival. [NIH]

Compassionate: A process for providing experimental drugs to very sick patients who have no treatment options. [NIH]

Complement: A term originally used to refer to the heat-labile factor in serum that causes immune cytolysis, the lysis of antibody-coated cells, and now referring to the entire functionally related system comprising at least 20 distinct serum proteins that is the effector not only of immune cytolysis but also of other biologic functions. Complement activation occurs by two different sequences, the classic and alternative pathways. The proteins of the classic pathway are termed 'components of complement' and are designated by the symbols C1 through C9. C1 is a calcium-dependent complex of three distinct proteins C1q, C1r and C1s. The proteins of the alternative pathway (collectively referred to as the properdin system) and complement regulatory proteins are known by semisystematic or trivial names. Fragments resulting from proteolytic cleavage of complement proteins are designated with lower-case letter suffixes, e.g., C3a. Inactivated fragments may be designated with the suffix 'i', e.g. C3bi. Activated components or complexes with biological activity are designated by a bar over the symbol e.g. C1 or C4b,2a. The classic pathway is activated by the binding of C1 to classic pathway activators, primarily antigen-antibody complexes containing IgM, IgG1, IgG3; C1q binds to a single IgM molecule or two adjacent IgG molecules. The alternative pathway can be activated by IgA immune complexes and also by nonimmunologic materials including bacterial endotoxins, microbial polysaccharides, and cell walls. Activation of the classic pathway triggers an enzymatic cascade involving C1, C4, C2 and C3; activation of the alternative pathway triggers a cascade involving C3 and factors B, D and P. Both result in the cleavage of C5 and the formation of the membrane attack complex. Complement activation also results in the formation of many biologically active complement fragments that act as anaphylatoxins, opsonins, or chemotactic factors. [EU]

Complementary and alternative medicine: CAM. Forms of treatment that are used in addition to (complementary) or instead of (alternative) standard treatments. These practices are not considered standard medical approaches. CAM includes dietary supplements, megadose vitamins, herbal preparations, special teas, massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Complementary medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used to enhance or complement the standard treatments. Complementary medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such as massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Complete remission: The disappearance of all signs of cancer. Also called a complete response. [NIH]

Compliance: Distensibility measure of a chamber such as the lungs (lung compliance) or

bladder. Compliance is expressed as a change in volume per unit change in pressure. [NIH]

Compulsive Behavior: The behavior of performing an act persistently and repetitively without it leading to reward or pleasure. The act is usually a small, circumscribed behavior, almost ritualistic, yet not pathologically disturbing. Examples of compulsive behavior include twirling of hair, checking something constantly, not wanting pennies in change, straightening tilted pictures, etc. [NIH]

Computational Biology: A field of biology concerned with the development of techniques for the collection and manipulation of biological data, and the use of such data to make biological discoveries or predictions. This field encompasses all computational methods and theories applicable to molecular biology and areas of computer-based techniques for solving biological problems including manipulation of models and datasets. [NIH]

Concomitant: Accompanying; accessory; joined with another. [EU]

Conditioned stimulus: A situation in which one signal, or stimulus, is given just before another signal. After this happens several times, the first signal alone can cause the response that would usually need the second signal. [NIH]

Condoms: A sheath that is worn over the penis during sexual behavior in order to prevent pregnancy or spread of sexually transmitted disease. [NIH]

Conduction: The transfer of sound waves, heat, nervous impulses, or electricity. [EU]

Cones: One type of specialized light-sensitive cells (photoreceptors) in the retina that provide sharp central vision and color vision. [NIH]

Confounding: Extraneous variables resulting in outcome effects that obscure or exaggerate the "true" effect of an intervention. [NIH]

Conjunctiva: The mucous membrane that lines the inner surface of the eyelids and the anterior part of the sclera. [NIH]

Connective Tissue: Tissue that supports and binds other tissues. It consists of connective tissue cells embedded in a large amount of extracellular matrix. [NIH]

Connective Tissue: Tissue that supports and binds other tissues. It consists of connective tissue cells embedded in a large amount of extracellular matrix. [NIH]

Consciousness: Sense of awareness of self and of the environment. [NIH]

Constipation: Infrequent or difficult evacuation of feces. [NIH]

Consultation: A deliberation between two or more physicians concerning the diagnosis and the proper method of treatment in a case. [NIH]

Consumption: Pulmonary tuberculosis. [NIH]

Contamination: The soiling or pollution by inferior material, as by the introduction of organisms into a wound, or sewage into a stream. [EU]

Continence: The ability to hold in a bowel movement or urine. [NIH]

Contraindications: Any factor or sign that it is unwise to pursue a certain kind of action or treatment, e. g. giving a general anesthetic to a person with pneumonia. [NIH]

Contralateral: Having to do with the opposite side of the body. [NIH]

Control group: In a clinical trial, the group that does not receive the new treatment being studied. This group is compared to the group that receives the new treatment, to see if the new treatment works. [NIH]

Controlled clinical trial: A clinical study that includes a comparison (control) group. The comparison group receives a placebo, another treatment, or no treatment at all. [NIH]

Controlled study: An experiment or clinical trial that includes a comparison (control) group.

[NIH]

Convulsions: A general term referring to sudden and often violent motor activity of cerebral or brainstem origin. Convulsions may also occur in the absence of an electrical cerebral discharge (e.g., in response to hypotension). [NIH]

Cooperative group: A group of physicians, hospitals, or both formed to treat a large number of persons in the same way so that new treatment can be evaluated quickly. Clinical trials of new cancer treatments often require many more people than a single physician or hospital can care for. [NIH]

Coordination: Muscular or motor regulation or the harmonious cooperation of muscles or groups of muscles, in a complex action or series of actions. [NIH]

Cor: The muscular organ that maintains the circulation of the blood. c. adiposum a heart that has undergone fatty degeneration or that has an accumulation of fat around it; called also fat or fatty, heart. c. arteriosum the left side of the heart, so called because it contains oxygenated (arterial) blood. c. biloculare a congenital anomaly characterized by failure of formation of the atrial and ventricular septums, the heart having only two chambers, a single atrium and a single ventricle, and a common atrioventricular valve. c. bovinum (L. 'ox heart') a greatly enlarged heart due to a hypertrophied left ventricle; called also c. taurinum and bucardia. c. dextrum (L. 'right heart') the right atrium and ventricle. c. hirsutum, c. villosum. c. mobile (obs.) an abnormally movable heart. c. pendulum a heart so movable that it seems to be hanging by the great blood vessels. c. pseudotriloculare biatriatum a congenital cardiac anomaly in which the heart functions as a three-chambered heart because of tricuspid atresia, the right ventricle being extremely small or rudimentary and the right atrium greatly dilated. Blood passes from the right to the left atrium and thence disease due to pulmonary hypertension secondary to disease of the lung, or its blood vessels, with hypertrophy of the right ventricle. [EU]

Cornea: The transparent part of the eye that covers the iris and the pupil and allows light to enter the inside. [NIH]

Coronary: Encircling in the manner of a crown; a term applied to vessels; nerves, ligaments, etc. The term usually denotes the arteries that supply the heart muscle and, by extension, a pathologic involvement of them. [EU]

Coronary Artery Bypass: Surgical therapy of ischemic coronary artery disease achieved by grafting a section of saphenous vein, internal mammary artery, or other substitute between the aorta and the obstructed coronary artery distal to the obstructive lesion. [NIH]

Coronary heart disease: A type of heart disease caused by narrowing of the coronary arteries that feed the heart, which needs a constant supply of oxygen and nutrients carried by the blood in the coronary arteries. When the coronary arteries become narrowed or clogged by fat and cholesterol deposits and cannot supply enough blood to the heart, CHD results. [NIH]

Coronary Thrombosis: Presence of a thrombus in a coronary artery, often causing a myocardial infarction. [NIH]

Cortex: The outer layer of an organ or other body structure, as distinguished from the internal substance. [EU]

Cortical: Pertaining to or of the nature of a cortex or bark. [EU]

Corticosteroids: Hormones that have antitumor activity in lymphomas and lymphoid leukemias; in addition, corticosteroids (steroids) may be used for hormone replacement and for the management of some of the complications of cancer and its treatment. [NIH]

Corticotropin-Releasing Hormone: A neuropeptide released by the hypothalamus that stimulates the release of corticotropin by the anterior pituitary gland. [NIH]

Cortisol: A steroid hormone secreted by the adrenal cortex as part of the body's response to stress. [NIH]

Coumarin: A fluorescent dye. [NIH]

Coumestrol: A coumarin derivative occurring naturally in forage crops which has estrogenic activity. [NIH]

Cranial: Pertaining to the cranium, or to the anterior (in animals) or superior (in humans) end of the body. [EU]

Craniocerebral Trauma: Traumatic injuries involving the cranium and intracranial structures (i.e., brain; cranial nerves; meninges; and other structures). Injuries may be classified by whether or not the skull is penetrated (i.e., penetrating vs. nonpenetrating) or whether there is an associated hemorrhage. [NIH]

Crossing-over: The exchange of corresponding segments between chromatids of homologous chromosomes during meiosia, forming a chiasma. [NIH]

Cues: Signals for an action; that specific portion of a perceptual field or pattern of stimuli to which a subject has learned to respond. [NIH]

Curative: Tending to overcome disease and promote recovery. [EU]

Cutaneous: Having to do with the skin. [NIH]

Cyanide: An extremely toxic class of compounds that can be lethal on inhaling of ingesting in minute quantities. [NIH]

Cyclic: Pertaining to or occurring in a cycle or cycles; the term is applied to chemical compounds that contain a ring of atoms in the nucleus. [EU]

Cyclin: Molecule that regulates the cell cycle. [NIH]

Cyclin-Dependent Kinases: Protein kinases that control cell cycle progression in all eukaryotes and require physical association with cyclins to achieve full enzymatic activity. Cyclin-dependent kinases are regulated by phosphorylation and dephosphorylation events. [NIH]

Cycloserine: Antibiotic substance produced by Streptomyces garyphalus. It may be used in the treatment of resistant tuberculosis as part of a multi-drug regimen. It has also been used in urinary tract infections. [NIH]

Cytoplasm: The protoplasm of a cell exclusive of that of the nucleus; it consists of a continuous aqueous solution (cytosol) and the organelles and inclusions suspended in it (phaneroplasm), and is the site of most of the chemical activities of the cell. [EU]

Cytotoxicity: Quality of being capable of producing a specific toxic action upon cells of special organs. [NIH]

Data Collection: Systematic gathering of data for a particular purpose from various sources, including questionnaires, interviews, observation, existing records, and electronic devices. The process is usually preliminary to statistical analysis of the data. [NIH]

Decarboxylation: The removal of a carboxyl group, usually in the form of carbon dioxide, from a chemical compound. [NIH]

Decidua: The epithelial lining of the endometrium that is formed before the fertilized ovum reaches the uterus. The fertilized ovum embeds in the decidua. If the ovum is not fertilized, the decidua is shed during menstruation. [NIH]

Decontamination: The removal of contaminating material, such as radioactive materials, biological materials, or chemical warfare agents, from a person or object. [NIH]

Defecation: The normal process of elimination of fecal material from the rectum. [NIH]

Degenerative: Undergoing degeneration : tending to degenerate; having the character of or involving degeneration; causing or tending to cause degeneration. [EU]

Deletion: A genetic rearrangement through loss of segments of DNA (chromosomes), bringing sequences, which are normally separated, into close proximity. [NIH]

Delivery of Health Care: The concept concerned with all aspects of providing and distributing health services to a patient population. [NIH]

Delusions: A false belief regarding the self or persons or objects outside the self that persists despite the facts, and is not considered tenable by one's associates. [NIH]

Dementia: An acquired organic mental disorder with loss of intellectual abilities of sufficient severity to interfere with social or occupational functioning. The dysfunction is multifaceted and involves memory, behavior, personality, judgment, attention, spatial relations, language, abstract thought, and other executive functions. The intellectual decline is usually progressive, and initially spares the level of consciousness. [NIH]

Denaturation: Rupture of the hydrogen bonds by heating a DNA solution and then cooling it rapidly causes the two complementary strands to separate. [NIH]

Dendrites: Extensions of the nerve cell body. They are short and branched and receive stimuli from other neurons. [NIH]

Dendritic: 1. Branched like a tree. 2. Pertaining to or possessing dendrites. [EU]

Density: The logarithm to the base 10 of the opacity of an exposed and processed film. [NIH]

Dental Anxiety: Abnormal fear or dread of visiting the dentist for preventive care or therapy and unwarranted anxiety over dental procedures. [NIH]

Dental Care: The total of dental diagnostic, preventive, and restorative services provided to meet the needs of a patient (from Illustrated Dictionary of Dentistry, 1982). [NIH]

Dental Caries: Localized destruction of the tooth surface initiated by decalcification of the enamel followed by enzymatic lysis of organic structures and leading to cavity formation. If left unchecked, the cavity may penetrate the enamel and dentin and reach the pulp. The three most prominent theories used to explain the etiology of the disase are that acids produced by bacteria lead to decalcification; that micro-organisms destroy the enamel protein; or that keratolytic micro-organisms produce chelates that lead to decalcification. [NIH]

Dental Plaque: A film that attaches to teeth, often causing dental caries and gingivitis. It is composed of mucins, secreted from salivary glands, and microorganisms. [NIH]

Dentate Gyrus: Gray matter situated above the gyrus hippocampi. It is composed of three layers. The molecular layer is continuous with the hippocampus in the hippocampal fissure. The granular layer consists of closely arranged spherical or oval neurons, called granule cells, whose axons pass through the polymorphic layer ending on the dendrites of pyramidal cells in the hippocampus. [NIH]

Dentist-Patient Relations: The psychological relations between the dentist and patient. [NIH]

Dentists: Individuals licensed to practice dentistry. [NIH]

Depersonalization: Alteration in the perception of the self so that the usual sense of one's own reality is lost, manifested in a sense of unreality or self-estrangement, in changes of body image, or in a feeling that one does not control his own actions and speech; seen in depersonalization disorder, schizophrenic disorders, and schizotypal personality disorder. Some do not draw a distinction between depersonalization and derealization, using depersonalization to include both. [EU]

Derealization: Is characterized by the loss of the sense of reality concerning one's

surroundings. [NIH]

DES: Diethylstilbestrol. A synthetic hormone that was prescribed from the early 1940s until 1971 to help women with complications of pregnancy. DES has been linked to an increased risk of clear cell carcinoma of the vagina in daughters of women who used DES. DES may also increase the risk of breast cancer in women who used DES. [NIH]

Desensitization: The prevention or reduction of immediate hypersensitivity reactions by administration of graded doses of allergen; called also hyposensitization and immunotherapy. [EU]

Developing Countries: Countries in the process of change directed toward economic growth, that is, an increase in production, per capita consumption, and income. The process of economic growth involves better utilization of natural and human resources, which results in a change in the social, political, and economic structures. [NIH]

Dextroamphetamine: The d-form of amphetamine. It is a central nervous system stimulant and a sympathomimetic. It has also been used in the treatment of narcolepsy and of attention deficit disorders and hyperactivity in children. Dextroamphetamine has multiple mechanisms of action including blocking uptake of adrenergics and dopamine, stimulating release of monamines, and inhibiting monoamine oxidase. It is also a drug of abuse and a psychotomimetic. [NIH]

Diabetes Mellitus: A heterogeneous group of disorders that share glucose intolerance in common. [NIH]

Diabetic Retinopathy: Retinopathy associated with diabetes mellitus, which may be of the background type, progressively characterized by microaneurysms, interretinal punctuate macular edema, or of the proliferative type, characterized by neovascularization of the retina and optic disk, which may project into the vitreous, proliferation of fibrous tissue, vitreous hemorrhage, and retinal detachment. [NIH]

Diagnostic Errors: Incorrect diagnoses after clinical examination or technical diagnostic procedures. [NIH]

Diagnostic procedure: A method used to identify a disease. [NIH]

Diarrhea: Passage of excessively liquid or excessively frequent stools. [NIH]

Diencephalon: The paired caudal parts of the prosencephalon from which the thalamus, hypothalamus, epithalamus, and subthalamus are derived. [NIH]

Diethylcarbamazine: An anthelmintic used primarily as the citrate in the treatment of filariasis, particularly infestations with Wucheria bancrofti or Loa loa. [NIH]

Digestion: The process of breakdown of food for metabolism and use by the body. [NIH]

Digestive system: The organs that take in food and turn it into products that the body can use to stay healthy. Waste products the body cannot use leave the body through bowel movements. The digestive system includes the salivary glands, mouth, esophagus, stomach, liver, pancreas, gallbladder, small and large intestines, and rectum. [NIH]

Dilatation: The act of dilating. [NIH]

Direct: 1. Straight; in a straight line. 2. Performed immediately and without the intervention of subsidiary means. [EU]

Discrete: Made up of separate parts or characterized by lesions which do not become blended; not running together; separate. [NIH]

Discrimination: The act of qualitative and/or quantitative differentiation between two or more stimuli. [NIH]

Disinfectant: An agent that disinfects; applied particularly to agents used on inanimate

objects. [EU]

Dislocation: The displacement of any part, more especially of a bone. Called also luxation. [EU]

Disparity: Failure of the two retinal images of an object to fall on corresponding retinal points. [NIH]

Dissection: Cutting up of an organism for study. [NIH]

Dissociation: 1. The act of separating or state of being separated. 2. The separation of a molecule into two or more fragments (atoms, molecules, ions, or free radicals) produced by the absorption of light or thermal energy or by solvation. 3. In psychology, a defense mechanism in which a group of mental processes are segregated from the rest of a person's mental activity in order to avoid emotional distress, as in the dissociative disorders (q.v.), or in which an idea or object is segregated from its emotional significance; in the first sense it is roughly equivalent to splitting, in the second, to isolation. 4. A defect of mental integration in which one or more groups of mental processes become separated off from normal consciousness and, thus separated, function as a unitary whole. [EU]

Dissociative Disorders: Sudden temporary alterations in the normally integrative functions of consciousness. [NIH]

Distal: Remote; farther from any point of reference; opposed to proximal. In dentistry, used to designate a position on the dental arch farther from the median line of the jaw. [EU]

Diuresis: Increased excretion of urine. [EU]

Dizziness: An imprecise term which may refer to a sense of spatial disorientation, motion of the environment, or lightheadedness. [NIH]

Domestic Violence: Deliberate, often repetitive, physical abuse by one family member against another: marital partners, parents, children, siblings, or any other member of a household. [NIH]

Dominance: In genetics, the full phenotypic expression of a gene in both heterozygotes and homozygotes. [EU]

Dopamine: An endogenous catecholamine and prominent neurotransmitter in several systems of the brain. In the synthesis of catecholamines from tyrosine, it is the immediate precursor to norepinephrine and epinephrine. Dopamine is a major transmitter in the extrapyramidal system of the brain, and important in regulating movement. A family of dopaminergic receptor subtypes mediate its action. Dopamine is used pharmacologically for its direct (beta adrenergic agonist) and indirect (adrenergic releasing) sympathomimetic effects including its actions as an inotropic agent and as a renal vasodilator. [NIH]

Dorsal: 1. Pertaining to the back or to any dorsum. 2. Denoting a position more toward the back surface than some other object of reference; same as posterior in human anatomy; superior in the anatomy of quadrupeds. [EU]

Double-blind: Pertaining to a clinical trial or other experiment in which neither the subject nor the person administering treatment knows which treatment any particular subject is receiving. [EU]

Dreams: A series of thoughts, images, or emotions occurring during sleep which are dissociated from the usual stream of consciousness of the waking state. [NIH]

Drive: A state of internal activity of an organism that is a necessary condition before a given stimulus will elicit a class of responses; e.g., a certain level of hunger (drive) must be present before food will elicit an eating response. [NIH]

Drug Interactions: The action of a drug that may affect the activity, metabolism, or toxicity of another drug. [NIH]

Drug Tolerance: Progressive diminution of the susceptibility of a human or animal to the effects of a drug, resulting from its continued administration. It should be differentiated from drug resistance wherein an organism, disease, or tissue fails to respond to the intended effectiveness of a chemical or drug. It should also be differentiated from maximum tolerated dose and no-observed-adverse-effect level. [NIH]

Duct: A tube through which body fluids pass. [NIH]

Dysphoria: Disquiet; restlessness; malaise. [EU]

Dyspnea: Difficult or labored breathing. [NIH]

Dystonia: Disordered tonicity of muscle. [EU]

Eating Disorders: A group of disorders characterized by physiological and psychological disturbances in appetite or food intake. [NIH]

Echinacea: A genus of perennial herbs used topically and internally. It contains echinacoside, glycosides, inulin, isobutyl amides, resin, and sesquiterpenes. [NIH]

Edema: Excessive amount of watery fluid accumulated in the intercellular spaces, most commonly present in subcutaneous tissue. [NIH]

Efferent: Nerve fibers which conduct impulses from the central nervous system to muscles and glands. [NIH]

Efficacy: The extent to which a specific intervention, procedure, regimen, or service produces a beneficial result under ideal conditions. Ideally, the determination of efficacy is based on the results of a randomized control trial. [NIH]

Elastic: Susceptible of resisting and recovering from stretching, compression or distortion applied by a force. [EU]

Elastin: The protein that gives flexibility to tissues. [NIH]

Electric shock: A dangerous patho-physiological effect resulting from an electric current passing through the body of a human or animal. [NIH]

Electrolyte: A substance that dissociates into ions when fused or in solution, and thus becomes capable of conducting electricity; an ionic solute. [EU]

Electrophoresis: An electrochemical process in which macromolecules or colloidal particles with a net electric charge migrate in a solution under the influence of an electric current. [NIH]

Electrophysiological: Pertaining to electrophysiology, that is a branch of physiology that is concerned with the electric phenomena associated with living bodies and involved in their functional activity. [EU]

Electroretinogram: The electrical effect recorded from the surface of the eyeball and originated by a pulse of light. [NIH]

Electroshock: Induction of a stress reaction in experimental subjects by means of an electrical shock; applies to either convulsive or non-convulsive states. [NIH]

Emaciation: Clinical manifestation of excessive leanness usually caused by disease or a lack of nutrition. [NIH]

Emboli: Bit of foreign matter which enters the blood stream at one point and is carried until it is lodged or impacted in an artery and obstructs it. It may be a blood clot, an air bubble, fat or other tissue, or clumps of bacteria. [NIH]

Embolization: The blocking of an artery by a clot or foreign material. Embolization can be done as treatment to block the flow of blood to a tumor. [NIH]

Embryo: The prenatal stage of mammalian development characterized by rapid

morphological changes and the differentiation of basic structures. [NIH]

Emergency Treatment: First aid or other immediate intervention for accidents or medical conditions requiring immediate care and treatment before definitive medical and surgical management can be procured. [NIH]

Empirical: A treatment based on an assumed diagnosis, prior to receiving confirmatory laboratory test results. [NIH]

Encapsulated: Confined to a specific, localized area and surrounded by a thin layer of tissue. [NIH]

Encephalitis: Inflammation of the brain due to infection, autoimmune processes, toxins, and other conditions. Viral infections (see encephalitis, viral) are a relatively frequent cause of this condition. [NIH]

Endocrine System: The system of glands that release their secretions (hormones) directly into the circulatory system. In addition to the endocrine glands, included are the chromaffin system and the neurosecretory systems. [NIH]

Endogenous: Produced inside an organism or cell. The opposite is external (exogenous) production. [NIH]

Endorphins: One of the three major groups of endogenous opioid peptides. They are large peptides derived from the pro-opiomelanocortin precursor. The known members of this group are alpha-, beta-, and gamma-endorphin. The term endorphin is also sometimes used to refer to all opioid peptides, but the narrower sense is used here; opioid peptides is used for the broader group. [NIH]

End-stage renal: Total chronic kidney failure. When the kidneys fail, the body retains fluid and harmful wastes build up. A person with ESRD needs treatment to replace the work of the failed kidneys. [NIH]

Enhancer: Transcriptional element in the virus genome. [NIH]

Enkephalin: A natural opiate painkiller, in the hypothalamus. [NIH]

Entorhinal Cortex: Cortex where the signals are combined with those from other sensory systems. [NIH]

Environmental Health: The science of controlling or modifying those conditions, influences, or forces surrounding man which relate to promoting, establishing, and maintaining health. [NIH]

Enzymatic: Phase where enzyme cuts the precursor protein. [NIH]

Enzyme: A protein that speeds up chemical reactions in the body. [NIH]

Epidemic: Occurring suddenly in numbers clearly in excess of normal expectancy; said especially of infectious diseases but applied also to any disease, injury, or other health-related event occurring in such outbreaks. [EU]

Epinephrine: The active sympathomimetic hormone from the adrenal medulla in most species. It stimulates both the alpha- and beta- adrenergic systems, causes systemic vasoconstriction and gastrointestinal relaxation, stimulates the heart, and dilates bronchi and cerebral vessels. It is used in asthma and cardiac failure and to delay absorption of local anesthetics. [NIH]

Epithalamus: The dorsal posterior subdivision of the diencephalon. The epithalamus is generally considered to include the habenular nuclei (habenula) and associated fiber bundles, the pineal body, and the epithelial roof of the third ventricle. The anterior and posterior paraventricular nuclei of the thalamus are included with the thalamic nuclei although they develop from the same pronuclear mass as the epithalamic nuclei and are sometimes considered part of the epithalamus. [NIH]

Erythrocytes: Red blood cells. Mature erythrocytes are non-nucleated, biconcave disks containing hemoglobin whose function is to transport oxygen. [NIH]

Esophagus: The muscular tube through which food passes from the throat to the stomach. [NIH]

Estrogen: One of the two female sex hormones. [NIH]

Estrogen Antagonists: Compounds which inhibit or antagonize the action or biosynthesis of estrogen. [NIH]

Ethanol: A clear, colorless liquid rapidly absorbed from the gastrointestinal tract and distributed throughout the body. It has bactericidal activity and is used often as a topical disinfectant. It is widely used as a solvent and preservative in pharmaceutical preparations as well as serving as the primary ingredient in alcoholic beverages. [NIH]

Eukaryotic Cells: Cells of the higher organisms, containing a true nucleus bounded by a nuclear membrane. [NIH]

Evacuation: An emptying, as of the bowels. [EU]

Evoke: The electric response recorded from the cerebral cortex after stimulation of a peripheral sense organ. [NIH]

Evoked Potentials: The electric response evoked in the central nervous system by stimulation of sensory receptors or some point on the sensory pathway leading from the receptor to the cortex. The evoked stimulus can be auditory, somatosensory, or visual, although other modalities have been reported. Event-related potentials is sometimes used synonymously with evoked potentials but is often associated with the execution of a motor, cognitive, or psychophysiological task, as well as with the response to a stimulus. [NIH]

Excitation: An act of irritation or stimulation or of responding to a stimulus; the addition of energy, as the excitation of a molecule by absorption of photons. [EU]

Excrete: To get rid of waste from the body. [NIH]

Exogenous: Developed or originating outside the organism, as exogenous disease. [EU]

Expiration: The act of breathing out, or expelling air from the lungs. [EU]

Exploratory Behavior: The tendency to explore or investigate a novel environment. It is considered a motivation not clearly distinguishable from curiosity. [NIH]

External-beam radiation: Radiation therapy that uses a machine to aim high-energy rays at the cancer. Also called external radiation. [NIH]

Extracellular: Outside a cell or cells. [EU]

Extrapyramidal: Outside of the pyramidal tracts. [EU]

Facial: Of or pertaining to the face. [EU]

Facial Expression: Observable changes of expression in the face in response to emotional stimuli. [NIH]

Facial Nerve: The 7th cranial nerve. The facial nerve has two parts, the larger motor root which may be called the facial nerve proper, and the smaller intermediate or sensory root. Together they provide efferent innervation to the muscles of facial expression and to the lacrimal and salivary glands, and convey afferent information for taste from the anterior two-thirds of the tongue and for touch from the external ear. [NIH]

Facial Nerve Diseases: Diseases of the facial nerve or nuclei. Pontine disorders may affect the facial nuclei or nerve fascicle. The nerve may be involved intracranially, along its course through the petrous portion of the temporal bone, or along its extracranial course. Clinical manifestations include facial muscle weakness, loss of taste from the anterior tongue,

hyperacusis, and decreased lacrimation. [NIH]

Family Planning: Programs or services designed to assist the family in controlling reproduction by either improving or diminishing fertility. [NIH]

Fat: Total lipids including phospholipids. [NIH]

Fathers: Male parents, human or animal. [NIH]

Fatigue: The state of weariness following a period of exertion, mental or physical, characterized by a decreased capacity for work and reduced efficiency to respond to stimuli. [NIH]

Feces: The excrement discharged from the intestines, consisting of bacteria, cells exfoliated from the intestines, secretions, chiefly of the liver, and a small amount of food residue. [EU]

Femur: The longest and largest bone of the skeleton, it is situated between the hip and the knee. [NIH]

Fetus: The developing offspring from 7 to 8 weeks after conception until birth. [NIH]

Fibrosis: Any pathological condition where fibrous connective tissue invades any organ, usually as a consequence of inflammation or other injury. [NIH]

Fissure: Any cleft or groove, normal or otherwise; especially a deep fold in the cerebral cortex which involves the entire thickness of the brain wall. [EU]

Fixation: 1. The act or operation of holding, suturing, or fastening in a fixed position. 2. The condition of being held in a fixed position. 3. In psychiatry, a term with two related but distinct meanings : (1) arrest of development at a particular stage, which like regression (return to an earlier stage), if temporary is a normal reaction to setbacks and difficulties but if protracted or frequent is a cause of developmental failures and emotional problems, and (2) a close and suffocating attachment to another person, especially a childhood figure, such as one's mother or father. Both meanings are derived from psychoanalytic theory and refer to 'fixation' of libidinal energy either in a specific erogenous zone, hence fixation at the oral, anal, or phallic stage, or in a specific object, hence mother or father fixation. 4. The use of a fixative (q.v.) to preserve histological or cytological specimens. 5. In chemistry, the process whereby a substance is removed from the gaseous or solution phase and localized, as in carbon dioxide fixation or nitrogen fixation. 6. In ophthalmology, direction of the gaze so that the visual image of the object falls on the fovea centralis. 7. In film processing, the chemical removal of all undeveloped salts of the film emulsion, leaving only the developed silver to form a permanent image. [EU]

Flatulence: Production or presence of gas in the gastrointestinal tract which may be expelled through the anus. [NIH]

Fluoxetine: The first highly specific serotonin uptake inhibitor. It is used as an antidepressant and often has a more acceptable side-effects profile than traditional antidepressants. [NIH]

Flurothyl: A convulsant primarily used in experimental animals. It was formerly used to induce convulsions as a alternative to electroshock therapy. [NIH]

Focus Groups: A method of data collection and a qualitative research tool in which a small group of individuals are brought together and allowed to interact in a discussion of their opinions about topics, issues, or questions. [NIH]

Fold: A plication or doubling of various parts of the body. [NIH]

Fornix: A bundle of nerves connected to the hippocampus. [NIH]

Fossa: A cavity, depression, or pit. [NIH]

Fourth Ventricle: An irregularly shaped cavity in the rhombencephalon, between the

medulla oblongata, the pons, and the isthmus in front, and the cerebellum behind. It is continuous with the central canal of the cord below and with the cerebral aqueduct above, and through its lateral and median apertures it communicates with the subarachnoid space. [NIH]

Free Radicals: Highly reactive molecules with an unsatisfied electron valence pair. Free radicals are produced in both normal and pathological processes. They are proven or suspected agents of tissue damage in a wide variety of circumstances including radiation, damage from environment chemicals, and aging. Natural and pharmacological prevention of free radical damage is being actively investigated. [NIH]

Friction: Surface resistance to the relative motion of one body against the rubbing, sliding, rolling, or flowing of another with which it is in contact. [NIH]

Frontal Lobe: The anterior part of the cerebral hemisphere. [NIH]

Functional magnetic resonance imaging: A noninvasive tool used to observe functioning in the brain or other organs by detecting changes in chemical composition, blood flow, or both. [NIH]

Fundus: The larger part of a hollow organ that is farthest away from the organ's opening. The bladder, gallbladder, stomach, uterus, eye, and cavity of the middle ear all have a fundus. [NIH]

Gait: Manner or style of walking. [NIH]

Galanin: A neurotransmitter. [NIH]

Gallbladder: The pear-shaped organ that sits below the liver. Bile is concentrated and stored in the gallbladder. [NIH]

Ganglia: Clusters of multipolar neurons surrounded by a capsule of loosely organized connective tissue located outside the central nervous system. [NIH]

Ganglion: 1. A knot, or knotlike mass. 2. A general term for a group of nerve cell bodies located outside the central nervous system; occasionally applied to certain nuclear groups within the brain or spinal cord, e.g. basal ganglia. 3. A benign cystic tumour occurring on a aponeurosis or tendon, as in the wrist or dorsum of the foot; it consists of a thin fibrous capsule enclosing a clear mucinous fluid. [EU]

Gap Junctions: Connections between cells which allow passage of small molecules and electric current. Gap junctions were first described anatomically as regions of close apposition between cells with a narrow (1-2 nm) gap between cell membranes. The variety in the properties of gap junctions is reflected in the number of connexins, the family of proteins which form the junctions. [NIH]

Gas: Air that comes from normal breakdown of food. The gases are passed out of the body through the rectum (flatus) or the mouth (burp). [NIH]

Gastrin: A hormone released after eating. Gastrin causes the stomach to produce more acid. [NIH]

Gastrointestinal: Refers to the stomach and intestines. [NIH]

Gastrointestinal tract: The stomach and intestines. [NIH]

Gene: The functional and physical unit of heredity passed from parent to offspring. Genes are pieces of DNA, and most genes contain the information for making a specific protein. [NIH]

Gene Expression: The phenotypic manifestation of a gene or genes by the processes of gene action. [NIH]

General practitioner: A medical practitioner who does not specialize in a particular branch of medicine or limit his practice to a specific class of diseases. [NIH]

Genetic Engineering: Directed modification of the gene complement of a living organism by such techniques as altering the DNA, substituting genetic material by means of a virus, transplanting whole nuclei, transplanting cell hybrids, etc. [NIH]

Genetic testing: Analyzing DNA to look for a genetic alteration that may indicate an increased risk for developing a specific disease or disorder. [NIH]

Genetics: The biological science that deals with the phenomena and mechanisms of heredity. [NIH]

Genotype: The genetic constitution of the individual; the characterization of the genes. [NIH]

Gestation: The period of development of the young in viviparous animals, from the time of fertilization of the ovum until birth. [EU]

Gestational: Psychosis attributable to or occurring during pregnancy. [NIH]

Gingivitis: Inflammation of the gingivae. Gingivitis associated with bony changes is referred to as periodontitis. Called also oulitis and ulitis. [EU]

Ginkgo biloba: Exclusive species of the genus Ginkgo, family Ginkgoacea. It produces extracts of medicinal interest. Ginkgo may refer to the genus or species. [NIH]

Ginseng: An araliaceous genus of plants that contains a number of pharmacologically active agents used as stimulants, sedatives, and tonics, especially in traditional medicine. [NIH]

Gland: An organ that produces and releases one or more substances for use in the body. Some glands produce fluids that affect tissues or organs. Others produce hormones or participate in blood production. [NIH]

Glomerulus: A tiny set of looping blood vessels in the nephron where blood is filtered in the kidney. [NIH]

Glucocorticoid: A compound that belongs to the family of compounds called corticosteroids (steroids). Glucocorticoids affect metabolism and have anti-inflammatory and immunosuppressive effects. They may be naturally produced (hormones) or synthetic (drugs). [NIH]

Glucose: D-Glucose. A primary source of energy for living organisms. It is naturally occurring and is found in fruits and other parts of plants in its free state. It is used therapeutically in fluid and nutrient replacement. [NIH]

Glutamate: Excitatory neurotransmitter of the brain. [NIH]

Glutamic Acid: A non-essential amino acid naturally occurring in the L-form. Glutamic acid (glutamate) is the most common excitatory neurotransmitter in the central nervous system. [NIH]

Glycerol: A trihydroxy sugar alcohol that is an intermediate in carbohydrate and lipid metabolism. It is used as a solvent, emollient, pharmaceutical agent, and sweetening agent. [NIH]

Glycerophospholipids: Derivatives of phosphatidic acid in which the hydrophobic regions are composed of two fatty acids and a polar alcohol is joined to the C-3 position of glycerol through a phosphodiester bond. They are named according to their polar head groups, such as phosphatidylcholine and phosphatidylethanolamine. [NIH]

Glycine: A non-essential amino acid. It is found primarily in gelatin and silk fibroin and used therapeutically as a nutrient. It is also a fast inhibitory neurotransmitter. [NIH]

Glycoproteins: Conjugated protein-carbohydrate compounds including mucins, mucoid, and amyloid glycoproteins. [NIH]

Gonad: A sex organ, such as an ovary or a testicle, which produces the gametes in most multicellular animals. [NIH]

Governing Board: The group in which legal authority is vested for the control of health-related institutions and organizations. [NIH]

Grade: The grade of a tumor depends on how abnormal the cancer cells look under a microscope and how quickly the tumor is likely to grow and spread. Grading systems are different for each type of cancer. [NIH]

Graft: Healthy skin, bone, or other tissue taken from one part of the body and used to replace diseased or injured tissue removed from another part of the body. [NIH]

Grafting: The operation of transfer of tissue from one site to another. [NIH]

Granule: A small pill made from sucrose. [EU]

Growth: The progressive development of a living being or part of an organism from its earliest stage to maturity. [NIH]

Gyrus Cinguli: One of the convolutions on the medial surface of the cerebral hemisphere. It surrounds the rostral part of the brain and interhemispheric commissure and forms part of the limbic system. [NIH]

Habitual: Of the nature of a habit; according to habit; established by or repeated by force of habit, customary. [EU]

Habituation: Decline in response of an organism to environmental or other stimuli with repeated or maintained exposure. [NIH]

Hair Cells: Mechanoreceptors located in the organ of Corti that are sensitive to auditory stimuli and in the vestibular apparatus that are sensitive to movement of the head. In each case the accessory sensory structures are arranged so that appropriate stimuli cause movement of the hair-like projections (stereocilia and kinocilia) which relay the information centrally in the nervous system. [NIH]

Happiness: Highly pleasant emotion characterized by outward manifestations of gratification; joy. [NIH]

Headache: Pain in the cranial region that may occur as an isolated and benign symptom or as a manifestation of a wide variety of conditions including subarachnoid hemorrhage; craniocerebral trauma; central nervous system infections; intracranial hypertension; and other disorders. In general, recurrent headaches that are not associated with a primary disease process are referred to as headache disorders (e.g., migraine). [NIH]

Health Behavior: Behaviors expressed by individuals to protect, maintain or promote their health status. For example, proper diet, and appropriate exercise are activities perceived to influence health status. Life style is closely associated with health behavior and factors influencing life style are socioeconomic, educational, and cultural. [NIH]

Health Care Costs: The actual costs of providing services related to the delivery of health care, including the costs of procedures, therapies, and medications. It is differentiated from health expenditures, which refers to the amount of money paid for the services, and from fees, which refers to the amount charged, regardless of cost. [NIH]

Health Expenditures: The amounts spent by individuals, groups, nations, or private or public organizations for total health care and/or its various components. These amounts may or may not be equivalent to the actual costs (health care costs) and may or may not be shared among the patient, insurers, and/or employers. [NIH]

Health Promotion: Encouraging consumer behaviors most likely to optimize health potentials (physical and psychosocial) through health information, preventive programs, and access to medical care. [NIH]

Health Status: The level of health of the individual, group, or population as subjectively

assessed by the individual or by more objective measures. [NIH]

Heart attack: A seizure of weak or abnormal functioning of the heart. [NIH]

Heme: The color-furnishing portion of hemoglobin. It is found free in tissues and as the prosthetic group in many hemeproteins. [NIH]

Hemodialysis: The use of a machine to clean wastes from the blood after the kidneys have failed. The blood travels through tubes to a dialyzer, which removes wastes and extra fluid. The cleaned blood then flows through another set of tubes back into the body. [NIH]

Hemoglobin: One of the fractions of glycosylated hemoglobin A1c. Glycosylated hemoglobin is formed when linkages of glucose and related monosaccharides bind to hemoglobin A and its concentration represents the average blood glucose level over the previous several weeks. HbA1c levels are used as a measure of long-term control of plasma glucose (normal, 4 to 6 percent). In controlled diabetes mellitus, the concentration of glycosylated hemoglobin A is within the normal range, but in uncontrolled cases the level may be 3 to 4 times the normal conentration. Generally, complications are substantially lower among patients with Hb levels of 7 percent or less than in patients with HbA1c levels of 9 percent or more. [NIH]

Hemoglobin A: Normal adult human hemoglobin. The globin moiety consists of two alpha and two beta chains. [NIH]

Hemoglobin M: A group of abnormal hemoglobins in which amino acid substitutions take place in either the alpha or beta chains but near the heme iron. This results in facilitated oxidation of the hemoglobin to yield excess methemoglobin which leads to cyanosis. [NIH]

Hemoglobinopathies: A group of inherited disorders characterized by structural alterations within the hemoglobin molecule. [NIH]

Hemorrhage: Bleeding or escape of blood from a vessel. [NIH]

Hemostasis: The process which spontaneously arrests the flow of blood from vessels carrying blood under pressure. It is accomplished by contraction of the vessels, adhesion and aggregation of formed blood elements, and the process of blood or plasma coagulation. [NIH]

Hepatic: Refers to the liver. [NIH]

Hepatocyte: A liver cell. [NIH]

Heredity: 1. The genetic transmission of a particular quality or trait from parent to offspring. 2. The genetic constitution of an individual. [EU]

Heterozygotes: Having unlike alleles at one or more corresponding loci on homologous chromosomes. [NIH]

Hippocampus: A curved elevation of gray matter extending the entire length of the floor of the temporal horn of the lateral ventricle (Dorland, 28th ed). The hippocampus, subiculum, and dentate gyrus constitute the hippocampal formation. Sometimes authors include the entorhinal cortex in the hippocampal formation. [NIH]

Homeostasis: The processes whereby the internal environment of an organism tends to remain balanced and stable. [NIH]

Homologous: Corresponding in structure, position, origin, etc., as (a) the feathers of a bird and the scales of a fish, (b) antigen and its specific antibody, (c) allelic chromosomes. [EU]

Hormone: A substance in the body that regulates certain organs. Hormones such as gastrin help in breaking down food. Some hormones come from cells in the stomach and small intestine. [NIH]

Hormone therapy: Treatment of cancer by removing, blocking, or adding hormones. Also

called endocrine therapy. [NIH]

Hospital Administrators: Managerial personnel responsible for implementing policy and directing the activities of hospitals. [NIH]

Host: Any animal that receives a transplanted graft. [NIH]

Human Genome Project: A coordinated effort of researchers to map and sequence the human genome. [NIH]

Hydration: Combining with water. [NIH]

Hydrogen: The first chemical element in the periodic table. It has the atomic symbol H, atomic number 1, and atomic weight 1. It exists, under normal conditions, as a colorless, odorless, tasteless, diatomic gas. Hydrogen ions are protons. Besides the common H1 isotope, hydrogen exists as the stable isotope deuterium and the unstable, radioactive isotope tritium. [NIH]

Hydrogenation: Specific method of reduction in which hydrogen is added to a substance by the direct use of gaseous hydrogen. [NIH]

Hydrolysis: The process of cleaving a chemical compound by the addition of a molecule of water. [NIH]

Hydroxylysine: A hydroxylated derivative of the amino acid lysine that is present in certain collagens. [NIH]

Hydroxyproline: A hydroxylated form of the imino acid proline. A deficiency in ascorbic acid can result in impaired hydroxyproline formation. [NIH]

Hyperacusis: An abnormally disproportionate increase in the sensation of loudness in response to auditory stimuli of normal volume. Cochlear diseases; vestibulocochlear nerve diseases; facial nerve diseases; stapes surgery; and other disorders may be associated with this condition. [NIH]

Hyperalgesia: Excessive sensitiveness or sensibility to pain. [EU]

Hyperglycemia: Abnormally high blood sugar. [NIH]

Hypersensitivity: Altered reactivity to an antigen, which can result in pathologic reactions upon subsequent exposure to that particular antigen. [NIH]

Hypertension: Persistently high arterial blood pressure. Currently accepted threshold levels are 140 mm Hg systolic and 90 mm Hg diastolic pressure. [NIH]

Hypertrophy: General increase in bulk of a part or organ, not due to tumor formation, nor to an increase in the number of cells. [NIH]

Hypoglycemia: Abnormally low blood sugar [NIH]

Hypotension: Abnormally low blood pressure. [NIH]

Hypothalamic: Of or involving the hypothalamus. [EU]

Hypothalamus: Ventral part of the diencephalon extending from the region of the optic chiasm to the caudal border of the mammillary bodies and forming the inferior and lateral walls of the third ventricle. [NIH]

Hysterectomy: Excision of the uterus. [NIH]

Ibotenic Acid: Neurotoxic isoxazole substance found in Amanita muscaria and A. pantherina. It causes motor depression, ataxia, and changes in mood, perceptions and feelings, and is a potent excitatory amino acid agonist. [NIH]

Id: The part of the personality structure which harbors the unconscious instinctive desires and strivings of the individual. [NIH]

Illusion: A false interpretation of a genuine percept. [NIH]

Immune function: Production and action of cells that fight disease or infection. [NIH]

Immune response: The activity of the immune system against foreign substances (antigens). [NIH]

Immune system: The organs, cells, and molecules responsible for the recognition and disposal of foreign ("non-self") material which enters the body. [NIH]

Immunity: Nonsusceptibility to the invasive or pathogenic effects of foreign microorganisms or to the toxic effect of antigenic substances. [NIH]

Immunization: Deliberate stimulation of the host's immune response. Active immunization involves administration of antigens or immunologic adjuvants. Passive immunization involves administration of immune sera or lymphocytes or their extracts (e.g., transfer factor, immune RNA) or transplantation of immunocompetent cell producing tissue (thymus or bone marrow). [NIH]

Immunodeficiency: The decreased ability of the body to fight infection and disease. [NIH]

Immunodeficiency syndrome: The inability of the body to produce an immune response. [NIH]

Immunogenic: Producing immunity; evoking an immune response. [EU]

Immunologic: The ability of the antibody-forming system to recall a previous experience with an antigen and to respond to a second exposure with the prompt production of large amounts of antibody. [NIH]

Immunologic Tests: Diagnostic techniques involving the demonstration or measurement of an immune response, including antibody production or assay, antigen-antibody reactions, serologic cross-reactivity, delayed hypersensitivity reactions, or heterogenetic responses. [NIH]

Immunology: The study of the body's immune system. [NIH]

Immunosuppressive: Describes the ability to lower immune system responses. [NIH]

Immunotherapy: Manipulation of the host's immune system in treatment of disease. It includes both active and passive immunization as well as immunosuppressive therapy to prevent graft rejection. [NIH]

Impairment: In the context of health experience, an impairment is any loss or abnormality of psychological, physiological, or anatomical structure or function. [NIH]

Implant radiation: A procedure in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near the tumor. Also called [NIH]

Impotence: The inability to perform sexual intercourse. [NIH]

In vitro: In the laboratory (outside the body). The opposite of in vivo (in the body). [NIH]

In vivo: In the body. The opposite of in vitro (outside the body or in the laboratory). [NIH]

Incision: A cut made in the body during surgery. [NIH]

Incontinence: Inability to control the flow of urine from the bladder (urinary incontinence) or the escape of stool from the rectum (fecal incontinence). [NIH]

Incubation: The development of an infectious disease from the entrance of the pathogen to the appearance of clinical symptoms. [EU]

Indicative: That indicates; that points out more or less exactly; that reveals fairly clearly. [EU]

Induction: The act or process of inducing or causing to occur, especially the production of a specific morphogenetic effect in the developing embryo through the influence of evocators or organizers, or the production of anaesthesia or unconsciousness by use of appropriate

agents. [EU]

Infancy: The period of complete dependency prior to the acquisition of competence in walking, talking, and self-feeding. [NIH]

Infarction: A pathological process consisting of a sudden insufficient blood supply to an area, which results in necrosis of that area. It is usually caused by a thrombus, an embolus, or a vascular torsion. [NIH]

Infection: 1. Invasion and multiplication of microorganisms in body tissues, which may be clinically unapparent or result in local cellular injury due to competitive metabolism, toxins, intracellular replication, or antigen-antibody response. The infection may remain localized, subclinical, and temporary if the body's defensive mechanisms are effective. A local infection may persist and spread by extension to become an acute, subacute, or chronic clinical infection or disease state. A local infection may also become systemic when the microorganisms gain access to the lymphatic or vascular system. 2. An infectious disease. [EU]

Infection Control: Programs of disease surveillance, generally within health care facilities, designed to investigate, prevent, and control the spread of infections and their causative microorganisms. [NIH]

Inflammation: A pathological process characterized by injury or destruction of tissues caused by a variety of cytologic and chemical reactions. It is usually manifested by typical signs of pain, heat, redness, swelling, and loss of function. [NIH]

Informed Consent: Voluntary authorization, given to the physician by the patient, with full comprehension of the risks involved, for diagnostic or investigative procedures and medical and surgical treatment. [NIH]

Infusion: A method of putting fluids, including drugs, into the bloodstream. Also called intravenous infusion. [NIH]

Ingestion: Taking into the body by mouth [NIH]

Inner ear: The labyrinth, comprising the vestibule, cochlea, and semicircular canals. [NIH]

Innervation: 1. The distribution or supply of nerves to a part. 2. The supply of nervous energy or of nerve stimulus sent to a part. [EU]

Inositol: An isomer of glucose that has traditionally been considered to be a B vitamin although it has an uncertain status as a vitamin and a deficiency syndrome has not been identified in man. (From Martindale, The Extra Pharmacopoeia, 30th ed, p1379) Inositol phospholipids are important in signal transduction. [NIH]

Inotropic: Affecting the force or energy of muscular contractions. [EU]

Insight: The capacity to understand one's own motives, to be aware of one's own psychodynamics, to appreciate the meaning of symbolic behavior. [NIH]

Insomnia: Difficulty in going to sleep or getting enough sleep. [NIH]

Insulin: A protein hormone secreted by beta cells of the pancreas. Insulin plays a major role in the regulation of glucose metabolism, generally promoting the cellular utilization of glucose. It is also an important regulator of protein and lipid metabolism. Insulin is used as a drug to control insulin-dependent diabetes mellitus. [NIH]

Insulin-dependent diabetes mellitus: A disease characterized by high levels of blood glucose resulting from defects in insulin secretion, insulin action, or both. Autoimmune, genetic, and environmental factors are involved in the development of type I diabetes. [NIH]

Intensive Care: Advanced and highly specialized care provided to medical or surgical patients whose conditions are life-threatening and require comprehensive care and constant

monitoring. It is usually administered in specially equipped units of a health care facility. [NIH]

Interleukin-1: A soluble factor produced by monocytes, macrophages, and other cells which activates T-lymphocytes and potentiates their response to mitogens or antigens. IL-1 consists of two distinct forms, IL-1 alpha and IL-1 beta which perform the same functions but are distinct proteins. The biological effects of IL-1 include the ability to replace macrophage requirements for T-cell activation. The factor is distinct from interleukin-2. [NIH]

Interleukin-2: Chemical mediator produced by activated T lymphocytes and which regulates the proliferation of T cells, as well as playing a role in the regulation of NK cell activity. [NIH]

Interleukins: Soluble factors which stimulate growth-related activities of leukocytes as well as other cell types. They enhance cell proliferation and differentiation, DNA synthesis, secretion of other biologically active molecules and responses to immune and inflammatory stimuli. [NIH]

Intermittent: Occurring at separated intervals; having periods of cessation of activity. [EU]

Internal Capsule: White matter pathway, flanked by nuclear masses, consisting of both afferent and efferent fibers projecting between the cerebral cortex and the brainstem. It consists of three distinct parts: an anterior limb, posterior limb, and genu. [NIH]

Internal radiation: A procedure in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near the tumor. Also called brachytherapy, implant radiation, or interstitial radiation therapy. [NIH]

Interphase: The interval between two successive cell divisions during which the chromosomes are not individually distinguishable and DNA replication occurs. [NIH]

Interstitial: Pertaining to or situated between parts or in the interspaces of a tissue. [EU]

Intervertebral: Situated between two contiguous vertebrae. [EU]

Intervertebral Disk Displacement: An intervertebral disk in which the nucleus pulposus has protruded through surrounding fibrocartilage. This occurs most frequently in the lower lumbar region. [NIH]

Intestine: A long, tube-shaped organ in the abdomen that completes the process of digestion. There is both a large intestine and a small intestine. Also called the bowel. [NIH]

Intoxication: Poisoning, the state of being poisoned. [EU]

Intracellular: Inside a cell. [NIH]

Intracranial Hypertension: Increased pressure within the cranial vault. This may result from several conditions, including hydrocephalus; brain edema; intracranial masses; severe systemic hypertension; pseudotumor cerebri; and other disorders. [NIH]

Intravenous: IV. Into a vein. [NIH]

Intubation: Introduction of a tube into a hollow organ to restore or maintain patency if obstructed. It is differentiated from catheterization in that the insertion of a catheter is usually performed for the introducing or withdrawing of fluids from the body. [NIH]

Inulin: A starch found in the tubers and roots of many plants. Since it is hydrolyzable to fructose, it is classified as a fructosan. It has been used in physiologic investigation for determination of the rate of glomerular function. [NIH]

Invasive: 1. Having the quality of invasiveness. 2. Involving puncture or incision of the skin or insertion of an instrument or foreign material into the body; said of diagnostic techniques. [EU]

Invertebrates: Animals that have no spinal column. [NIH]

Involuntary: Reaction occurring without intention or volition. [NIH]

Ion Channels: Gated, ion-selective glycoproteins that traverse membranes. The stimulus for channel gating can be a membrane potential, drug, transmitter, cytoplasmic messenger, or a mechanical deformation. Ion channels which are integral parts of ionotropic neurotransmitter receptors are not included. [NIH]

Ions: An atom or group of atoms that have a positive or negative electric charge due to a gain (negative charge) or loss (positive charge) of one or more electrons. Atoms with a positive charge are known as cations; those with a negative charge are anions. [NIH]

Irradiation: The use of high-energy radiation from x-rays, neutrons, and other sources to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external-beam radiation therapy) or from materials called radioisotopes. Radioisotopes produce radiation and can be placed in or near the tumor or in the area near cancer cells. This type of radiation treatment is called internal radiation therapy, implant radiation, interstitial radiation, or brachytherapy. Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Irradiation is also called radiation therapy, radiotherapy, and x-ray therapy. [NIH]

Jealousy: An irrational reaction compounded of grief, loss of self-esteem, enmity against the rival and self criticism. [NIH]

Joint: The point of contact between elements of an animal skeleton with the parts that surround and support it. [NIH]

Kb: A measure of the length of DNA fragments, 1 Kb = 1000 base pairs. The largest DNA fragments are up to 50 kilobases long. [NIH]

Kidney Disease: Any one of several chronic conditions that are caused by damage to the cells of the kidney. People who have had diabetes for a long time may have kidney damage. Also called nephropathy. [NIH]

Kidney Failure: The inability of a kidney to excrete metabolites at normal plasma levels under conditions of normal loading, or the inability to retain electrolytes under conditions of normal intake. In the acute form (kidney failure, acute), it is marked by uremia and usually by oliguria or anuria, with hyperkalemia and pulmonary edema. The chronic form (kidney failure, chronic) is irreversible and requires hemodialysis. [NIH]

Kidney Failure, Acute: A clinical syndrome characterized by a sudden decrease in glomerular filtration rate, often to values of less than 1 to 2 ml per minute. It is usually associated with oliguria (urine volumes of less than 400 ml per day) and is always associated with biochemical consequences of the reduction in glomerular filtration rate such as a rise in blood urea nitrogen (BUN) and serum creatinine concentrations. [NIH]

Kidney Failure, Chronic: An irreversible and usually progressive reduction in renal function in which both kidneys have been damaged by a variety of diseases to the extent that they are unable to adequately remove the metabolic products from the blood and regulate the body's electrolyte composition and acid-base balance. Chronic kidney failure requires hemodialysis or surgery, usually kidney transplantation. [NIH]

Kidney Transplantation: The transference of a kidney from one human or animal to another. [NIH]

Kinetics: The study of rate dynamics in chemical or physical systems. [NIH]

Labyrinth: The internal ear; the essential part of the organ of hearing. It consists of an osseous and a membranous portion. [NIH]

Lactation: The period of the secretion of milk. [EU]

Language Development: The gradual expansion in complexity and meaning of symbols and

sounds as perceived and interpreted by the individual through a maturational and learning process. Stages in development include babbling, cooing, word imitation with cognition, and use of short sentences. [NIH]

Language Development Disorders: Conditions characterized by language abilities (comprehension and expression of speech and writing) that are below the expected level for a given age, generally in the absence of an intellectual impairment. These conditions may be associated with deafness; brain diseases; mental disorders; or environmental factors. [NIH]

Language Disorders: Conditions characterized by deficiencies of comprehension or expression of written and spoken forms of language. These include acquired and developmental disorders. [NIH]

Language Therapy: Rehabilitation of persons with language disorders or training of children with language development disorders. [NIH]

Large Intestine: The part of the intestine that goes from the cecum to the rectum. The large intestine absorbs water from stool and changes it from a liquid to a solid form. The large intestine is 5 feet long and includes the appendix, cecum, colon, and rectum. Also called colon. [NIH]

Latency: The period of apparent inactivity between the time when a stimulus is presented and the moment a response occurs. [NIH]

Latent: Phoria which occurs at one distance or another and which usually has no troublesome effect. [NIH]

Leprosy: A chronic granulomatous infection caused by Mycobacterium leprae. The granulomatous lesions are manifested in the skin, the mucous membranes, and the peripheral nerves. Two polar or principal types are lepromatous and tuberculoid. [NIH]

Lethal: Deadly, fatal. [EU]

Leucine: An essential branched-chain amino acid important for hemoglobin formation. [NIH]

Leukemia: Cancer of blood-forming tissue. [NIH]

Leukocytes: White blood cells. These include granular leukocytes (basophils, eosinophils, and neutrophils) as well as non-granular leukocytes (lymphocytes and monocytes). [NIH]

Library Services: Services offered to the library user. They include reference and circulation. [NIH]

Life cycle: The successive stages through which an organism passes from fertilized ovum or spore to the fertilized ovum or spore of the next generation. [NIH]

Ligament: A band of fibrous tissue that connects bones or cartilages, serving to support and strengthen joints. [EU]

Ligands: A RNA simulation method developed by the MIT. [NIH]

Limbic: Pertaining to a limbus, or margin; forming a border around. [EU]

Limbic System: A set of forebrain structures common to all mammals that is defined functionally and anatomically. It is implicated in the higher integration of visceral, olfactory, and somatic information as well as homeostatic responses including fundamental survival behaviors (feeding, mating, emotion). For most authors, it includes the amygdala, epithalamus, gyrus cinguli, hippocampal formation (see hippocampus), hypothalamus, parahippocampal gyrus, septal nuclei, anterior nuclear group of thalamus, and portions of the basal ganglia. (Parent, Carpenter's Human Neuroanatomy, 9th ed, p744; NeuroNames, http://rprcsgi.rprc.washington.edu/neuronames/index.html (September 2, 1998)). [NIH]

Linkage: The tendency of two or more genes in the same chromosome to remain together from one generation to the next more frequently than expected according to the law of

independent assortment. [NIH]

Lipid: Fat. [NIH]

Lipid Peroxidation: Peroxidase catalyzed oxidation of lipids using hydrogen peroxide as an electron acceptor. [NIH]

Liver: A large, glandular organ located in the upper abdomen. The liver cleanses the blood and aids in digestion by secreting bile. [NIH]

Liver cancer: A disease in which malignant (cancer) cells are found in the tissues of the liver. [NIH]

Liver Regeneration: Repair or renewal of hepatic tissue. [NIH]

Localized: Cancer which has not metastasized yet. [NIH]

Locomotion: Movement or the ability to move from one place or another. It can refer to humans, vertebrate or invertebrate animals, and microorganisms. [NIH]

Locomotor: Of or pertaining to locomotion; pertaining to or affecting the locomotive apparatus of the body. [EU]

Locus Coeruleus: Bluish region in the superior angle of the fourth ventricle floor, corresponding to melanin-like pigmented nerve cells which lie lateral to the ponto-mesencephalic central gray (griseum centrale). It is also known as nucleus pigmentosus pontis. [NIH]

Loneliness: The state of feeling sad or dejected as a result of lack of companionship or being separated from others. [NIH]

Longitudinal Studies: Studies in which variables relating to an individual or group of individuals are assessed over a period of time. [NIH]

Longitudinal study: Also referred to as a "cohort study" or "prospective study"; the analytic method of epidemiologic study in which subsets of a defined population can be identified who are, have been, or in the future may be exposed or not exposed, or exposed in different degrees, to a factor or factors hypothesized to influence the probability of occurrence of a given disease or other outcome. The main feature of this type of study is to observe large numbers of subjects over an extended time, with comparisons of incidence rates in groups that differ in exposure levels. [NIH]

Long-Term Care: Care over an extended period, usually for a chronic condition or disability, requiring periodic, intermittent, or continuous care. [NIH]

Long-Term Potentiation: A persistent increase in synaptic efficacy, usually induced by appropriate activation of the same synapses. The phenomenological properties of long-term potentiation suggest that it may be a cellular mechanism of learning and memory. [NIH]

Lordosis: The anterior concavity in the curvature of the lumbar and cervical spine as viewed from the side. The term usually refers to abnormally increased curvature (hollow back, saddle back, swayback). It does not include lordosis as normal mating posture in certain animals (= posture + sex behavior, animal). [NIH]

Low Back Pain: Acute or chronic pain in the lumbar or sacral regions, which may be associated with musculo-ligamentous sprains and strains; intervertebral disk displacement; and other conditions. [NIH]

Lumbar: Pertaining to the loins, the part of the back between the thorax and the pelvis. [EU]

Lupus: A form of cutaneous tuberculosis. It is seen predominantly in women and typically involves the nasal, buccal, and conjunctival mucosa. [NIH]

Lupus Nephritis: Glomerulonephritis associated with systemic lupus erythematosus. It is classified into four histologic types: mesangial, focal, diffuse, and membranous. [NIH]

Luxation: The displacement of the particular surface of a bone from its normal joint, without fracture. [NIH]

Lymph: The almost colorless fluid that travels through the lymphatic system and carries cells that help fight infection and disease. [NIH]

Lymph node: A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Also known as a lymph gland. Lymph nodes are spread out along lymphatic vessels and contain many lymphocytes, which filter the lymphatic fluid (lymph). [NIH]

Lymphatic: The tissues and organs, including the bone marrow, spleen, thymus, and lymph nodes, that produce and store cells that fight infection and disease. [NIH]

Lymphocyte: A white blood cell. Lymphocytes have a number of roles in the immune system, including the production of antibodies and other substances that fight infection and diseases. [NIH]

Lymphocyte Count: A count of the number of lymphocytes in the blood. [NIH]

Lymphoid: Referring to lymphocytes, a type of white blood cell. Also refers to tissue in which lymphocytes develop. [NIH]

Macrophage: A type of white blood cell that surrounds and kills microorganisms, removes dead cells, and stimulates the action of other immune system cells. [NIH]

Magnetic Resonance Imaging: Non-invasive method of demonstrating internal anatomy based on the principle that atomic nuclei in a strong magnetic field absorb pulses of radiofrequency energy and emit them as radiowaves which can be reconstructed into computerized images. The concept includes proton spin tomographic techniques. [NIH]

Malaise: A vague feeling of bodily discomfort. [EU]

Malignant: Cancerous; a growth with a tendency to invade and destroy nearby tissue and spread to other parts of the body. [NIH]

Mammary: Pertaining to the mamma, or breast. [EU]

Mammogram: An x-ray of the breast. [NIH]

Mammography: Radiographic examination of the breast. [NIH]

Manifest: Being the part or aspect of a phenomenon that is directly observable : concretely expressed in behaviour. [EU]

Mastectomy: Surgery to remove the breast (or as much of the breast tissue as possible). [NIH]

Maternal Behavior: The behavior patterns associated with or characteristic of a mother. [NIH]

Medial: Lying near the midsaggital plane of the body; opposed to lateral. [NIH]

Mediate: Indirect; accomplished by the aid of an intervening medium. [EU]

Mediator: An object or substance by which something is mediated, such as (1) a structure of the nervous system that transmits impulses eliciting a specific response; (2) a chemical substance (transmitter substance) that induces activity in an excitable tissue, such as nerve or muscle; or (3) a substance released from cells as the result of the interaction of antigen with antibody or by the action of antigen with a sensitized lymphocyte. [EU]

Medical Errors: Errors or mistakes committed by health professionals which result in harm to the patient. They include errors in diagnosis (diagnostic errors), errors in the administration of drugs and other medications (medication errors), errors in the performance of surgical procedures, in the use of other types of therapy, in the use of equipment, and in the interpretation of laboratory findings. Medical errors are differentiated from malpractice in that the former are regarded as honest mistakes or accidents while the

latter is the result of negligence, reprehensible ignorance, or criminal intent. [NIH]

Medical Records: Recording of pertinent information concerning patient's illness or illnesses. [NIH]

Medication Errors: Errors in prescribing, dispensing, or administering medication with the result that the patient fails to receive the correct drug or the indicated proper drug dosage. [NIH]

MEDLINE: An online database of MEDLARS, the computerized bibliographic Medical Literature Analysis and Retrieval System of the National Library of Medicine. [NIH]

Meiosis: A special method of cell division, occurring in maturation of the germ cells, by means of which each daughter nucleus receives half the number of chromosomes characteristic of the somatic cells of the species. [NIH]

Melanin: The substance that gives the skin its color. [NIH]

Membrane: A very thin layer of tissue that covers a surface. [NIH]

Membrane Lipids: Lipids, predominantly phospholipids, cholesterol and small amounts of glycolipids found in membranes including cellular and intracellular membranes. These lipids may be arranged in bilayers in the membranes with integral proteins between the layers and peripheral proteins attached to the outside. Membrane lipids are required for active transport, several enzymatic activities and membrane formation. [NIH]

Memory: Complex mental function having four distinct phases: (1) memorizing or learning, (2) retention, (3) recall, and (4) recognition. Clinically, it is usually subdivided into immediate, recent, and remote memory. [NIH]

Memory Disorders: Disturbances in registering an impression, in the retention of an acquired impression, or in the recall of an impression. Memory impairments are associated with dementia; craniocerebraltrauma; encephalitis; alcoholism (see also alcohol amnestic disorder); schizophrenia; and other conditions. [NIH]

Meninges: The three membranes that cover and protect the brain and spinal cord. [NIH]

Mental: Pertaining to the mind; psychic. 2. (L. mentum chin) pertaining to the chin. [EU]

Mental Disorders: Psychiatric illness or diseases manifested by breakdowns in the adaptational process expressed primarily as abnormalities of thought, feeling, and behavior producing either distress or impairment of function. [NIH]

Mental Health: The state wherein the person is well adjusted. [NIH]

Mental Health Services: Organized services to provide mental health care. [NIH]

Mental Processes: Conceptual functions or thinking in all its forms. [NIH]

Mesencephalic: Ipsilateral oculomotor paralysis and contralateral tremor, spasm. or choreic movements of the face and limbs. [NIH]

Mesenteric: Pertaining to the mesentery : a membranous fold attaching various organs to the body wall. [EU]

Mesolimbic: Inner brain region governing emotion and drives. [NIH]

Metabotropic: A glutamate receptor which triggers an increase in production of 2 intracellular messengers: diacylglycerol and inositol 1, 4, 5-triphosphate. [NIH]

Metaphase: The second phase of cell division, in which the chromosomes line up across the equatorial plane of the spindle prior to separation. [NIH]

Methamphetamine: A central nervous system stimulant and sympathomimetic with actions and uses similar to dextroamphetamine. The smokable form is a drug of abuse and is referred to as crank, crystal, crystal meth, ice, and speed. [NIH]

Methionine: A sulfur containing essential amino acid that is important in many body functions. It is a chelating agent for heavy metals. [NIH]

MI: Myocardial infarction. Gross necrosis of the myocardium as a result of interruption of the blood supply to the area; it is almost always caused by atherosclerosis of the coronary arteries, upon which coronary thrombosis is usually superimposed. [NIH]

Microbe: An organism which cannot be observed with the naked eye; e. g. unicellular animals, lower algae, lower fungi, bacteria. [NIH]

Microbiology: The study of microorganisms such as fungi, bacteria, algae, archaea, and viruses. [NIH]

Microglia: The third type of glial cell, along with astrocytes and oligodendrocytes (which together form the macroglia). Microglia vary in appearance depending on developmental stage, functional state, and anatomical location; subtype terms include ramified, perivascular, ameboid, resting, and activated. Microglia clearly are capable of phagocytosis and play an important role in a wide spectrum of neuropathologies. They have also been suggested to act in several other roles including in secretion (e.g., of cytokines and neural growth factors), in immunological processing (e.g., antigen presentation), and in central nervous system development and remodeling. [NIH]

Microorganism: An organism that can be seen only through a microscope. Microorganisms include bacteria, protozoa, algae, and fungi. Although viruses are not considered living organisms, they are sometimes classified as microorganisms. [NIH]

Microscopy: The application of microscope magnification to the study of materials that cannot be properly seen by the unaided eye. [NIH]

Micturition: The passage of urine; urination. [EU]

Midwifery: The practice of assisting women in childbirth. [NIH]

Miscarriage: Spontaneous expulsion of the products of pregnancy before the middle of the second trimester. [NIH]

Mitosis: A method of indirect cell division by means of which the two daughter nuclei normally receive identical complements of the number of chromosomes of the somatic cells of the species. [NIH]

Mitotic: Cell resulting from mitosis. [NIH]

Mobility: Capability of movement, of being moved, or of flowing freely. [EU]

Modeling: A treatment procedure whereby the therapist presents the target behavior which the learner is to imitate and make part of his repertoire. [NIH]

Modification: A change in an organism, or in a process in an organism, that is acquired from its own activity or environment. [NIH]

Modulator: A specific inductor that brings out characteristics peculiar to a definite region. [EU]

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Molecule: A chemical made up of two or more atoms. The atoms in a molecule can be the same (an oxygen molecule has two oxygen atoms) or different (a water molecule has two hydrogen atoms and one oxygen atom). Biological molecules, such as proteins and DNA, can be made up of many thousands of atoms. [NIH]

Monitor: An apparatus which automatically records such physiological signs as respiration, pulse, and blood pressure in an anesthetized patient or one undergoing surgical or other procedures. [NIH]

Monoamine: Enzyme that breaks down dopamine in the astrocytes and microglia. [NIH]

Monoclonal: An antibody produced by culturing a single type of cell. It therefore consists of a single species of immunoglobulin molecules. [NIH]

Monocytes: Large, phagocytic mononuclear leukocytes produced in the vertebrate bone marrow and released into the blood; contain a large, oval or somewhat indented nucleus surrounded by voluminous cytoplasm and numerous organelles. [NIH]

Mood Disorders: Those disorders that have a disturbance in mood as their predominant feature. [NIH]

Morphine: The principal alkaloid in opium and the prototype opiate analgesic and narcotic. Morphine has widespread effects in the central nervous system and on smooth muscle. [NIH]

Morphogenesis: The development of the form of an organ, part of the body, or organism. [NIH]

Morphology: The science of the form and structure of organisms (plants, animals, and other forms of life). [NIH]

Motility: The ability to move spontaneously. [EU]

Motion Sickness: Sickness caused by motion, as sea sickness, train sickness, car sickness, and air sickness. [NIH]

Mucinous: Containing or resembling mucin, the main compound in mucus. [NIH]

Mucins: A secretion containing mucopolysaccharides and protein that is the chief constituent of mucus. [NIH]

Mucosa: A mucous membrane, or tunica mucosa. [EU]

Muscimol: Neurotoxic isoxazole isolated from Amanita muscaria and A. phalloides and also obtained by decarboxylation of ibotenic acid. It is a potent agonist at GABA-A receptors and is used mainly as an experimental tool in animal and tissue studies. [NIH]

Muscle tension: A force in a material tending to produce extension; the state of being stretched. [NIH]

Mutilation: Injuries to the body. [NIH]

Mydriatic: 1. Dilating the pupil. 2. Any drug that dilates the pupil. [EU]

Myocardial infarction: Gross necrosis of the myocardium as a result of interruption of the blood supply to the area; it is almost always caused by atherosclerosis of the coronary arteries, upon which coronary thrombosis is usually superimposed. [NIH]

Myocardium: The muscle tissue of the heart composed of striated, involuntary muscle known as cardiac muscle. [NIH]

Naive: Used to describe an individual who has never taken a certain drug or class of drugs (e. g., AZT-naive, antiretroviral-naive), or to refer to an undifferentiated immune system cell. [NIH]

Naloxone: A specific opiate antagonist that has no agonist activity. It is a competitive antagonist at mu, delta, and kappa opioid receptors. [NIH]

Naltrexone: Derivative of noroxymorphone that is the N-cyclopropylmethyl congener of naloxone. It is a narcotic antagonist that is effective orally, longer lasting and more potent than naloxone, and has been proposed for the treatment of heroin addiction. The FDA has approved naltrexone for the treatment of alcohol dependence. [NIH]

Narcotic: 1. Pertaining to or producing narcosis. 2. An agent that produces insensibility or stupor, applied especially to the opioids, i.e. to any natural or synthetic drug that has morphine-like actions. [EU]

Nausea: An unpleasant sensation in the stomach usually accompanied by the urge to vomit.

Common causes are early pregnancy, sea and motion sickness, emotional stress, intense pain, food poisoning, and various enteroviruses. [NIH]

NCI: National Cancer Institute. NCI, part of the National Institutes of Health of the United States Department of Health and Human Services, is the federal government's principal agency for cancer research. NCI conducts, coordinates, and funds cancer research, training, health information dissemination, and other programs with respect to the cause, diagnosis, prevention, and treatment of cancer. Access the NCI Web site at http://cancer.gov. [NIH]

Neck Pain: Discomfort or more intense forms of pain that are localized to the cervical region. This term generally refers to pain in the posterior or lateral regions of the neck. [NIH]

Need: A state of tension or dissatisfaction felt by an individual that impels him to action toward a goal he believes will satisfy the impulse. [NIH]

Needle Sharing: Usage of a single needle among two or more people for injecting drugs. Needle sharing is a high-risk behavior for contracting infectious disease. [NIH]

Neocortex: The largest portion of the cerebral cortex. It is composed of neurons arranged in six layers. [NIH]

Neoplasms: New abnormal growth of tissue. Malignant neoplasms show a greater degree of anaplasia and have the properties of invasion and metastasis, compared to benign neoplasms. [NIH]

Nephritis: Inflammation of the kidney; a focal or diffuse proliferative or destructive process which may involve the glomerulus, tubule, or interstitial renal tissue. [EU]

Nephropathy: Disease of the kidneys. [EU]

Nerve: A cordlike structure of nervous tissue that connects parts of the nervous system with other tissues of the body and conveys nervous impulses to, or away from, these tissues. [NIH]

Nervous System: The entire nerve apparatus composed of the brain, spinal cord, nerves and ganglia. [NIH]

Networks: Pertaining to a nerve or to the nerves, a meshlike structure of interlocking fibers or strands. [NIH]

Neural: 1. Pertaining to a nerve or to the nerves. 2. Situated in the region of the spinal axis, as the neutral arch. [EU]

Neural Pathways: Neural tracts connecting one part of the nervous system with another. [NIH]

Neuroanatomy: Study of the anatomy of the nervous system as a specialty or discipline. [NIH]

Neuroendocrine: Having to do with the interactions between the nervous system and the endocrine system. Describes certain cells that release hormones into the blood in response to stimulation of the nervous system. [NIH]

Neuroendocrinology: The study of the anatomical and functional relationships between the nervous system and the endocrine system. [NIH]

Neuroma: A tumor that arises in nerve cells. [NIH]

Neuromuscular: Pertaining to muscles and nerves. [EU]

Neuromuscular Junction: The synapse between a neuron and a muscle. [NIH]

Neuronal: Pertaining to a neuron or neurons (= conducting cells of the nervous system). [EU]

Neuronal Plasticity: The capacity of the nervous system to change its reactivity as the result of successive activations. [NIH]

Neurons: The basic cellular units of nervous tissue. Each neuron consists of a body, an axon,

and dendrites. Their purpose is to receive, conduct, and transmit impulses in the nervous system. [NIH]

Neuropathy: A problem in any part of the nervous system except the brain and spinal cord. Neuropathies can be caused by infection, toxic substances, or disease. [NIH]

Neuropeptide: A member of a class of protein-like molecules made in the brain. Neuropeptides consist of short chains of amino acids, with some functioning as neurotransmitters and some functioning as hormones. [NIH]

Neurosis: Functional derangement due to disorders of the nervous system which does not affect the psychic personality of the patient. [NIH]

Neurotic: 1. Pertaining to or characterized by neurosis. 2. A person affected with a neurosis. [EU]

Neurotoxic: Poisonous or destructive to nerve tissue. [EU]

Neurotoxin: A substance that is poisonous to nerve tissue. [NIH]

Neurotransmitter: Any of a group of substances that are released on excitation from the axon terminal of a presynaptic neuron of the central or peripheral nervous system and travel across the synaptic cleft to either excite or inhibit the target cell. Among the many substances that have the properties of a neurotransmitter are acetylcholine, norepinephrine, epinephrine, dopamine, glycine, y-aminobutyrate, glutamic acid, substance P, enkephalins, endorphins, and serotonin. [EU]

Neutrons: Electrically neutral elementary particles found in all atomic nuclei except light hydrogen; the mass is equal to that of the proton and electron combined and they are unstable when isolated from the nucleus, undergoing beta decay. Slow, thermal, epithermal, and fast neutrons refer to the energy levels with which the neutrons are ejected from heavier nuclei during their decay. [NIH]

Niacin: Water-soluble vitamin of the B complex occurring in various animal and plant tissues. Required by the body for the formation of coenzymes NAD and NADP. Has pellagra-curative, vasodilating, and antilipemic properties. [NIH]

Nicotine: Nicotine is highly toxic alkaloid. It is the prototypical agonist at nicotinic cholinergic receptors where it dramatically stimulates neurons and ultimately blocks synaptic transmission. Nicotine is also important medically because of its presence in tobacco smoke. [NIH]

Nictitating Membrane: A fold of the mucous membrane of the conjunctiva in many animals. At rest, it is hidden in the medial canthus. It can extend to cover part or all of the cornea to help clean the cornea. [NIH]

Night Blindness: Anomaly of vision in which there is a pronounced inadequacy or complete absence of dark-adaptation. [NIH]

Nitrogen: An element with the atomic symbol N, atomic number 7, and atomic weight 14. Nitrogen exists as a diatomic gas and makes up about 78% of the earth's atmosphere by volume. It is a constituent of proteins and nucleic acids and found in all living cells. [NIH]

Nitrous Oxide: Nitrogen oxide (N2O). A colorless, odorless gas that is used as an anesthetic and analgesic. High concentrations cause a narcotic effect and may replace oxygen, causing death by asphyxia. It is also used as a food aerosol in the preparation of whipping cream. [NIH]

Nonverbal Communication: Transmission of emotions, ideas, and attitudes between individuals in ways other than the spoken language. [NIH]

Norepinephrine: Precursor of epinephrine that is secreted by the adrenal medulla and is a widespread central and autonomic neurotransmitter. Norepinephrine is the principal

transmitter of most postganglionic sympathetic fibers and of the diffuse projection system in the brain arising from the locus ceruleus. It is also found in plants and is used pharmacologically as a sympathomimetic. [NIH]

Nuclear: A test of the structure, blood flow, and function of the kidneys. The doctor injects a mildly radioactive solution into an arm vein and uses x-rays to monitor its progress through the kidneys. [NIH]

Nuclei: A body of specialized protoplasm found in nearly all cells and containing the chromosomes. [NIH]

Nucleolus: A small dense body (sub organelle) within the nucleus of eukaryotic cells, visible by phase contrast and interference microscopy in live cells throughout interphase. Contains RNA and protein and is the site of synthesis of ribosomal RNA. [NIH]

Nucleus: A body of specialized protoplasm found in nearly all cells and containing the chromosomes. [NIH]

Nucleus Accumbens: Collection of pleomorphic cells in the caudal part of the anterior horn of the lateral ventricle, in the region of the olfactory tubercle, lying between the head of the caudate nucleus and the anterior perforated substance. It is part of the so-called ventral striatum, a composite structure considered part of the basal ganglia. [NIH]

Occipital Lobe: Posterior part of the cerebral hemisphere. [NIH]

Ocular: 1. Of, pertaining to, or affecting the eye. 2. Eyepiece. [EU]

Oculomotor: Cranial nerve III. It originate from the lower ventral surface of the midbrain and is classified as a motor nerve. [NIH]

Oliguria: Clinical manifestation of the urinary system consisting of a decrease in the amount of urine secreted. [NIH]

Oncolysis: The destruction of or disposal by absorption of any neoplastic cells. [NIH]

Oncolytic: Pertaining to, characterized by, or causing oncolysis (= the lysis or destruction of tumour cells). [EU]

Opacity: Degree of density (area most dense taken for reading). [NIH]

Opiate: A remedy containing or derived from opium; also any drug that induces sleep. [EU]

Opium: The air-dried exudate from the unripe seed capsule of the opium poppy, Papaver somniferum, or its variant, P. album. It contains a number of alkaloids, but only a few - morphine, codeine, and papaverine - have clinical significance. Opium has been used as an analgesic, antitussive, antidiarrheal, and antispasmodic. [NIH]

Opportunistic Infections: An infection caused by an organism which becomes pathogenic under certain conditions, e.g., during immunosuppression. [NIH]

Opsin: A protein formed, together with retinene, by the chemical breakdown of meta-rhodopsin. [NIH]

Optic Chiasm: The X-shaped structure formed by the meeting of the two optic nerves. At the optic chiasm the fibers from the medial part of each retina cross to project to the other side of the brain while the lateral retinal fibers continue on the same side. As a result each half of the brain receives information about the contralateral visual field from both eyes. [NIH]

Optic Disk: The portion of the optic nerve seen in the fundus with the ophthalmoscope. It is formed by the meeting of all the retinal ganglion cell axons as they enter the optic nerve. [NIH]

Optic Nerve: The 2nd cranial nerve. The optic nerve conveys visual information from the retina to the brain. The nerve carries the axons of the retinal ganglion cells which sort at the

optic chiasm and continue via the optic tracts to the brain. The largest projection is to the lateral geniculate nuclei; other important targets include the superior colliculi and the suprachiasmatic nuclei. Though known as the second cranial nerve, it is considered part of the central nervous system. [NIH]

Oral Health: The optimal state of the mouth and normal functioning of the organs of the mouth without evidence of disease. [NIH]

Oral Hygiene: The practice of personal hygiene of the mouth. It includes the maintenance of oral cleanliness, tissue tone, and general preservation of oral health. [NIH]

Organ Culture: The growth in aseptic culture of plant organs such as roots or shoots, beginning with organ primordia or segments and maintaining the characteristics of the organ. [NIH]

Orgasm: The crisis of sexual excitement in either humans or animals. [NIH]

Osteoarthritis: A progressive, degenerative joint disease, the most common form of arthritis, especially in older persons. The disease is thought to result not from the aging process but from biochemical changes and biomechanical stresses affecting articular cartilage. In the foreign literature it is often called osteoarthrosis deformans. [NIH]

Outpatient: A patient who is not an inmate of a hospital but receives diagnosis or treatment in a clinic or dispensary connected with the hospital. [NIH]

Ovaries: The pair of female reproductive glands in which the ova, or eggs, are formed. The ovaries are located in the pelvis, one on each side of the uterus. [NIH]

Ovary: Either of the paired glands in the female that produce the female germ cells and secrete some of the female sex hormones. [NIH]

Overactive bladder: A condition in which the patient experiences two or all three of the following conditions: [NIH]

Overexpress: An excess of a particular protein on the surface of a cell. [NIH]

Ownership: The legal relation between an entity (individual, group, corporation, or-profit, secular, government) and an object. The object may be corporeal, such as equipment, or completely a creature of law, such as a patent; it may be movable, such as an animal, or immovable, such as a building. [NIH]

Oxidation: The act of oxidizing or state of being oxidized. Chemically it consists in the increase of positive charges on an atom or the loss of negative charges. Most biological oxidations are accomplished by the removal of a pair of hydrogen atoms (dehydrogenation) from a molecule. Such oxidations must be accompanied by reduction of an acceptor molecule. Univalent o. indicates loss of one electron; divalent o., the loss of two electrons. [EU]

Oxidative Stress: A disturbance in the prooxidant-antioxidant balance in favor of the former, leading to potential damage. Indicators of oxidative stress include damaged DNA bases, protein oxidation products, and lipid peroxidation products (Sies, Oxidative Stress, 1991, pxv-xvi). [NIH]

Palliative: 1. Affording relief, but not cure. 2. An alleviating medicine. [EU]

Pancreas: A mixed exocrine and endocrine gland situated transversely across the posterior abdominal wall in the epigastric and hypochondriac regions. The endocrine portion is comprised of the Islets of Langerhans, while the exocrine portion is a compound acinar gland that secretes digestive enzymes. [NIH]

Panic: A state of extreme acute, intense anxiety and unreasoning fear accompanied by disorganization of personality function. [NIH]

Panic Disorder: A type of anxiety disorder characterized by unexpected panic attacks that last minutes or, rarely, hours. Panic attacks begin with intense apprehension, fear or terror and, often, a feeling of impending doom. Symptoms experienced during a panic attack include dyspnea or sensations of being smothered; dizziness, loss of balance or faintness; choking sensations; palpitations or accelerated heart rate; shakiness; sweating; nausea or other form of abdominal distress; depersonalization or derealization; paresthesias; hot flashes or chills; chest discomfort or pain; fear of dying and fear of not being in control of oneself or going crazy. Agoraphobia may also develop. Similar to other anxiety disorders, it may be inherited as an autosomal dominant trait. [NIH]

Paralysis: Loss of ability to move all or part of the body. [NIH]

Paranoia: A psychotic disorder marked by persistent delusions of persecution or delusional jealousy and behaviour like that of the paranoid personality, such as suspiciousness, mistrust, and combativeness. It differs from paranoid schizophrenia, in which hallucinations or formal thought disorder are present, in that the delusions are logically consistent and that there are no other psychotic features. The designation in DSM III-R is delusional (paranoid) disorders, with five types : persecutory, jealous, erotomanic, somatic, and grandiose. [EU]

Paresthesia: Subjective cutaneous sensations (e.g., cold, warmth, tingling, pressure, etc.) that are experienced spontaneously in the absence of stimulation. [NIH]

Paroxetine: A serotonin uptake inhibitor that is effective in the treatment of depression. [NIH]

Paroxysmal: Recurring in paroxysms (= spasms or seizures). [EU]

Partial remission: The shrinking, but not complete disappearance, of a tumor in response to therapy. Also called partial response. [NIH]

Pastoral Care: Counseling or comfort given by ministers, priests, rabbis, etc., to those in need of help with emotional problems or stressful situations. [NIH]

Patch: A piece of material used to cover or protect a wound, an injured part, etc.: a patch over the eye. [NIH]

Pathogen: Any disease-producing microorganism. [EU]

Pathologic: 1. Indicative of or caused by a morbid condition. 2. Pertaining to pathology (= branch of medicine that treats the essential nature of the disease, especially the structural and functional changes in tissues and organs of the body caused by the disease). [EU]

Pathologic Processes: The abnormal mechanisms and forms involved in the dysfunctions of tissues and organs. [NIH]

Pathophysiology: Altered functions in an individual or an organ due to disease. [NIH]

Patient Education: The teaching or training of patients concerning their own health needs. [NIH]

Patient Participation: Patient involvement in the decision-making process in matters pertaining to health. [NIH]

Pelvic: Pertaining to the pelvis. [EU]

Pelvis: The lower part of the abdomen, located between the hip bones. [NIH]

Penis: The external reproductive organ of males. It is composed of a mass of erectile tissue enclosed in three cylindrical fibrous compartments. Two of the three compartments, the corpus cavernosa, are placed side-by-side along the upper part of the organ. The third compartment below, the corpus spongiosum, houses the urethra. [NIH]

Peptide: Any compound consisting of two or more amino acids, the building blocks of proteins. Peptides are combined to make proteins. [NIH]

Perceived risk: Estimate or evaluation of risk as observed through personal experience or

personal study, and personal evaluation of consequences. [NIH]

Perception: The ability quickly and accurately to recognize similarities and differences among presented objects, whether these be pairs of words, pairs of number series, or multiple sets of these or other symbols such as geometric figures. [NIH]

Perennial: Lasting through the year of for several years. [EU]

Periaqueductal Gray: Central gray matter surrounding the cerebral aqueduct in the mesencephalon. Physiologically it is probably involved in rage reactions, the lordosis reflex, feeding responses, bladder tonus, and pain. [NIH]

Perineal: Pertaining to the perineum. [EU]

Peripheral Nervous System: The nervous system outside of the brain and spinal cord. The peripheral nervous system has autonomic and somatic divisions. The autonomic nervous system includes the enteric, parasympathetic, and sympathetic subdivisions. The somatic nervous system includes the cranial and spinal nerves and their ganglia and the peripheral sensory receptors. [NIH]

Peripheral vision: Side vision; ability to see objects and movement outside of the direct line of vision. [NIH]

Pharmacologic: Pertaining to pharmacology or to the properties and reactions of drugs. [EU]

Pharmacotherapy: A regimen of using appetite suppressant medications to manage obesity by decreasing appetite or increasing the feeling of satiety. These medications decrease appetite by increasing serotonin or catecholamine—two brain chemicals that affect mood and appetite. [NIH]

Phenotype: The outward appearance of the individual. It is the product of interactions between genes and between the genotype and the environment. This includes the killer phenotype, characteristic of yeasts. [NIH]

Phobia: A persistent, irrational, intense fear of a specific object, activity, or situation (the phobic stimulus), fear that is recognized as being excessive or unreasonable by the individual himself. When a phobia is a significant source of distress or interferes with social functioning, it is considered a mental disorder; phobic disorder (or neurosis). In DSM III phobic disorders are subclassified as agoraphobia, social phobias, and simple phobias. Used as a word termination denoting irrational fear of or aversion to the subject indicated by the stem to which it is affixed. [EU]

Phobic Disorders: Anxiety disorders in which the essential feature is persistent and irrational fear of a specific object, activity, or situation that the individual feels compelled to avoid. The individual recognizes the fear as excessive or unreasonable. [NIH]

Phorbol: Class of chemicals that promotes the development of tumors. [NIH]

Phorbol Esters: Tumor-promoting compounds obtained from croton oil (Croton tiglium). Some of these are used in cell biological experiments as activators of protein kinase C. [NIH]

Phosphates: Inorganic salts of phosphoric acid. [NIH]

Phospholipids: Lipids containing one or more phosphate groups, particularly those derived from either glycerol (phosphoglycerides; glycerophospholipids) or sphingosine (sphingolipids). They are polar lipids that are of great importance for the structure and function of cell membranes and are the most abundant of membrane lipids, although not stored in large amounts in the system. [NIH]

Phosphorus: A non-metallic element that is found in the blood, muscles, nevers, bones, and teeth, and is a component of adenosine triphosphate (ATP; the primary energy source for the body's cells.) [NIH]

Phosphorylates: Attached to a phosphate group. [NIH]

Phosphorylating: Attached to a phosphate group. [NIH]

Phosphorylation: The introduction of a phosphoryl group into a compound through the formation of an ester bond between the compound and a phosphorus moiety. [NIH]

Physical Examination: Systematic and thorough inspection of the patient for physical signs of disease or abnormality. [NIH]

Physiologic: Having to do with the functions of the body. When used in the phrase "physiologic age," it refers to an age assigned by general health, as opposed to calendar age. [NIH]

Physiology: The science that deals with the life processes and functions of organismus, their cells, tissues, and organs. [NIH]

Pigments: Any normal or abnormal coloring matter in plants, animals, or micro-organisms. [NIH]

Pilot study: The initial study examining a new method or treatment. [NIH]

Pineal Body: A small conical midline body attached to the posterior part of the third ventricle and lying between the superior colliculi, below the splenium of the corpus callosum. [NIH]

Pineal gland: A tiny organ located in the cerebrum that produces melatonin. Also called pineal body or pineal organ. [NIH]

Pituitary Gland: A small, unpaired gland situated in the sella turcica tissue. It is connected to the hypothalamus by a short stalk. [NIH]

Placenta: A highly vascular fetal organ through which the fetus absorbs oxygen and other nutrients and excretes carbon dioxide and other wastes. It begins to form about the eighth day of gestation when the blastocyst adheres to the decidua. [NIH]

Plants: Multicellular, eukaryotic life forms of the kingdom Plantae. They are characterized by a mainly photosynthetic mode of nutrition; essentially unlimited growth at localized regions of cell divisions (meristems); cellulose within cells providing rigidity; the absence of organs of locomotion; absense of nervous and sensory systems; and an alteration of haploid and diploid generations. [NIH]

Plasma: The clear, yellowish, fluid part of the blood that carries the blood cells. The proteins that form blood clots are in plasma. [NIH]

Plasma cells: A type of white blood cell that produces antibodies. [NIH]

Plasticity: In an individual or a population, the capacity for adaptation: a) through gene changes (genetic plasticity) or b) through internal physiological modifications in response to changes of environment (physiological plasticity). [NIH]

Pleomorphic: Occurring in various distinct forms. In terms of cells, having variation in the size and shape of cells or their nuclei. [NIH]

Pneumonia: Inflammation of the lungs. [NIH]

Polymerase: An enzyme which catalyses the synthesis of DNA using a single DNA strand as a template. The polymerase copies the template in the 5'-3'direction provided that sufficient quantities of free nucleotides, dATP and dTTP are present. [NIH]

Polymerase Chain Reaction: In vitro method for producing large amounts of specific DNA or RNA fragments of defined length and sequence from small amounts of short oligonucleotide flanking sequences (primers). The essential steps include thermal denaturation of the double-stranded target molecules, annealing of the primers to their complementary sequences, and extension of the annealed primers by enzymatic synthesis

with DNA polymerase. The reaction is efficient, specific, and extremely sensitive. Uses for the reaction include disease diagnosis, detection of difficult-to-isolate pathogens, mutation analysis, genetic testing, DNA sequencing, and analyzing evolutionary relationships. [NIH]

Polymorphic: Occurring in several or many forms; appearing in different forms at different stages of development. [EU]

Portal Vein: A short thick vein formed by union of the superior mesenteric vein and the splenic vein. [NIH]

Posterior: Situated in back of, or in the back part of, or affecting the back or dorsal surface of the body. In lower animals, it refers to the caudal end of the body. [EU]

Postnatal: Occurring after birth, with reference to the newborn. [EU]

Postsynaptic: Nerve potential generated by an inhibitory hyperpolarizing stimulation. [NIH]

Post-synaptic: Nerve potential generated by an inhibitory hyperpolarizing stimulation. [NIH]

Post-traumatic: Occurring as a result of or after injury. [EU]

Post-traumatic stress disorder: A psychological disorder that develops in some individuals after a major traumatic experience such as war, rape, domestic violence, or accident. [NIH]

Postural: Pertaining to posture or position. [EU]

Potassium: An element that is in the alkali group of metals. It has an atomic symbol K, atomic number 19, and atomic weight 39.10. It is the chief cation in the intracellular fluid of muscle and other cells. Potassium ion is a strong electrolyte and it plays a significant role in the regulation of fluid volume and maintenance of the water-electrolyte balance. [NIH]

Potassium Cyanide: Potassium cyanide (K(CN)). A highly poisonous compound that is an inhibitor of many metabolic processes, but has been shown to be an especially potent inhibitor of heme enzymes and hemeproteins. It is used in many industrial processes. [NIH]

Potentiates: A degree of synergism which causes the exposure of the organism to a harmful substance to worsen a disease already contracted. [NIH]

Potentiation: An overall effect of two drugs taken together which is greater than the sum of the effects of each drug taken alone. [NIH]

Practice Guidelines: Directions or principles presenting current or future rules of policy for the health care practitioner to assist him in patient care decisions regarding diagnosis, therapy, or related clinical circumstances. The guidelines may be developed by government agencies at any level, institutions, professional societies, governing boards, or by the convening of expert panels. The guidelines form a basis for the evaluation of all aspects of health care and delivery. [NIH]

Precursor: Something that precedes. In biological processes, a substance from which another, usually more active or mature substance is formed. In clinical medicine, a sign or symptom that heralds another. [EU]

Predisposition: A latent susceptibility to disease which may be activated under certain conditions, as by stress. [EU]

Prefrontal Cortex: The rostral part of the frontal lobe, bounded by the inferior precentral fissure in humans, which receives projection fibers from the mediodorsal nucleus of the thalamus. The prefrontal cortex receives afferent fibers from numerous structures of the diencephalon, mesencephalon, and limbic system as well as cortical afferents of visual, auditory, and somatic origin. [NIH]

Prejudice: A preconceived judgment made without adequate evidence and not easily alterable by presentation of contrary evidence. [NIH]

Premedication: Preliminary administration of a drug preceding a diagnostic, therapeutic, or

surgical procedure. The commonest types of premedication are antibiotics (antibiotic prophylaxis) and anti-anxiety agents. It does not include preanesthetic medication. [NIH]

Prenatal: Existing or occurring before birth, with reference to the fetus. [EU]

Preoperative: Preceding an operation. [EU]

Presumptive: A treatment based on an assumed diagnosis, prior to receiving confirmatory laboratory test results. [NIH]

Presynaptic: Situated proximal to a synapse, or occurring before the synapse is crossed. [EU]

Prevalence: The total number of cases of a given disease in a specified population at a designated time. It is differentiated from incidence, which refers to the number of new cases in the population at a given time. [NIH]

Probe: An instrument used in exploring cavities, or in the detection and dilatation of strictures, or in demonstrating the potency of channels; an elongated instrument for exploring or sounding body cavities. [NIH]

Problem Solving: A learning situation involving more than one alternative from which a selection is made in order to attain a specific goal. [NIH]

Progression: Increase in the size of a tumor or spread of cancer in the body. [NIH]

Progressive: Advancing; going forward; going from bad to worse; increasing in scope or severity. [EU]

Projection: A defense mechanism, operating unconsciously, whereby that which is emotionally unacceptable in the self is rejected and attributed (projected) to others. [NIH]

Prolapse: The protrusion of an organ or part of an organ into a natural or artificial orifice. [NIH]

Proline: A non-essential amino acid that is synthesized from glutamic acid. It is an essential component of collagen and is important for proper functioning of joints and tendons. [NIH]

Prophase: The first phase of cell division, in which the chromosomes become visible, the nucleus starts to lose its identity, the spindle appears, and the centrioles migrate toward opposite poles. [NIH]

Proportional: Being in proportion : corresponding in size, degree, or intensity, having the same or a constant ratio; of, relating to, or used in determining proportions. [EU]

Prospective study: An epidemiologic study in which a group of individuals (a cohort), all free of a particular disease and varying in their exposure to a possible risk factor, is followed over a specific amount of time to determine the incidence rates of the disease in the exposed and unexposed groups. [NIH]

Prostate: A gland in males that surrounds the neck of the bladder and the urethra. It secretes a substance that liquifies coagulated semen. It is situated in the pelvic cavity behind the lower part of the pubic symphysis, above the deep layer of the triangular ligament, and rests upon the rectum. [NIH]

Prostatectomy: Complete or partial surgical removal of the prostate. Three primary approaches are commonly employed: suprapubic - removal through an incision above the pubis and through the urinary bladder; retropubic - as for suprapubic but without entering the urinary bladder; and transurethral (transurethral resection of prostate). [NIH]

Protein Kinase C: An enzyme that phosphorylates proteins on serine or threonine residues in the presence of physiological concentrations of calcium and membrane phospholipids. The additional presence of diacylglycerols markedly increases its sensitivity to both calcium and phospholipids. The sensitivity of the enzyme can also be increased by phorbol esters and it is believed that protein kinase C is the receptor protein of tumor-promoting phorbol

esters. EC 2.7.1.-. [NIH]

Protein Kinases: A family of enzymes that catalyze the conversion of ATP and a protein to ADP and a phosphoprotein. EC 2.7.1.37. [NIH]

Protein S: The vitamin K-dependent cofactor of activated protein C. Together with protein C, it inhibits the action of factors VIIIa and Va. A deficiency in protein S can lead to recurrent venous and arterial thrombosis. [NIH]

Proteins: Polymers of amino acids linked by peptide bonds. The specific sequence of amino acids determines the shape and function of the protein. [NIH]

Protocol: The detailed plan for a clinical trial that states the trial's rationale, purpose, drug or vaccine dosages, length of study, routes of administration, who may participate, and other aspects of trial design. [NIH]

Proximal: Nearest; closer to any point of reference; opposed to distal. [EU]

Psychiatric: Pertaining to or within the purview of psychiatry. [EU]

Psychiatry: The medical science that deals with the origin, diagnosis, prevention, and treatment of mental disorders. [NIH]

Psychic: Pertaining to the psyche or to the mind; mental. [EU]

Psychoactive: Those drugs which alter sensation, mood, consciousness or other psychological or behavioral functions. [NIH]

Psychology: The science dealing with the study of mental processes and behavior in man and animals. [NIH]

Psychopathology: The study of significant causes and processes in the development of mental illness. [NIH]

Psychophysiology: The study of the physiological basis of human and animal behavior. [NIH]

Psychotherapy: A generic term for the treatment of mental illness or emotional disturbances primarily by verbal or nonverbal communication. [NIH]

Public Health: Branch of medicine concerned with the prevention and control of disease and disability, and the promotion of physical and mental health of the population on the international, national, state, or municipal level. [NIH]

Public Policy: A course or method of action selected, usually by a government, from among alternatives to guide and determine present and future decisions. [NIH]

Pulmonary: Relating to the lungs. [NIH]

Pulmonary Artery: The short wide vessel arising from the conus arteriosus of the right ventricle and conveying unaerated blood to the lungs. [NIH]

Pulmonary Edema: An accumulation of an excessive amount of watery fluid in the lungs, may be caused by acute exposure to dangerous concentrations of irritant gasses. [NIH]

Pulmonary hypertension: Abnormally high blood pressure in the arteries of the lungs. [NIH]

Pulse: The rhythmical expansion and contraction of an artery produced by waves of pressure caused by the ejection of blood from the left ventricle of the heart as it contracts. [NIH]

Punishment: The application of an unpleasant stimulus or penalty for the purpose of eliminating or correcting undesirable behavior. [NIH]

Pyramidal Cells: Projection neurons in the cerebral cortex and the hippocampus. Pyramidal cells have a pyramid-shaped soma with the apex and an apical dendrite pointed toward the pial surface and other dendrites and an axon emerging from the base. The axons may have

local collaterals but also project outside their cortical region. [NIH]

Quality of Life: A generic concept reflecting concern with the modification and enhancement of life attributes, e.g., physical, political, moral and social environment. [NIH]

Quaternary: 1. Fourth in order. 2. Containing four elements or groups. [EU]

Race: A population within a species which exhibits general similarities within itself, but is both discontinuous and distinct from other populations of that species, though not sufficiently so as to achieve the status of a taxon. [NIH]

Radiation: Emission or propagation of electromagnetic energy (waves/rays), or the waves/rays themselves; a stream of electromagnetic particles (electrons, neutrons, protons, alpha particles) or a mixture of these. The most common source is the sun. [NIH]

Radiation therapy: The use of high-energy radiation from x-rays, gamma rays, neutrons, and other sources to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external-beam radiation therapy), or it may come from radioactive material placed in the body in the area near cancer cells (internal radiation therapy, implant radiation, or brachytherapy). Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Also called radiotherapy. [NIH]

Radical prostatectomy: Surgery to remove the entire prostate. The two types of radical prostatectomy are retropubic prostatectomy and perineal prostatectomy. [NIH]

Radioactive: Giving off radiation. [NIH]

Radiolabeled: Any compound that has been joined with a radioactive substance. [NIH]

Radiology: A specialty concerned with the use of x-ray and other forms of radiant energy in the diagnosis and treatment of disease. [NIH]

Radiotherapy: The use of ionizing radiation to treat malignant neoplasms and other benign conditions. The most common forms of ionizing radiation used as therapy are x-rays, gamma rays, and electrons. A special form of radiotherapy, targeted radiotherapy, links a cytotoxic radionuclide to a molecule that targets the tumor. When this molecule is an antibody or other immunologic molecule, the technique is called radioimmunotherapy. [NIH]

Rage: Fury; violent, intense anger. [NIH]

Randomized: Describes an experiment or clinical trial in which animal or human subjects are assigned by chance to separate groups that compare different treatments. [NIH]

Randomized clinical trial: A study in which the participants are assigned by chance to separate groups that compare different treatments; neither the researchers nor the participants can choose which group. Using chance to assign people to groups means that the groups will be similar and that the treatments they receive can be compared objectively. At the time of the trial, it is not known which treatment is best. It is the patient's choice to be in a randomized trial. [NIH]

Rape: Unlawful sexual intercourse without consent of the victim. [NIH]

Reagent: A substance employed to produce a chemical reaction so as to detect, measure, produce, etc., other substances. [EU]

Receptor: A molecule inside or on the surface of a cell that binds to a specific substance and causes a specific physiologic effect in the cell. [NIH]

Receptors, Serotonin: Cell-surface proteins that bind serotonin and trigger intracellular changes which influence the behavior of cells. Several types of serotonin receptors have been recognized which differ in their pharmacology, molecular biology, and mode of action. [NIH]

Recombination: The formation of new combinations of genes as a result of segregation in

crosses between genetically different parents; also the rearrangement of linked genes due to crossing-over. [NIH]

Rectal: By or having to do with the rectum. The rectum is the last 8 to 10 inches of the large intestine and ends at the anus. [NIH]

Rectum: The last 8 to 10 inches of the large intestine. [NIH]

Recurrence: The return of a sign, symptom, or disease after a remission. [NIH]

Red Nucleus: A pinkish-yellow portion of the midbrain situated in the rostral mesencephalic tegmentum. It receives a large projection from the contralateral half of the cerebellum via the superior cerebellar peduncle and a projection from the ipsilateral motor cortex. [NIH]

Refer: To send or direct for treatment, aid, information, de decision. [NIH]

Reflex: An involuntary movement or exercise of function in a part, excited in response to a stimulus applied to the periphery and transmitted to the brain or spinal cord. [NIH]

Regeneration: The natural renewal of a structure, as of a lost tissue or part. [EU]

Regimen: A treatment plan that specifies the dosage, the schedule, and the duration of treatment. [NIH]

Rehabilitative: Instruction of incapacitated individuals or of those affected with some mental disorder, so that some or all of their lost ability may be regained. [NIH]

Relapse: The return of signs and symptoms of cancer after a period of improvement. [NIH]

Reliability: Used technically, in a statistical sense, of consistency of a test with itself, i. e. the extent to which we can assume that it will yield the same result if repeated a second time. [NIH]

Remission: A decrease in or disappearance of signs and symptoms of cancer. In partial remission, some, but not all, signs and symptoms of cancer have disappeared. In complete remission, all signs and symptoms of cancer have disappeared, although there still may be cancer in the body. [NIH]

Renal cell cancer: Cancer that develops in the lining of the renal tubules, which filter the blood and produce urine. [NIH]

Renal cell carcinoma: A type of kidney cancer. [NIH]

Resection: Removal of tissue or part or all of an organ by surgery. [NIH]

Respiration: The act of breathing with the lungs, consisting of inspiration, or the taking into the lungs of the ambient air, and of expiration, or the expelling of the modified air which contains more carbon dioxide than the air taken in (Blakiston's Gould Medical Dictionary, 4th ed.). This does not include tissue respiration (= oxygen consumption) or cell respiration (= cell respiration). [NIH]

Retina: The ten-layered nervous tissue membrane of the eye. It is continuous with the optic nerve and receives images of external objects and transmits visual impulses to the brain. Its outer surface is in contact with the choroid and the inner surface with the vitreous body. The outer-most layer is pigmented, whereas the inner nine layers are transparent. [NIH]

Retinal: 1. Pertaining to the retina. 2. The aldehyde of retinol, derived by the oxidative enzymatic splitting of absorbed dietary carotene, and having vitamin A activity. In the retina, retinal combines with opsins to form visual pigments. One isomer, 11-cis retinal combines with opsin in the rods (scotopsin) to form rhodopsin, or visual purple. Another, all-trans retinal (trans-r.); visual yellow; xanthopsin) results from the bleaching of rhodopsin by light, in which the 11-cis form is converted to the all-trans form. Retinal also combines with opsins in the cones (photopsins) to form the three pigments responsible for colour

vision. Called also retinal, and retinene1. [EU]

Retinol: Vitamin A. It is essential for proper vision and healthy skin and mucous membranes. Retinol is being studied for cancer prevention; it belongs to the family of drugs called retinoids. [NIH]

Retinopathy: 1. Retinitis (= inflammation of the retina). 2. Retinosis (= degenerative, noninflammatory condition of the retina). [EU]

Retrograde: 1. Moving backward or against the usual direction of flow. 2. Degenerating, deteriorating, or catabolic. [EU]

Retrograde Amnesia: Amnesia extending backward, to include material antedating the onset of amnesia proper. [NIH]

Retropubic: A potential space between the urinary bladder and the symphisis and body of the pubis. [NIH]

Retropubic prostatectomy: Surgery to remove the prostate through an incision made in the abdominal wall. [NIH]

Rheumatism: A group of disorders marked by inflammation or pain in the connective tissue structures of the body. These structures include bone, cartilage, and fat. [NIH]

Rheumatoid: Resembling rheumatism. [EU]

Rheumatoid arthritis: A form of arthritis, the cause of which is unknown, although infection, hypersensitivity, hormone imbalance and psychologic stress have been suggested as possible causes. [NIH]

Rhodopsin: A photoreceptor protein found in retinal rods. It is a complex formed by the binding of retinal, the oxidized form of retinol, to the protein opsin and undergoes a series of complex reactions in response to visible light resulting in the transmission of nerve impulses to the brain. [NIH]

Risk factor: A habit, trait, condition, or genetic alteration that increases a person's chance of developing a disease. [NIH]

Risk-Taking: Undertaking a task involving a challenge for achievement or a desirable goal in which there is a lack of certainty or a fear of failure. It may also include the exhibiting of certain behaviors whose outcomes may present a risk to the individual or to those associated with him or her. [NIH]

Rod: A reception for vision, located in the retina. [NIH]

Role-play: In this method, a conflict is artificially constructed, and the trainee is given a strategic position in it. [NIH]

Rubber: A high-molecular-weight polymeric elastomer derived from the milk juice (latex) of Hevea brasiliensis and other trees. It is a substance that can be stretched at room temperature to atleast twice its original length and after releasing the stress, retractrapidly, and recover its original dimensions fully. Synthetic rubber is made from many different chemicals, including styrene, acrylonitrile, ethylene, propylene, and isoprene. [NIH]

Sabin: The unit of acoustic absorption. One Sabin is 1 sq. foot of perfect sound-absorbing material. [NIH]

Safe Sex: Sex behavior that prevents or decreases the spread of sexually transmitted diseases or pregnancy. [NIH]

Saliva: The clear, viscous fluid secreted by the salivary glands and mucous glands of the mouth. It contains mucins, water, organic salts, and ptylin. [NIH]

Salivary: The duct that convey saliva to the mouth. [NIH]

Salivary glands: Glands in the mouth that produce saliva. [NIH]

Saphenous: Applied to certain structures in the leg, e. g. nerve vein. [NIH]

Saphenous Vein: The vein which drains the foot and leg. [NIH]

Schizoid: Having qualities resembling those found in greater degree in schizophrenics; a person of schizoid personality. [NIH]

Schizophrenia: A mental disorder characterized by a special type of disintegration of the personality. [NIH]

Schizotypal Personality Disorder: A personality disorder in which there are oddities of thought (magical thinking, paranoid ideation, suspiciousness), perception (illusions, depersonalization), speech (digressive, vague, overelaborate), and behavior (inappropriate affect in social interactions, frequently social isolation) that are not severe enough to characterize schizophrenia. [NIH]

Schwannoma: A tumor of the peripheral nervous system that begins in the nerve sheath (protective covering). It is almost always benign, but rare malignant schwannomas have been reported. [NIH]

Sclerosis: A pathological process consisting of hardening or fibrosis of an anatomical structure, often a vessel or a nerve. [NIH]

Scopolamine: An alkaloid from Solanaceae, especially Datura metel L. and Scopola carniolica. Scopolamine and its quaternary derivatives act as antimuscarinics like atropine, but may have more central nervous system effects. Among the many uses are as an anesthetic premedication, in urinary incontinence, in motion sickness, as an antispasmodic, and as a mydriatic and cycloplegic. [NIH]

Screening: Checking for disease when there are no symptoms. [NIH]

Secretion: 1. The process of elaborating a specific product as a result of the activity of a gland; this activity may range from separating a specific substance of the blood to the elaboration of a new chemical substance. 2. Any substance produced by secretion. [EU]

Secretory: Secreting; relating to or influencing secretion or the secretions. [NIH]

Sedative: 1. Allaying activity and excitement. 2. An agent that allays excitement. [EU]

Sediment: A precipitate, especially one that is formed spontaneously. [EU]

Segregation: The separation in meiotic cell division of homologous chromosome pairs and their contained allelomorphic gene pairs. [NIH]

Seizures: Clinical or subclinical disturbances of cortical function due to a sudden, abnormal, excessive, and disorganized discharge of brain cells. Clinical manifestations include abnormal motor, sensory and psychic phenomena. Recurrent seizures are usually referred to as epilepsy or "seizure disorder." [NIH]

Self Care: Performance of activities or tasks traditionally performed by professional health care providers. The concept includes care of oneself or one's family and friends. [NIH]

Semen: The thick, yellowish-white, viscid fluid secretion of male reproductive organs discharged upon ejaculation. In addition to reproductive organ secretions, it contains spermatozoa and their nutrient plasma. [NIH]

Semicircular canal: Three long canals of the bony labyrinth of the ear, forming loops and opening into the vestibule by five openings. [NIH]

Sensibility: The ability to receive, feel and appreciate sensations and impressions; the quality of being sensitive; the extend to which a method gives results that are free from false negatives. [NIH]

Sensitization: 1. Administration of antigen to induce a primary immune response; priming; immunization. 2. Exposure to allergen that results in the development of hypersensitivity. 3. The coating of erythrocytes with antibody so that they are subject to lysis by complement in the presence of homologous antigen, the first stage of a complement fixation test. [EU]

Septal: An abscess occurring at the root of the tooth on the proximal surface. [NIH]

Septal Nuclei: Neural nuclei situated in the septal region. They have afferent and cholinergic efferent connections with a variety of forebrain and brainstem areas including the hippocampus, the lateral hypothalamus, the tegmentum, and the amygdala. Included are the dorsal, lateral, medial, and triangular septal nuclei, septofimbrial nucleus, nucleus of diagonal band, nucleus of anterior commissure, and the nucleus of stria terminalis. [NIH]

Septum: A dividing wall or partition; a general term for such a structure. The term is often used alone to refer to the septal area or to the septum pellucidum. [EU]

Septum Pellucidum: A triangular double membrane separating the anterior horns of the lateral ventricles of the brain. It is situated in the median plane and bounded by the corpus callosum and the body and columns of the fornix. [NIH]

Sequencing: The determination of the order of nucleotides in a DNA or RNA chain. [NIH]

Serine: A non-essential amino acid occurring in natural form as the L-isomer. It is synthesized from glycine or threonine. It is involved in the biosynthesis of purines, pyrimidines, and other amino acids. [NIH]

Serologic: Analysis of a person's serum, especially specific immune or lytic serums. [NIH]

Serotonin: A biochemical messenger and regulator, synthesized from the essential amino acid L-tryptophan. In humans it is found primarily in the central nervous system, gastrointestinal tract, and blood platelets. Serotonin mediates several important physiological functions including neurotransmission, gastrointestinal motility, hemostasis, and cardiovascular integrity. Multiple receptor families (receptors, serotonin) explain the broad physiological actions and distribution of this biochemical mediator. [NIH]

Sex Characteristics: Those characteristics that distinguish one sex from the other. The primary sex characteristics are the ovaries and testes and their related hormones. Secondary sex characteristics are those which are masculine or feminine but not directly related to reproduction. [NIH]

Sex Education: Education which increases the knowledge of the functional, structural, and behavioral aspects of human reproduction. [NIH]

Sexual Abstinence: Refraining from sexual intercourse. [NIH]

Sexually Transmitted Diseases: Diseases due to or propagated by sexual contact. [NIH]

Shame: An emotional attitude excited by realization of a shortcoming or impropriety. [NIH]

Shock: The general bodily disturbance following a severe injury; an emotional or moral upset occasioned by some disturbing or unexpected experience; disruption of the circulation, which can upset all body functions: sometimes referred to as circulatory shock. [NIH]

Side effect: A consequence other than the one(s) for which an agent or measure is used, as the adverse effects produced by a drug, especially on a tissue or organ system other than the one sought to be benefited by its administration. [EU]

Signs and Symptoms: Clinical manifestations that can be either objective when observed by a physician, or subjective when perceived by the patient. [NIH]

Skeletal: Having to do with the skeleton (boney part of the body). [NIH]

Skeleton: The framework that supports the soft tissues of vertebrate animals and protects

many of their internal organs. The skeletons of vertebrates are made of bone and/or cartilage. [NIH]

Skin test: A test for an immune response to a compound by placing it on or under the skin. [NIH]

Skull: The skeleton of the head including the bones of the face and the bones enclosing the brain. [NIH]

Small intestine: The part of the digestive tract that is located between the stomach and the large intestine. [NIH]

Smallpox: A generalized virus infection with a vesicular rash. [NIH]

Smoking Cessation: Discontinuation of the habit of smoking, the inhaling and exhaling of tobacco smoke. [NIH]

Smooth muscle: Muscle that performs automatic tasks, such as constricting blood vessels. [NIH]

Social Behavior: Any behavior caused by or affecting another individual, usually of the same species. [NIH]

Social Environment: The aggregate of social and cultural institutions, forms, patterns, and processes that influence the life of an individual or community. [NIH]

Social Isolation: The separation of individuals or groups resulting in the lack of or minimizing of social contact and/or communication. This separation may be accomplished by physical separation, by social barriers and by psychological mechanisms. In the latter, there may be interaction but no real communication. [NIH]

Social Problems: Situations affecting a significant number of people, that are believed to be sources of difficulty or threaten the stability of the community, and that require programs of amelioration. [NIH]

Social Support: Support systems that provide assistance and encouragement to individuals with physical or emotional disabilities in order that they may better cope. Informal social support is usually provided by friends, relatives, or peers, while formal assistance is provided by churches, groups, etc. [NIH]

Social Work: The use of community resources, individual case work, or group work to promote the adaptive capacities of individuals in relation to their social and economic environments. It includes social service agencies. [NIH]

Socialization: The training or molding of an individual through various relationships, educational agencies, and social controls, which enables him to become a member of a particular society. [NIH]

Sodium: An element that is a member of the alkali group of metals. It has the atomic symbol Na, atomic number 11, and atomic weight 23. With a valence of 1, it has a strong affinity for oxygen and other nonmetallic elements. Sodium provides the chief cation of the extracellular body fluids. Its salts are the most widely used in medicine. (From Dorland, 27th ed) Physiologically the sodium ion plays a major role in blood pressure regulation, maintenance of fluid volume, and electrolyte balance. [NIH]

Solitary Nucleus: Gray matter located in the dorsomedial part of the medulla oblongata associated with the solitary tract. The solitary nucleus receives inputs from most organ systems including the terminations of the facial, glossopharyngeal, and vagus nerves. It is a major coordinator of autonomic nervous system regulation of cardiovascular, respiratory, gustatory, gastrointestinal, and chemoreceptive aspects of homeostasis. The solitary nucleus is also notable for the large number of neurotransmitters which are found therein. [NIH]

Solvent: 1. Dissolving; effecting a solution. 2. A liquid that dissolves or that is capable of

dissolving; the component of a solution that is present in greater amount. [EU]

Soma: The body as distinct from the mind; all the body tissue except the germ cells; all the axial body. [NIH]

Somatic: 1. Pertaining to or characteristic of the soma or body. 2. Pertaining to the body wall in contrast to the viscera. [EU]

Somatic cells: All the body cells except the reproductive (germ) cells. [NIH]

Spasm: An involuntary contraction of a muscle or group of muscles. Spasms may involve skeletal muscle or smooth muscle. [NIH]

Spasmodic: Of the nature of a spasm. [EU]

Spatial disorientation: Loss of orientation in space where person does not know which way is up. [NIH]

Specialist: In medicine, one who concentrates on 1 special branch of medical science. [NIH]

Species: A taxonomic category subordinate to a genus (or subgenus) and superior to a subspecies or variety, composed of individuals possessing common characters distinguishing them from other categories of individuals of the same taxonomic level. In taxonomic nomenclature, species are designated by the genus name followed by a Latin or Latinized adjective or noun. [EU]

Specificity: Degree of selectivity shown by an antibody with respect to the number and types of antigens with which the antibody combines, as well as with respect to the rates and the extents of these reactions. [NIH]

Spectroscopic: The recognition of elements through their emission spectra. [NIH]

Spike: The activation of synapses causes changes in the permeability of the dendritic membrane leading to changes in the membrane potential. This difference of the potential travels along the axon of the neuron and is called spike. [NIH]

Spinal cord: The main trunk or bundle of nerves running down the spine through holes in the spinal bone (the vertebrae) from the brain to the level of the lower back. [NIH]

Splenic Vein: Vein formed by the union (at the hilus of the spleen) of several small veins from the stomach, pancreas, spleen and mesentery. [NIH]

Sprains and Strains: A collective term for muscle and ligament injuries without dislocation or fracture. A sprain is a joint injury in which some of the fibers of a supporting ligament are ruptured but the continuity of the ligament remains intact. A strain is an overstretching or overexertion of some part of the musculature. [NIH]

Stapes: One of the three ossicles of the middle ear. It transmits sound vibrations from the incus to the internal ear. [NIH]

Startle Reaction: A complex involuntary response to an unexpected strong stimulus usually auditory in nature. [NIH]

Steel: A tough, malleable, iron-based alloy containing up to, but no more than, two percent carbon and often other metals. It is used in medicine and dentistry in implants and instrumentation. [NIH]

Steroid: A group name for lipids that contain a hydrogenated cyclopentanoperhydrophenanthrene ring system. Some of the substances included in this group are progesterone, adrenocortical hormones, the gonadal hormones, cardiac aglycones, bile acids, sterols (such as cholesterol), toad poisons, saponins, and some of the carcinogenic hydrocarbons. [EU]

Stimulant: 1. Producing stimulation; especially producing stimulation by causing tension on muscle fibre through the nervous tissue. 2. An agent or remedy that produces stimulation.

[EU]

Stimulus: That which can elicit or evoke action (response) in a muscle, nerve, gland or other excitable issue, or cause an augmenting action upon any function or metabolic process. [NIH]

Stomach: An organ of digestion situated in the left upper quadrant of the abdomen between the termination of the esophagus and the beginning of the duodenum. [NIH]

Stool: The waste matter discharged in a bowel movement; feces. [NIH]

Strand: DNA normally exists in the bacterial nucleus in a helix, in which two strands are coiled together. [NIH]

Stress: Forcibly exerted influence; pressure. Any condition or situation that causes strain or tension. Stress may be either physical or psychologic, or both. [NIH]

Stress management: A set of techniques used to help an individual cope more effectively with difficult situations in order to feel better emotionally, improve behavioral skills, and often to enhance feelings of control. Stress management may include relaxation exercises, assertiveness training, cognitive restructuring, time management, and social support. It can be delivered either on a one-to-one basis or in a group format. [NIH]

Stria: 1. A streak, or line. 2. A narrow bandlike structure; a general term for such longitudinal collections of nerve fibres in the brain. [EU]

Striatum: A higher brain's domain thus called because of its stripes. [NIH]

Stroke: Sudden loss of function of part of the brain because of loss of blood flow. Stroke may be caused by a clot (thrombosis) or rupture (hemorrhage) of a blood vessel to the brain. [NIH]

Styrene: A colorless, toxic liquid with a strong aromatic odor. It is used to make rubbers, polymers and copolymers, and polystyrene plastics. [NIH]

Subacute: Somewhat acute; between acute and chronic. [EU]

Subclinical: Without clinical manifestations; said of the early stage(s) of an infection or other disease or abnormality before symptoms and signs become apparent or detectable by clinical examination or laboratory tests, or of a very mild form of an infection or other disease or abnormality. [EU]

Subiculum: A region of the hippocampus that projects to other areas of the brain. [NIH]

Subspecies: A category intermediate in rank between species and variety, based on a smaller number of correlated characters than are used to differentiate species and generally conditioned by geographical and/or ecological occurrence. [NIH]

Substance P: An eleven-amino acid neurotransmitter that appears in both the central and peripheral nervous systems. It is involved in transmission of pain, causes rapid contractions of the gastrointestinal smooth muscle, and modulates inflammatory and immune responses. [NIH]

Substrate: A substance upon which an enzyme acts. [EU]

Support group: A group of people with similar disease who meet to discuss how better to cope with their cancer and treatment. [NIH]

Suppression: A conscious exclusion of disapproved desire contrary with repression, in which the process of exclusion is not conscious. [NIH]

Suramin: A polyanionic compound with an unknown mechanism of action. It is used parenterally in the treatment of African trypanosomiasis and it has been used clinically with diethylcarbamazine to kill the adult Onchocerca. (From AMA Drug Evaluations Annual, 1992, p1643) It has also been shown to have potent antineoplastic properties. [NIH]

Sympathetic Nervous System: The thoracolumbar division of the autonomic nervous system. Sympathetic preganglionic fibers originate in neurons of the intermediolateral

column of the spinal cord and project to the paravertebral and prevertebral ganglia, which in turn project to target organs. The sympathetic nervous system mediates the body's response to stressful situations, i.e., the fight or flight reactions. It often acts reciprocally to the parasympathetic system. [NIH]

Sympathomimetic: 1. Mimicking the effects of impulses conveyed by adrenergic postganglionic fibres of the sympathetic nervous system. 2. An agent that produces effects similar to those of impulses conveyed by adrenergic postganglionic fibres of the sympathetic nervous system. Called also adrenergic. [EU]

Symphysis: A secondary cartilaginous joint. [NIH]

Symptomatic: Having to do with symptoms, which are signs of a condition or disease. [NIH]

Symptomatology: 1. That branch of medicine with treats of symptoms; the systematic discussion of symptoms. 2. The combined symptoms of a disease. [EU]

Synapse: The region where the processes of two neurons come into close contiguity, and the nervous impulse passes from one to the other; the fibers of the two are intermeshed, but, according to the general view, there is no direct contiguity. [NIH]

Synapsis: The pairing between homologous chromosomes of maternal and paternal origin during the prophase of meiosis, leading to the formation of gametes. [NIH]

Synaptic: Pertaining to or affecting a synapse (= site of functional apposition between neurons, at which an impulse is transmitted from one neuron to another by electrical or chemical means); pertaining to synapsis (= pairing off in point-for-point association of homologous chromosomes from the male and female pronuclei during the early prophase of meiosis). [EU]

Synaptic Transmission: The communication from a neuron to a target (neuron, muscle, or secretory cell) across a synapse. In chemical synaptic transmission, the presynaptic neuron releases a neurotransmitter that diffuses across the synaptic cleft and binds to specific synaptic receptors. These activated receptors modulate ion channels and/or second-messenger systems to influence the postsynaptic cell. Electrical transmission is less common in the nervous system, and, as in other tissues, is mediated by gap junctions. [NIH]

Systemic: Affecting the entire body. [NIH]

Systemic disease: Disease that affects the whole body. [NIH]

Systemic lupus erythematosus: SLE. A chronic inflammatory connective tissue disease marked by skin rashes, joint pain and swelling, inflammation of the kidneys, inflammation of the fibrous tissue surrounding the heart (i.e., the pericardium), as well as other problems. Not all affected individuals display all of these problems. May be referred to as lupus. [NIH]

Temperament: Predisposition to react to one's environment in a certain way; usually refers to mood changes. [NIH]

Temporal: One of the two irregular bones forming part of the lateral surfaces and base of the skull, and containing the organs of hearing. [NIH]

Temporal Lobe: Lower lateral part of the cerebral hemisphere. [NIH]

Tendon: A discrete band of connective tissue mainly composed of parallel bundles of collagenous fibers by which muscles are attached, or two muscles bellies joined. [NIH]

Testicle: The male gonad where, in adult life, spermatozoa develop; the testis. [NIH]

Tetrodotoxin: Octahydro-12-(hydroxymethyl)-2-imino-5,9:7,10a-dimethano- 10aH-(1,3)dioxocino(6,5-a)pyrimidine-4,7,10,11,12-pentol. An aminoperhydroquinazoline poison found mainly in the liver and ovaries of fishes in the order Tetradontiformes (pufferfish, globefish, toadfish), which are eaten. The toxin causes paresthesia and paralysis through

interference with neuromuscular conduction. [NIH]

Thalamic: Cell that reaches the lateral nucleus of amygdala. [NIH]

Thalamus: Paired bodies containing mostly gray substance and forming part of the lateral wall of the third ventricle of the brain. The thalamus represents the major portion of the diencephalon and is commonly divided into cellular aggregates known as nuclear groups. [NIH]

Therapeutics: The branch of medicine which is concerned with the treatment of diseases, palliative or curative. [NIH]

Thermal: Pertaining to or characterized by heat. [EU]

Thigh: A leg; in anatomy, any elongated process or part of a structure more or less comparable to a leg. [NIH]

Third Ventricle: A narrow cleft inferior to the corpus callosum, within the diencephalon, between the paired thalami. Its floor is formed by the hypothalamus, its anterior wall by the lamina terminalis, and its roof by ependyma. It communicates with the fourth ventricle by the cerebral aqueduct, and with the lateral ventricles by the interventricular foramina. [NIH]

Thoracic: Having to do with the chest. [NIH]

Threonine: An essential amino acid occurring naturally in the L-form, which is the active form. It is found in eggs, milk, gelatin, and other proteins. [NIH]

Threshold: For a specified sensory modality (e. g. light, sound, vibration), the lowest level (absolute threshold) or smallest difference (difference threshold, difference limen) or intensity of the stimulus discernible in prescribed conditions of stimulation. [NIH]

Thrombosis: The formation or presence of a blood clot inside a blood vessel. [NIH]

Thyroid: A gland located near the windpipe (trachea) that produces thyroid hormone, which helps regulate growth and metabolism. [NIH]

Tibia: The second longest bone of the skeleton. It is located on the medial side of the lower leg, articulating with the fibula laterally, the talus distally, and the femur proximally. [NIH]

Time Management: Planning and control of time to improve efficiency and effectiveness. [NIH]

Tinnitus: Sounds that are perceived in the absence of any external noise source which may take the form of buzzing, ringing, clicking, pulsations, and other noises. Objective tinnitus refers to noises generated from within the ear or adjacent structures that can be heard by other individuals. The term subjective tinnitus is used when the sound is audible only to the affected individual. Tinnitus may occur as a manifestation of cochlear diseases; vestibulocochlear nerve diseases; intracranial hypertension; craniocerebral trauma; and other conditions. [NIH]

Tissue: A group or layer of cells that are alike in type and work together to perform a specific function. [NIH]

Tissue Culture: Maintaining or growing of tissue, organ primordia, or the whole or part of an organ in vitro so as to preserve its architecture and/or function (Dorland, 28th ed). Tissue culture includes both organ culture and cell culture. [NIH]

Tolerance: 1. The ability to endure unusually large doses of a drug or toxin. 2. Acquired drug tolerance; a decreasing response to repeated constant doses of a drug or the need for increasing doses to maintain a constant response. [EU]

Tomography: Imaging methods that result in sharp images of objects located on a chosen plane and blurred images located above or below the plane. [NIH]

Tone: 1. The normal degree of vigour and tension; in muscle, the resistance to passive

elongation or stretch; tonus. 2. A particular quality of sound or of voice. 3. To make permanent, or to change, the colour of silver stain by chemical treatment, usually with a heavy metal. [EU]

Tonicity: The normal state of muscular tension. [NIH]

Tonus: A state of slight tension usually present in muscles even when they are not undergoing active contraction. [NIH]

Tooth Preparation: Procedures carried out with regard to the teeth or tooth structures preparatory to specified dental therapeutic and surgical measures. [NIH]

Topical: On the surface of the body. [NIH]

Toxic: Having to do with poison or something harmful to the body. Toxic substances usually cause unwanted side effects. [NIH]

Toxicity: The quality of being poisonous, especially the degree of virulence of a toxic microbe or of a poison. [EU]

Toxicology: The science concerned with the detection, chemical composition, and pharmacologic action of toxic substances or poisons and the treatment and prevention of toxic manifestations. [NIH]

Toxin: A poison; frequently used to refer specifically to a protein produced by some higher plants, certain animals, and pathogenic bacteria, which is highly toxic for other living organisms. Such substances are differentiated from the simple chemical poisons and the vegetable alkaloids by their high molecular weight and antigenicity. [EU]

Trachea: The cartilaginous and membranous tube descending from the larynx and branching into the right and left main bronchi. [NIH]

Traction: The act of pulling. [NIH]

Transfection: The uptake of naked or purified DNA into cells, usually eukaryotic. It is analogous to bacterial transformation. [NIH]

Transfusion: The infusion of components of blood or whole blood into the bloodstream. The blood may be donated from another person, or it may have been taken from the person earlier and stored until needed. [NIH]

Translation: The process whereby the genetic information present in the linear sequence of ribonucleotides in mRNA is converted into a corresponding sequence of amino acids in a protein. It occurs on the ribosome and is unidirectional. [NIH]

Transmitter: A chemical substance which effects the passage of nerve impulses from one cell to the other at the synapse. [NIH]

Transplantation: Transference of a tissue or organ, alive or dead, within an individual, between individuals of the same species, or between individuals of different species. [NIH]

Transurethral: Performed through the urethra. [EU]

Transurethral resection: Surgery performed with a special instrument inserted through the urethra. Also called TUR. [NIH]

Transurethral Resection of Prostate: Resection of the prostate using a cystoscope passed through the urethra. [NIH]

Trauma: Any injury, wound, or shock, must frequently physical or structural shock, producing a disturbance. [NIH]

Trees: Woody, usually tall, perennial higher plants (Angiosperms, Gymnosperms, and some Pterophyta) having usually a main stem and numerous branches. [NIH]

Tremor: Cyclical movement of a body part that can represent either a physiologic process or

a manifestation of disease. Intention or action tremor, a common manifestation of cerebellar diseases, is aggravated by movement. In contrast, resting tremor is maximal when there is no attempt at voluntary movement, and occurs as a relatively frequent manifestation of Parkinson disease. [NIH]

Tricuspid Atresia: Absence of the orifice between the right atrium and ventricle, with the presence of an atrial defect through which all the systemic venous return reaches the left heart. As a result, there is left ventricular hypertrophy because the right ventricle is absent or not functional. [NIH]

Trypanosomiasis: Infection with protozoa of the genus Trypanosoma. [NIH]

Tryptophan: An essential amino acid that is necessary for normal growth in infants and for nitrogen balance in adults. It is a precursor serotonin and niacin. [NIH]

Tubercle: A rounded elevation on a bone or other structure. [NIH]

Tumour: 1. Swelling, one of the cardinal signs of inflammations; morbid enlargement. 2. A new growth of tissue in which the multiplication of cells is uncontrolled and progressive; called also neoplasm. [EU]

Type 2 diabetes: Usually characterized by a gradual onset with minimal or no symptoms of metabolic disturbance and no requirement for exogenous insulin. The peak age of onset is 50 to 60 years. Obesity and possibly a genetic factor are usually present. [NIH]

Tyrosine: A non-essential amino acid. In animals it is synthesized from phenylalanine. It is also the precursor of epinephrine, thyroid hormones, and melanin. [NIH]

Unconditioned: An inborn reflex common to all members of a species. [NIH]

Unconscious: Experience which was once conscious, but was subsequently rejected, as the "personal unconscious". [NIH]

Universal Precautions: Prudent standard preventive measures to be taken by professional and other health personnel in contact with persons afflicted with a communicable disease, to avoid contracting the disease by contagion or infection. Precautions are especially applicable in the diagnosis and care of AIDS patients. [NIH]

Urban Health: The status of health in urban populations. [NIH]

Urban Population: The inhabitants of a city or town, including metropolitan areas and suburban areas. [NIH]

Uremia: The illness associated with the buildup of urea in the blood because the kidneys are not working effectively. Symptoms include nausea, vomiting, loss of appetite, weakness, and mental confusion. [NIH]

Ureters: Tubes that carry urine from the kidneys to the bladder. [NIH]

Urethra: The tube through which urine leaves the body. It empties urine from the bladder. [NIH]

Urinalysis: Examination of urine by chemical, physical, or microscopic means. Routine urinalysis usually includes performing chemical screening tests, determining specific gravity, observing any unusual color or odor, screening for bacteriuria, and examining the sediment microscopically. [NIH]

Urinary: Having to do with urine or the organs of the body that produce and get rid of urine. [NIH]

Urinary tract: The organs of the body that produce and discharge urine. These include the kidneys, ureters, bladder, and urethra. [NIH]

Urinary tract infection: An illness caused by harmful bacteria growing in the urinary tract. [NIH]

Urine: Fluid containing water and waste products. Urine is made by the kidneys, stored in the bladder, and leaves the body through the urethra. [NIH]

Uterus: The small, hollow, pear-shaped organ in a woman's pelvis. This is the organ in which a fetus develops. Also called the womb. [NIH]

Vaccine: A substance or group of substances meant to cause the immune system to respond to a tumor or to microorganisms, such as bacteria or viruses. [NIH]

Vagal: Pertaining to the vagus nerve. [EU]

Vagina: The muscular canal extending from the uterus to the exterior of the body. Also called the birth canal. [NIH]

Vagus Nerve: The 10th cranial nerve. The vagus is a mixed nerve which contains somatic afferents (from skin in back of the ear and the external auditory meatus), visceral afferents (from the pharynx, larynx, thorax, and abdomen), parasympathetic efferents (to the thorax and abdomen), and efferents to striated muscle (of the larynx and pharynx). [NIH]

Valerian: Valeriana officinale, an ancient, sedative herb of the large family Valerianaceae. The roots were formerly used to treat hysterias and other neurotic states and are presently used to treat sleep disorders. [NIH]

Vascular: Pertaining to blood vessels or indicative of a copious blood supply. [EU]

Vasoconstriction: Narrowing of the blood vessels without anatomic change, for which constriction, pathologic is used. [NIH]

Vasodilator: An agent that widens blood vessels. [NIH]

VE: The total volume of gas either inspired or expired in one minute. [NIH]

Vector: Plasmid or other self-replicating DNA molecule that transfers DNA between cells in nature or in recombinant DNA technology. [NIH]

Vein: Vessel-carrying blood from various parts of the body to the heart. [NIH]

Venous: Of or pertaining to the veins. [EU]

Venter: Belly. [NIH]

Ventral: 1. Pertaining to the belly or to any venter. 2. Denoting a position more toward the belly surface than some other object of reference; same as anterior in human anatomy. [EU]

Ventral Tegmental Area: A region in the mesencephalon which is dorsomedial to the substantia nigra and ventral to the red nucleus. The mesocortical and mesolimbic dopaminergic systems originate here, including an important projection to the nucleus accumbens. Overactivity of the cells in this area has been suspected to contribute to the positive symptoms of schizophrenia. [NIH]

Ventricle: One of the two pumping chambers of the heart. The right ventricle receives oxygen-poor blood from the right atrium and pumps it to the lungs through the pulmonary artery. The left ventricle receives oxygen-rich blood from the left atrium and pumps it to the body through the aorta. [NIH]

Ventricular: Pertaining to a ventricle. [EU]

Vertebrae: A bony unit of the segmented spinal column. [NIH]

Vertigo: An illusion of movement; a sensation as if the external world were revolving around the patient (objective vertigo) or as if he himself were revolving in space (subjective vertigo). The term is sometimes erroneously used to mean any form of dizziness. [EU]

Vesicular: 1. Composed of or relating to small, saclike bodies. 2. Pertaining to or made up of vesicles on the skin. [EU]

Vestibular: Pertaining to or toward a vestibule. In dental anatomy, used to refer to the tooth

surface directed toward the vestibule of the mouth. [EU]

Vestibule: A small, oval, bony chamber of the labyrinth. The vestibule contains the utricle and saccule, organs which are part of the balancing apparatus of the ear. [NIH]

Vestibulocochlear Nerve: The 8th cranial nerve. The vestibulocochlear nerve has a cochlear part (cochlear nerve) which is concerned with hearing and a vestibular part (vestibular nerve) which mediates the sense of balance and head position. The fibers of the cochlear nerve originate from neurons of the spiral ganglion and project to the cochlear nuclei (cochlear nucleus). The fibers of the vestibular nerve arise from neurons of Scarpa's ganglion and project to the vestibular nuclei. [NIH]

Vestibulocochlear Nerve Diseases: Diseases of the vestibular and/or cochlear (acoustic) nerves, which join to form the vestibulocochlear nerve. Vestibular neuritis, cochlear neuritis, and acoustic neuromas are relatively common conditions that affect these nerves. Clinical manifestations vary with which nerve is primarily affected, and include hearing loss, vertigo, and tinnitus. [NIH]

Veterinary Medicine: The medical science concerned with the prevention, diagnosis, and treatment of diseases in animals. [NIH]

Viral: Pertaining to, caused by, or of the nature of virus. [EU]

Viral vector: A type of virus used in cancer therapy. The virus is changed in the laboratory and cannot cause disease. Viral vectors produce tumor antigens (proteins found on a tumor cell) and can stimulate an antitumor immune response in the body. Viral vectors may also be used to carry genes that can change cancer cells back to normal cells. [NIH]

Virulence: The degree of pathogenicity within a group or species of microorganisms or viruses as indicated by case fatality rates and/or the ability of the organism to invade the tissues of the host. [NIH]

Virus: Submicroscopic organism that causes infectious disease. In cancer therapy, some viruses may be made into vaccines that help the body build an immune response to, and kill, tumor cells. [NIH]

Visceral: , from viscus a viscus) pertaining to a viscus. [EU]

Visceral Afferents: The sensory fibers innervating the viscera. [NIH]

Visual Cortex: Area of the occipital lobe concerned with vision. [NIH]

Visual field: The entire area that can be seen when the eye is forward, including peripheral vision. [NIH]

Vitreous: Glasslike or hyaline; often used alone to designate the vitreous body of the eye (corpus vitreum). [EU]

Vitreous Body: The transparent, semigelatinous substance that fills the cavity behind the crystalline lens of the eye and in front of the retina. It is contained in a thin hyoid membrane and forms about four fifths of the optic globe. [NIH]

Vitreous Hemorrhage: Hemorrhage into the vitreous body. [NIH]

Vitro: Descriptive of an event or enzyme reaction under experimental investigation occurring outside a living organism. Parts of an organism or microorganism are used together with artificial substrates and/or conditions. [NIH]

Vivo: Outside of or removed from the body of a living organism. [NIH]

Volition: Voluntary activity without external compulsion. [NIH]

Voltage-gated: It is opened by the altered charge distribution across the cell membrane. [NIH]

Waiting Lists: Prospective patient listings for appointments. [NIH]

War: Hostile conflict between organized groups of people. [NIH]

Weight Gain: Increase in body weight over existing weight. [NIH]

White blood cell: A type of cell in the immune system that helps the body fight infection and disease. White blood cells include lymphocytes, granulocytes, macrophages, and others. [NIH]

Windpipe: A rigid tube, 10 cm long, extending from the cricoid cartilage to the upper border of the fifth thoracic vertebra. [NIH]

Withdrawal: 1. A pathological retreat from interpersonal contact and social involvement, as may occur in schizophrenia, depression, or schizoid avoidant and schizotypal personality disorders. 2. (DSM III-R) A substance-specific organic brain syndrome that follows the cessation of use or reduction in intake of a psychoactive substance that had been regularly used to induce a state of intoxication. [EU]

Xenograft: The cells of one species transplanted to another species. [NIH]

X-ray: High-energy radiation used in low doses to diagnose diseases and in high doses to treat cancer. [NIH]

X-ray therapy: The use of high-energy radiation from x-rays to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external-beam radiation therapy) or from materials called radioisotopes. Radioisotopes produce radiation and can be placed in or near the tumor or in the area near cancer cells. This type of radiation treatment is called internal radiation therapy, implant radiation, interstitial radiation, or brachytherapy. Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. X-ray therapy is also called radiation therapy, radiotherapy, and irradiation. [NIH]

Yeasts: A general term for single-celled rounded fungi that reproduce by budding. Brewers' and bakers' yeasts are Saccharomyces cerevisiae; therapeutic dried yeast is dried yeast. [NIH]

Yohimbine: A plant alkaloid with alpha-2-adrenergic blocking activity. Yohimbine has been used as a mydriatic and in the treatment of impotence. It is also alleged to be an aphrodisiac. [NIH]

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