

Principles and Practice of Contemporary Acupuncture

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PREFACE

Acupuncture has been practiced for centuries on an essentially pragmatic basis. Its practitioners make no claim to understand why it is effective and to what extent it is so. Even though great efforts have been made since ancient times to explain it, acupuncture has remained basically at the medieval level. To the Western-trained mind, this is an intolerable predicament.

The authors of this book, basically clinicians in the field of chronic pain abatement and rehabilitation, have had extensive experience in basic and clinical research academically, and have also been practicing acupuncture since 1972. Collectively, we have treated tens of thousands of patients and have learned enormously from caring for them. This experience has convinced us that acupuncture does have an important place in the clinical management of chronic pain and other disease conditions, complementary and supplemental to mainstream Western medicine. Our interest in utilizing acupuncture as a therapeutic modality combined with our desire to advance its scientific foundation compels us to share our experiences and our ideas in this book, however personal and anecdotal, with physicians, dentists, other health-care professionals, and all others who wish to gain some insight into this fascinating healing art. Our efforts, if they appear controversial, must by no means be misconstrued as derogatory. Our hope is to upgrade this ancient healing art to complement mainstream modern medicine in order to, as the Chinese say, ferry all the sufferers drowning in the bitter sea across to the shores of happiness. Hence, humanity will be better served. We trust our readers will concur with us.

This book was originally started in the early 1970s by one of us (SJL). The real impetus to write this current book collectively started when first MHML and then LKYN determined that there

was a great need for an up-to-date book about acupuncture. Since we started the practice of acupuncture in 1972, we have witnessed the tremendous growth of scientific research in this area. In turn, this research has advanced the understanding of chronic pain. What is more important, it has culminated in the establishment of the Office of Alternative Medicine at the National Institutes of Health in 1991. Joseph Jacobs, M.D., Honorary Fellow of American College of Acupuncture, is its Director. Our desire to share our personal experience with our friends and colleagues has further spurred us on. We comment on this in Chapter 1.

The opinions and comments expressed in this book are entirely ours and do not represent any of the institutions or organizations which we may have been associated with at one time or another. We have attempted our best to keep the materials as accurate and up-to-date as possible. Our readers must exercise their own judgment in the use of our suggested acupoints and other materials in this book.

In the Chinese tradition of reverence to the elderly, we align the sequence of the authors according to their ages.

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We are indebted to Dr. Felix Mann. If he had not dramatically alleviated the frozen shoulder of one of us (SJL) with acupuncture in December 1971, we would never have believed in such possible effects of this healing art and started to learn it from him. Dr. Nguyen Van Nghi most graciously and patiently taught us not only in this country but also in his clinic in Marseilles.

The interest of the late Howard A. Rusk, M.D. (Honorary Fellow of American Academy of Acupuncture) in acupuncture and traditional Chinese medicine was a great inspiration to us. The late Mrs. Katharine Lilly Conroy's and the late Miss Alice Tully's interest in acupuncture as a rehabilitation modality gave us great encouragement. Mr. and Mrs. Fortune Pope, Mr. William Mazer, and the late Mrs. Helen Mazer, have given steadfast support to our acupuncture and chronic pain research for the past two decades. Kenneth Riland, D.O., Honorary Fellow of American Academy of Acupuncture, and physician to the late Governor Nelson Rockefeller, assisted in the establishment of the New York State Commission on Acupuncture in 1972-1973. One of us (MHML) had the privilege to serve on it. The encouragement of Arthur B. Martin, Esq. and Mr. Roy A. Dorsey of Atlanta, Georgia has helped to broaden our knowledge of this healing art.

Of our many friends in the Chinese Ministry of Public Health, we are much indebted to Dr. Chen Zhongwu, former Director of the Bureau of Medical Administration and now Honorary President of the Chinese Rehabilitation Medicine Association, and Dr. Zhao Tongbin, Vice Director of the International Center for Medical and Health Exchange, who made possible our many study tours of acupuncture in China since 1972. It is impossible to mention the many friends at various institutions of traditional Chinese medicine

that we visited, but we would especially like to thank Professors Ji Zhongpu, Wang Xuetai, and Chen Xinlong at the Beijing Academy of Traditional Chinese Medicine and Institute of Acupuncture, and Professor Cao Xiaoding, Director of the State Laboratory of Medical Neurobiology, Shanghai Medical University.

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We thank the publisher, Marcel Dekker, Inc., for accepting this book for publication, and particularly Ms. Tammerly Booth, Ms. Kerry Doyle, Ms. Melissa Gelertner, Messrs. Joseph Stubenrauch and John McGarrell, and their associates for their invaluable assistance. We would also like to recognize Marcel Dekker, Inc.'s farsightedness in publishing the *Acupuncture Manual* by our late colleague Luke S. W. Chu, M.D. and his associates in 1979.

We would be remiss if we did not acknowledge how grateful we are to our wives, Karin M. Liao, Mary Lou Lee, and Roberta M. Ng. Only with their patience, tolerance, and indulgence was the completion of this book possible.

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CHAPTER 1

INTRODUCTION

Acupuncture has been used in China as an effective healing art since prehistoric times but was practically unknown in this country until recently. The ping-pong diplomacy, initiated by the late President Nixon around 1970, led to the rediscovery of China by Americans. It, in turn, led to the reintroduction of acupuncture to this country. The "magic" cures by acupuncture fascinated the American public and jolted the American organized medicine.

Acupuncture's origin in the unfamiliar realms of ancient Chinese philosophy, the ideograms, and strange sounds that describe them, and the non-Christian-Judaic culture contribute to obstructing our open-minded consideration of it. The archaic language used in the Chinese medical classics is not easy to comprehend, even by the ancient and latter-day Chinese classics scholars, let alone the western scholars. Two extreme views exist. At one pole, acupuncture is promulgated as a cure for human suffering while at the other, it is rejected outright as superstitious trash. There must be a reasonable middle ground. This divergence of opinions is apparently the result of a lack of thorough comprehension of this very fascinating, alien concept that is complicated by its aura of mystical power. It is further exacerbated by its commercialization with unwarranted claims of cures, particularly in the early 1970s, that we may call "quackpuncture." The American public was confused and could not understand why American medicine would not accept acupuncture, even though its usefulness had been extensively "field-tested" for several thousand years in China and other Asian countries, and for at least sixty years after its reintroduction into Europe.

Since the late 1960s and early 1970s, well-designed laboratory studies, initiated in China, confirmed the effectiveness of acupuncture almost definitively as an analgesic or hypalgesic modality. The discovery of a relationship between acupuncture analgesia and neurochemicals, particularly endorphins, was exciting indeed, and began to provide a scientific basis for understanding its mechanism. In addition, the public's enthusiasm about acupuncture has heightened the country's interest in chronic pain problems. It has rekindled the hope that, at long last, a very effective remedy may be available in the medical management of chronic pain. The addition of a chapter on acupuncture in the fourth edition (published in 1990) of *Krusen's Handbook of Physical Medicine and Rehabilitation* (a premier and popular medical textbook) by the far-sighted and open-minded editors is a real breakthrough as far as the medical profession is concerned (170). The chapters on acupuncture in Volume 3 of *Innovations in Pain Management* (published in 1992) (260), and in the second edition of *Treatment of Chronic Pain* (published in 1992) (259) are also indications of its acceptance by pain specialists.

In the early 1970's, when acupuncture was in vogue, many books appeared in this country, as the Chinese say, like bamboo shoots sprouting after a spring rain. The majority of those books were translations of traditional Chinese materials, usually done by a non-medical person with very little understanding, if any, of the intricacies of acupuncture. Such books tend to leave an aura that the traditional and medieval approach of this alternative healing art was entirely acceptable at face value with no reservations. This would imply advocating the return to the practice of Hippocratic medicine and forsaking the best of the recent advances of our modern medicine. In some measure, they contributed to the apprehension of the American organized medicine. Most of the excellent books were written more than fifteen years ago before we knew much about the neurophysiology and neuropharmacology of acupuncture. We have taken this situation as a challenge, and endeavor to write an up-to-date book. We will try to interpret

acupuncture and related materials in the light of Chinese culture and customs, and also to correlate them with the western culture and events. Many of the materials in this book were acquired from our personal clinical practice and can be found nowhere else. We do not intend to be encyclopedic. If our comments may sound anecdotal, please do not forget that many great discoveries started as investigations of anecdotes.

We have included some quotations from the ancient Chinese literature. They do not seem available in the well-known works, such as Veith's *Yellow Emperor's Classic of Internal Medicine* (355), and Lu and Needham's *Celestial Lancets* (215). We believe that most of our translated materials have never been previously available in the English literature. Veith's book has been regarded in this country as one of the standard texts on traditional Chinese medicine. Actually her book concerns only part of *Neijing Suwen* [内经素问] (Yellow Emperor's Classic of Internal Medicine Book of Common Questions). She translated only the first 34 chapters out of a total of 81. We mention elsewhere in this book that the Yellow Emperor's Classic of Internal Medicine has two parts: *Suwen* [素问] (Book of Common Questions) and *Lingshu* [灵枢] (Book of Acupuncture). As far as we know, the Book of Acupuncture has no complete English translation. We consider it our duty to include some of these heretofore unavailable materials concerning acupuncture. We hope our efforts will help our colleagues to better understand acupuncture. At the same time, we welcome comments and criticisms from our readers. Hopefully, we may offer this ancient healing art to the medical and dental professions and the public in a contemporary form.

The American public's demand for acupuncture treatment has not appreciably diminished since the early 1970s, though the media coverage was absent for quite some time. Recently, the front cover of the September 23, 1991 issue of *the US News* was a close-up of a beautiful young lady with acupuncture needles on her face. Acupuncture was prominently featured in its cover story

(pages 69-71). The November 4, 1991 issue of *Time* magazine (pages 70-71) also updated acupuncture. Jane Bennett Clark and her associates reported that "Alternative medicine is catching on" in the January 1993 issue of Kiplinger's Personal Finance Magazine (50). On February 22, 1993, Bill Moyers' fascinating miniseries of "Mind and Body" on the Public Television Broadcast Stations showed the therapeutic use of acupuncture in China by Eisenberg (245). In 1990, the U. S. Congress ordered the establishment of the Office of Alternative Medicine at the National Institutes of Health. On January 10, 1993, and again on March 16, 1993, The New York Times had extensive reporting concerning the Office of Alternative Medicine of the National Institutes of Health. These are certain indications of a renewed interest in this fascinating healing art by the American public.

In 1973 and 1974, one of us (SJL) served on the Special Study Section on Acupuncture at the National Institutes of Health to review applications for research grants. For the first time, funding for acupuncture research was available. In 1974 one of us (LKYN) pioneered experiments with acupuncture treatment for the drug addiction of rats in this country. He also started similar studies on humans (251, 262) at the National Institutes of Mental Health and Drug Abuse. In March 1993, LKYN participated in the peer review of applications for acupuncture research grants on substance abuse at the National Institute of Drug Abuse. In July 1993, SJL served on the Acupuncture Study Section of the Office of Alternative Medicine to review the applications for research grants. In April 1994, LKYN participated in the Workshop on Acupuncture organized by the Office of Alternative Medicine at the National Institutes of Health, hoping to convince the Food and Drug Administration to eliminate their ruling that the acupuncture needle is experimental equipment. The recent, nationally heightened desire to contain the cost of health care is undoubtedly contributory to this reassessment of acupuncture and other alternative healing arts.

We follow the Chinese custom of using *Huangdi Neijing* and *Neijing* interchangeably, and the same with *Neijing Suwen* and *Suwen*, *Neijing Lingshu* and *Lingshu*. We also use acupuncture point and acupoint interchangeably. The Chinese use *Jing* [经] and *Mai* [脉] synonymously. The word *Mai* probably antedates the word *Jing* by several hundred years. The English translation of *Jing* or *Mai* is popularly meridian and less often, channel.

When we translate the Chinese texts, we attempt to preserve the Chinese flavor of the expressions. Hence, some passages might possibly read like "pidgin" English (or Chinese-English). Nevertheless, we strenuously try to avoid such pitfalls. A Chinese word often has multiple meanings. Since the language is a living thing, it changes with time and local customs. A word or an expression may mean something totally different within a few years, let alone after several thousand years. The anachronism is exacerbated when the name of an internal organ is used in traditional Chinese medicine to connote a physiologic function instead of signifying its anatomical entity. For example, the word spleen is employed to imply the digestive function and not meant to describe the tissue structure. This has caused much confusion in the western medical mind.

For the romanization of the Chinese words in our book, we use the Chinese official *Pinyin* [拼音] System instead of the usual Wade-Gile System that distorts many of the original Chinese pronunciations (6). However, sometimes the *Pinyin* System may be quite confusing. For instance, in the *Pinyin* System, "q" is pronounced like "ch." Thus, "qi" is pronounced like "chi." "C" sounds like "ch" also. Thus, the word "cun" in the *Pinyin* System sounds like "chun." The "hs" in the Wade-Gile System is "x" in the *Pinyin* System. "Kuan" in the Wade-Gile is "guan" in the *Pinyin*.

Before the Chinese invented paper, they wrote on silk scrolls, or on wood and bamboo strips. We suspect that the high cost of the silk scrolls and the weight of wood and bamboo strips might

have influenced ancient Chinese scholars to use a minimal number of words to express the maximum number of ideas. The difficulty of translating archaic Chinese texts is thus, further amplified.

The word, acupuncture, is derived from two Latin words: *acus* which means a needle and *punctura*, pricking. It first appeared in English in the 1683 edition of the Oxford Dictionary. It is believed to have been coined by Jesuit fathers. They were sent over to China by Louis XIV as missionaries. At about the same time, the surgeons of the Dutch East India Company witnessed the practice of acupuncture, mostly in Southeast Asia and Japan. They were also fascinated by it. At different times, both groups wrote about it and introduced it into Europe around the 17th century.

In the first edition of the *Encyclopaedia Britannica* which was published in 1768, acupuncture was defined as a surgical procedure. In its 1963 edition, it stated, "Acupuncture, also known as needling, is a form of surgical procedure." Up to this day, the insurance industry in this country still classifies it as a surgical procedure. Thus, they charge the same ultra-high malpractice premium as for doing surgery. Acupuncture is a practically risk-free procedure compared with many other medical procedures such as sternal puncture.

In 1973, the American Medical Association declared acupuncture an experimental procedure. The Food and Drug Administration did the same. It is incomprehensible to the general public why a centuries-old procedure is considered experimental by our organized medicine and our bureaucrats. When acupuncture is performed, the patient is not really a guinea pig like in a laboratory experiment, as the Food and Drug Administration's ruling implies. We take it to mean that we are trying a procedure "new" in this country that is not widely practiced by all the physicians in our local communities. Our government regulations are such that if aspirin were discovered today it would have to be subjected to the same scrutiny as a new drug. It would have to undergo animal experimentation and scientifically designed double-blind clinical

tests to prove its effectiveness and safety. Since the day when it was first accidentally discovered as a cure for headaches, it has never been subjected to any vigorous investigation. Had the Food and Drug Administration existed at that time, the bureaucrats would be horrified to see how it is used now. It is one of the safest drugs known, with few side-effects. In the spring of 1994, the National Institutes of Health Office of Alternative Medicine initiated negotiations with the Food and Drug Administration to eliminate the experimental-procedure rating of acupuncture.

We believe strongly that acupuncture and, for that matter, traditional Chinese medicine are not alternatives to, or substitutes for, the mainstream allopathic medicine. It seems that many of us have forgotten that some of the widely used drugs, such as digitalis and ephedrine, are originally from folk medicine. *Ziwu Liuzhu* [子午流注] (similar to the infant science of chronobiology in the west) and their emphasis on the environmental factors are other good examples concerning nature's effects on the well-being of humans. We will discuss these in Chapter 3. Therefore, we would like to designate acupuncture and traditional Chinese medicine as complementary medicine instead. Many of the ideas may be adaptable to enhance the scope of allopathic medicine. Hopefully humanity will be better served.

What we have before us is the essence of a healing art distilled through several thousand year's clinical experience of Chinese and Asian traditional practitioners. As far as the traditional interpretation of the disease processes is concerned, however, we must apply modern scientific methodology in order to foster its advancement.

CHAPTER 2

THE HISTORIC BACKGROUND

Acupuncture is as much an indigenous part of Chinese culture as its language. We do not know how and when it started. According to one legend, during pre-historic times a man had an abscess on his leg. When he was hunting, he slipped and fell. A sharp stone accidentally cut open that abscess and let out the "evil." This simple incision and drainage cured his infection. Allegedly this was the beginning of acupuncture or stone-puncture.

A. EVOLUTION OF ACUPUNCTURE

1. *Bian* [砭] or Stone Puncture

The Chinese word for stone puncture is *bian* [砭]. Xu Shen's [许慎] *Shuowen Jiezi* [说文解字] "An Analytical Lexicon," (published in 121 A.D.) defined *bian* as puncturing with a stone for treating diseases. Figure 2.1 is the Chinese word *bian*. The left-hand side of the word means stone and the right-hand side is the sound of the word. This word pre-dates the word for acupuncture.



Figure 2.1

The earliest known record of the "stone-needles" is contained in *Shanhai Jing* [山海经], "the Classic of Mountains and Oceans," (author unknown, and compiled some time between the eleventh and second centuries B.C., with most of it probably done around the fifth century B.C.). It says,

"On the mountain owned by the Gao family, there are lots of jade on the top of the hill and lots of stone needles at the foot of the hill."

According to Chapter 12 of *Neijing Suwen* [内经素问], (Yellow Emperor's Classic of Internal Medicine Book of Common Questions, compiled most probably in the second century B.C.), "On Different Modalities for (Treating) Similar Diseases" (5),

"People who live in the eastern region of China tend to have abscesses. The treatment be with *bian*."

In Chapter 60, "On Jade Plates," of *Neijing Lingshu* [内经灵枢], (Yellow Emperor's Classic of Internal Medicine Book of Acupuncture, compiled most probably in the first century B.C.), Qi Bo [岐伯] explained to Huangdi [黄帝] (Yellow Emperor),

"When the infected area becomes purulent, the treatment could only be with *bian*."

In addition to the incision of the abscess it seems that the ancient Chinese used stone for other therapeutic purposes, such as blood-letting, and massage and heat to treat afflictions of "the skin and flesh." Even today, when Chinese people praise their physicians, they often describe their doctors as "skilled with *Bian*" or "gifted in stone puncture."

In spite of the consensus throughout the millennia that stone was used for *bian*, Ge Hong [葛洪] (281-341 A.D.), one of the great Taoist-physicians and a renowned developer of alchemy in China, contended that even the best craftsman could not make a sharp needle out of a stone.

Stone-puncture must be quite painful. According to *Neijing Lingshu*, Chapter 1, "On Nine Needles and Twelve *Yuan* (Source Acupoints)" (5),

Yellow Emperor asked Qi Bo, "I love my people and treat them as my family, ... I pity their frequent sufferings from diseases. ... I do not like the (traumatizing) stone-puncture. I would like to use the fine needles to open up the (blocked) *Mai* [脉]

(meridians) and to regulate blood and Qi [气]. ... I would like to hear your opinion about this."

2. *Ci* [刺] (*Puncturing*), *Zhen* [针] (*Needling*), and *Acupuncture*

In the early years, the procedure was called *Ci* (puncture or puncturing), such as in Zhang Zhongjing's [张仲景] (142-220 A.D.) book *On the Fevers*. Later on, the word *Zhen* (needle or needling) was substituted.

As technology advanced, bone fragments, bamboo sticks, bronze, iron, gold, and silver might have been used to make the needles. We do not know whether bone, bamboo, or wood were actually used for this purpose. The old literature rarely mentioned bronze needles. In 1978, for the first time, a bronze needle quite similar to a stone needle was found in an archaeological collection of bronze articles in Inner Mongolia. It was dated to the Spring-Autumn Period of Chinese history (770-476 B.C.). Undoubtedly, the advancement of metallurgy contributed greatly to the advancement of the practice of acupuncture. In the chapter "Biography of Bianqiu and Cangong" in Sima Qian's [司马迁], (145-86 B.C.) book *Historic Records* [史记], (published in 110 B.C.), physician Bianqiu [扁鹊] was said to have used both bianstones and metallic needles. That was about the time that China entered the Iron Age. The best iron for making acupuncture needles was said to be that from the bit of the horse's bridle. It was supposed to not be poisonous as compared with newly forged iron. So far as we know, there are no iron needles from archaeological finds. Four gold acupuncture needles in excellent condition were found in the tomb of a prince (burial date: 113 B.C.) near Beijing. They are on exhibit in the Forbidden City Museum in Beijing. Figure 2.2 on the next page is a picture taken in 1972. Five silver acupuncture needles were also found in the same tomb, but they had been markedly deteriorated. Figure 2.3 is the Chinese word for needle. The left-hand side of the word

means metal and the right, a sharp instrument. Thus, a needle is a sharp instrument made of metal. (For additional discussions on acupuncture needles, please see Chapter 9.)

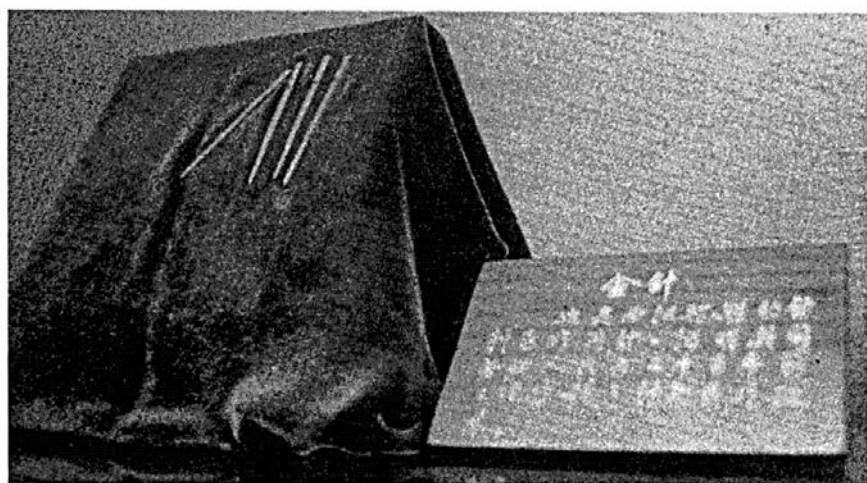


Figure 2.2

針

Figure 2.3

B. MEDICINE AND DIVINATION

In prehistoric China, medicine and divination were one and the same, just as in many other primitive culture. For example, Figure 2.4 is a group of ink rubbings of bas-relief engravings on

four bricks. These bricks are on exhibit at the Confucius Temple in Qufu. The engravings were done in the Late Han Dynasty (25-220 A.D.). They depict a bird-man physician taking the pulse with one hand and performing acupuncture with the other. A line of patients is waiting for their turn. The bird-man doctor is said to represent a legendary master-physician of the Warring States Period of Chinese history (500-300 B.C.). His name was Bienqiu [扁鹊] which literally means Magpie Bien. Chinese revere the magpie as a symbol of happiness. It is often found in old Chinese paintings.

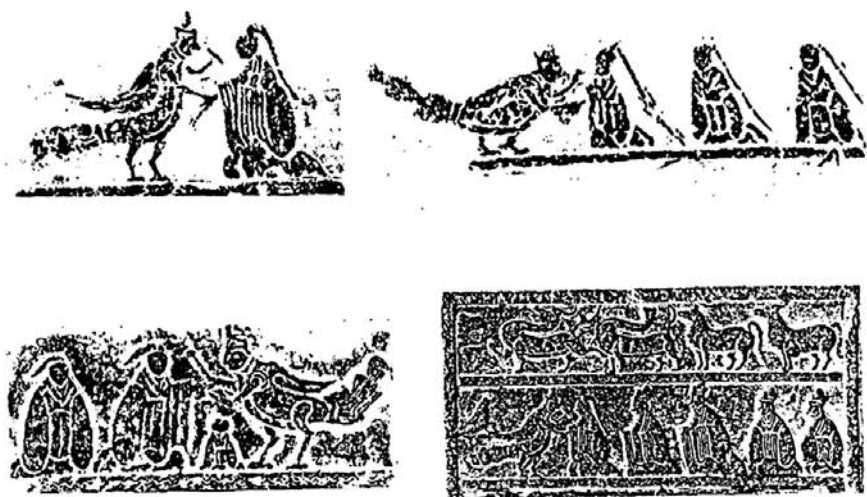


Figure 2.4

Figure 2.5 on the next page is the old Chinese word *Yi* for medicine or doctor. Its upper left half is the word that means a bag of arrows and the upper right half is the word for a bamboo spear. Its entire lower half is the word *Wu* meaning a diviner. Incidentally, the word *Wu* is a picture of a craftsman waving his sleeves, i.e., dancing. Thus, the diviner who used sharp instruments (e.g., lancets or needles) was a doctor. This offers us

evidence that in ancient times, medicine and divination were practiced by the same person. Confucius once said: If one does not have the perseverance, he should not be a diviner or a doctor. Around the first century A.D., doctors and diviners went their separate ways. This situation was commented on in Chapter 11 of *Neijing Suwen*, "Additional Discussions of the Five Viscera,"

"With those who adhere to the belief in demons and deities, it is futile to discuss the virtues of medicine. With those who deplore acupuncture, it is meaningless to discuss its marvels."

Figure 2.5

At about that time, the Chinese substituted the word "alcohol" (or "vase") for "diviner" in the lower half of the word *Yi* (Fig. 2.6), since alcoholic and aqueous extracts of medicinal herbs were found to be effective cures.

Here, we may find a modern analogy. In the old days, barbers did surgery in England. Thus, barber-surgeons. It was not too long ago that surgeons split from the barbers' guild in London and established their own college. Even to this day, a Fellow of the Royal College of Surgeons is properly and respectfully addressed as Mr. So-and-So. He will feel very insulted if you call him Doctor So-and-So.

Figure 2.6

C. ACUPUNCTURE LITERATURE

Medicine in China must have been quite advanced before the second or third century B.C. Silk scrolls and wood or bamboo strips written with dissertations on *Mai* [脉] (i.e., meridians) were found in a marchioness' tomb (burial date: 168 B.C.) at Mawangdui, Changsha in the Hunan Province. They were the

largest collection of ancient medical literature found so far. They described eleven *Mai* (meridians) and their related symptomatology, and treatment with moxibustion. Acupuncture was not mentioned at all. In addition, it contained pictures of exercises and *Qigong*, discussions of sexual techniques, ways to prolong life, "Pulse Techniques," and "Fifty-Two Prescriptions," among other materials. An incomplete "volume" of a wood-strip "book" on acupuncture was also found in the tomb of a possible physician, dated to 25-100 A.D. (For further discussions, please see the section on *Jing-Luo System* in Chapter 3.)

At this juncture, it may be necessary for us to described briefly the development of the written language in China in order for us to understand the significance of the wood strips and the silk scrolls in relation to the advancement of Chinese medicine. The first known written characters were carved on oracle-bones, dating to at least ten millennia B.C. They were usually for divination to have a bountiful harvest or a successful hunt. There were also, but rather rarely, oracle-bone recordings of the sicknesses of King Wuding [武丁] (1324-1266 B.C.) of Yin [殷] Dynasty and the royal family. Figure 2.7 shows an ink rubbing of an oracle-bone with an eight-word prayer for a cure of *jie* (scabies), dated to that time. The last character on the right in the top row of four words means scabies. Here we find another indication of the beginning of medicine in divination.



Figure 2.7

With the formulation and development of the written characters, Chinese wrote with lacquer, before they invented ink,

mainly on wood or bamboo strips. They strapped those wood or bamboo strips together with strings to form a volume of a book. Figure 2.8 shows an ancient "wood-strip book" of Han Dynasty (206 B.C.-220 A.D.).

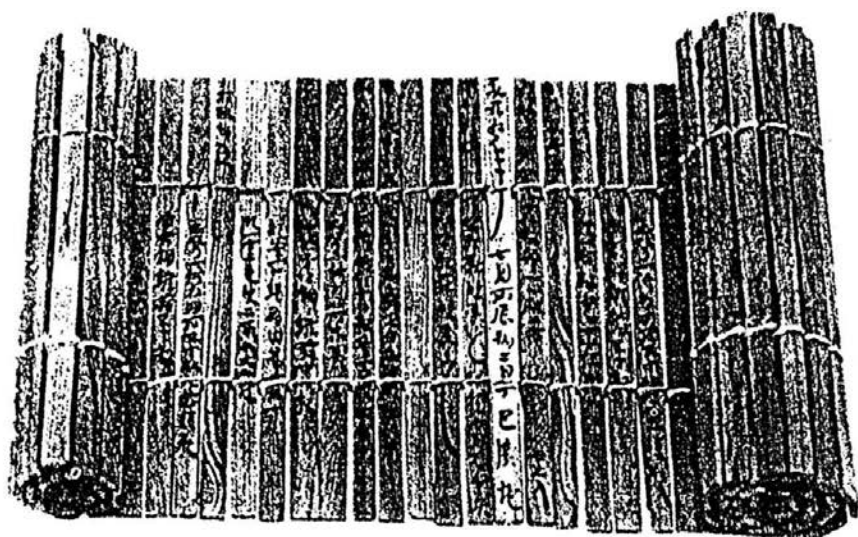


Figure 2.8

Hence, the Chinese word volume is a stylized picture of a bundle of wood strips, tied together with a string (Fig. 2.9). They also wrote on silk scrolls. However, silk was much more expensive than wood strips. Paper was invented by Cai Lun [蔡伦] around 97 A.D., and started to be manufactured under the aegis of the emperor in 105 A.D., as a cheaper substitute for silk scrolls, and a lighter substitute for wood-strips. Block printing of books was invented after paper. Bi Shen [毕昇] invented the movable type of printing in the early part of the ninth



Figure 2.9

century. No doubt, paper and printing contributed greatly to the popularization of medicine and acupuncture, among other things.

Many divergent concepts, clinical records, and prescriptions were written haphazardly about medicine and acupuncture. The whole knowledge of the theory and practice of traditional Chinese medicine and acupuncture was probably crystallized and systematized for the first time by the compilation of *Huangdi Neijing*. The existing text consists of two parts. Its first is entitled *Suwen* (Book of Common Questions) and the second, *Lingshu* (Book of Acupuncture). Parts of the original and early editions of these books were lost or destroyed during the civil strife throughout the years. Copies had to be made from the memory of the surviving physicians. They inevitably contained incorrect citations purely from memory, and typographical errors by the scribes. From time to time, lost texts were discovered and incorporated into the subsequent editions.

The currently widely-used text of *Neijing Suwen* is basically derived from the one collated, edited, and annotated by the renowned Taoist-physician, Wang Bing [王冰] (completed in 762 A.D). He added what was thought to be missing, corrected the errors, and eliminated duplications and contradictions in the existing texts. It is devoted to the theory and practice of traditional Chinese medicine, personal hygiene, sexual practices, diet, prevention of sickness, and promotion of health. Fifteen of the eighty-one chapters of *Suwen* were concerned with acupuncture. The book was translated into English by Ilza Veith as her doctorate thesis, first published under the title "Huang Ti Nei Ching Su Wen. *The Yellow Emperor's Classic of Internal Medicine*" in 1949 and re-issued as a new edition in 1966 (355). Somehow, she included only its first thirty-four chapters. There was no indication of whether she realized the incompleteness of her work. It is the only authoritative English rendition available. She translated it with "the approach of a medical historian rather than that of a Chinese philologist." This is understandable. Since she was not a

physician, we may assume that possibly she might not be interested in the complete picture of traditional Chinese medicine. In addition, the original text was written in archaic Chinese and is not easy for even a modern Chinese to understand. Nevertheless, she did render a great service by letting us have a glimpse of traditional Chinese medicine, and particularly with her excellent "INTRODUCTION. Analysis of the *Huang Ti Nei Ching Su Wen*" in the book (355). We commented on this in our previous communications (170, 201, 260).

The second part, *Lingshu* or "Efficacious Pivot (or rather Efficacious Pivotal Paradigm)" [or "Magic Gate" as translated by Wong and Wu (373), or "Mysterious Pivot" by Lu and Needham (215)] deals entirely with acupuncture, the *Jing-Luo* System, acupoints, the needles and their therapeutic uses for various symptoms and conditions. Because it is concerned entirely with acupuncture, it is often known as the Book of Acupuncture. The current popular text of *Lingshu* was collated, edited, and annotated by Shi Song [石嵩] in 1155 A.D. (5). It has no complete English translation that we know of.

Traditional Chinese medicine has always revolved around *Neijing*. For years, medical works of any major importance were mainly explanations, expansions, quotations, annotations, and commentaries of this seminal classic. The basic concepts have never changed. Throughout ancient years of civil strife and turmoil, parts of the book were lost and different versions appeared. Some of them were dictated from memory by the older scholars. Incidentally, in the old days, few people could afford to buy books. They would commit the entire book to memory. Some people would copy a book by hand if they could afford to buy paper, ink, and writing brushes. Of course, many errors were inevitable. Thus, we have different versions of the same book.

We really do not know who originally wrote *Neijing*. We know that Huangdi, or the Yellow Emperor, was a legendary figure and probably never existed as a real person. According to the

legend, he lived from 2697 to 2597 B.C. The renowned historian, Sima Qian [司马迁] (145-86 B.C.) did not mention *Neijing* in his book, *Shi Ji* [史记] (The Historical Records). As early as the first century B.C., Liu Xin [刘歆] doubted the authorship of *Neijing* by Huangdi. The title of *Neijing*, but not *Suwen*, was mentioned for the first time around 65 A.D. by Ban Gu [班固] in *Han Shu* [汉书] (History of Later Han Dynasty). Zhang Zhongjing [张仲景] (142-220 A.D.) quoted *Suwen* in the preface of his book, *Shanghan Lun* [伤寒论] (On the Fevers). In *Zhenjiu Jiayi Jing* [针灸甲乙经] by Huangfu Mi [皇甫谧] (215-282 A.D.), there were nine volumes of *Zhen Jing* [针经] (Book of Acupuncture) and nine volumes of *Suwen*. The title of *Lingshu* was actually endowed to the volume on acupuncture by Wang Bing [王冰] in 762 A.D.. Many scholars and historians had good reason to doubt their authorship by Huangdi. For example, neither Taoism nor the *Yin-Yang* principle was thought to have been formalized before the early part of the third century B.C., but they were prominently mentioned in that book. So was the concept of the Five Elements which was introduced by Zou Yan [驺衍] (350-270 B.C.). In addition, the geographic names and many of the historic allusions in the book did not exist in Huangdi's time. Chinese scholars are generally agreed that *Neijing* was a collective work, with *Suwen* probably compiled not much earlier than the second century and *Lingshu* in the first century B.C.

Zhenjiu Jiayi Jing [针灸甲乙经] (published around 256-260 A.D.) by Huangfu Mi [皇甫谧] (215-282 A.D.) was the next significant book on acupuncture. This book was the result of his revision of many books on acupuncture, together with annotations of his own opinions and clinical experience. The last major collation and revision of the acupuncture literature was done by Yang Jizhou's [杨继洲] in his *Zhenjiu Dacheng* [针灸大成], or "Comprehensive Acupuncture and Moxibustion" (published in 1601 A.D.).

It is important to note that acupuncture has not been without controversy even in the old days. One of the outstanding medical books was Wang Dao's [王焘] *Weitai Miyao* [外台秘要] "Medical Secrets of an Official" (published in 752 A.D.). He purposefully omitted acupuncture in that renowned book on the grounds that the art of acupuncture had been lost and the technique was difficult and dangerous. In 1822, the Chinese government abolished the Department of Acupuncture and Moxibustion in the Imperial Medical College. In 1929, the Chinese government attempted to forbid the practice of acupuncture because it was not regarded as scientific.

Unfortunately, in the Chinese classics tradition, medicine was regarded by the Confucian orthodoxy as a craft and not a part of the scholarly pursuit. When the emperors of Qing (i.e., Manchu) Dynasty [清朝] (1644-1911 A.D.) compiled the "Imperial Encyclopedia in Four Vaults" [四库全书], all the medical literature was grouped under the general heading of arts and crafts. Medicine was never quite accepted for mainstream scholarly studies. Even now, the Chinese Ministry of Public Health which oversees all the medical and health matters of the entire country is ranked third to the last of the twenty or so Ministries of their National Council (just above the Bank of China and the Civil Aeronautics Administration). One wonders whether this is because of its origin in divination. It may also be explained on the basis that throughout the millennia, practitioners of traditional Chinese medicine have held onto antiquated teaching and were not willing to modernize their national treasure. Criticisms of this attitude appeared even in ancient days. It could not be better stated than by Sang Hungyang [桑弘羊]. He was the Agricultural Minister in charge of the state-controlled sales of salt and iron during the reign of Emperor Wu (140-87 B.C.) of the West Han Dynasty.

"One who believes and cherishes what is ancient and disdains what is new would be just like a patient who only wants to consult Yu Fu (a famous physician of prehistoric China) instead of calling for a doctor in his own neighborhood."

This passage was in the section, *On Salt and Iron* (A Record of the Debate on State Control of Commerce and Industry) of *Shu Jing* [书经] (The Book of Classics, published around 80 B.C.).

After Emperor Jingdi [景帝] of the Han Dynasty [汉朝] (reigned from 157 to 141 B.C.) established the civil services system, all the appointments to officialdom were determined through examinations exclusively on the Confucian classics. Gradually, it adapted rigid and restricting codes that the candidates had to follow to the letter. Studies of medicine, arts and crafts, and any non-government-approved materials were relegated to trivial pursuits. Undoubtedly, as a side-effect, this hindered the development of new ideas and the advancement of science, engineering, and medicine. Some Chinese scholars claimed that the original intent of the civil service examination was designed as a means of thought control to prevent an uprising of the populace, particularly the intelligentsia, and an overthrow of the imperial reign. It was said to have partly contributed to the anti-Confucius "May the Fourth Movement" by the Chinese students in 1918 A.D..

D. THE TEACHING OF ACUPUNCTURE

During the Spring-Autumn Period of Chinese history (770-476 B.C.) the feudal slavery system in China was disintegrating, and physicians were freed from the exclusive employment by the lords (*Jun Zi* [君子]). Medicine was separated from divination. Such social changes indeed helped to establish the physician as a professional. It made medicine and acupuncture accessible to the masses (*Xiao Min* [小民]). This, in turn, encouraged the advancement of medicine and acupuncture. Medicine and acupuncture were either handed down from father to son or taught by apprenticeship. The teaching was essentially oral so as to preserve the exclusive rights to the family or sect. Unavoidably there was no uniformity of medical teaching and practice.

With the invention of printing, medical books became available in ancient China, and scholars started to read medicine. Chinese called these doctors scholar-physicians. In contrast, those practitioners who were less sophisticated would travel from village to village. At the market places, they would ring a bell to announce their arrival. The patients would come for consultation. This type of peripatetic doctors were called "bell-doctors." In this country, as recently as a little over a hundred years ago, there were only a few medical schools. It was customary for a person to start medical training by reading medicine and apprenticing to another doctor. Subsequently, after attending a medical school for one year or so, he would be awarded a medical degree. Attending a medical school full-time is a relatively recent requirement. Until after the Second World War, for advanced training, he would have to go to Europe. The current American medical educational system was changed after Alexander Flexner's survey in 1928 (337). Since then, the emphasis is on the science of medicine. The doctors now wear white laboratory coats possibly as a subtle proclamation that they are also scientists.

The Imperial Medical College was first established in China on a small scale in 493 A.D. and fully developed by 618 A.D. (about 200 years before the first medical school in Salerno, Italy). By the latter date, acupuncture was taught as a specialty with "one professor, one assistant professor, ten lecturers, 20 technicians, and 20 students." (according to Liu Xin's [刘歆] *Tang Shu* [唐书] (Chronicles of Tang Dynasty), published during 936-947 A.D.).

Bronze statues were cast in 1026 A.D. upon the imperial decree for teaching acupuncture. Historically, it was the very first visual aid in medical education. Figure 2.10 shows a replica of an ancient bronze statue with friends at the Institute of Acupuncture and Moxibustion in Beijing. Figure 2.11 is a close-up of the head of a bronze statue showing acupoints as holes. Such statues were said to also be used for state examinations. It was covered with beeswax on the outside and filled with water in the inside. A

candidate was given a needle and told to locate a certain acupoint. If the needle punctured the proper hole of the acupoint, water would come out and the candidate would pass that part of the examination.

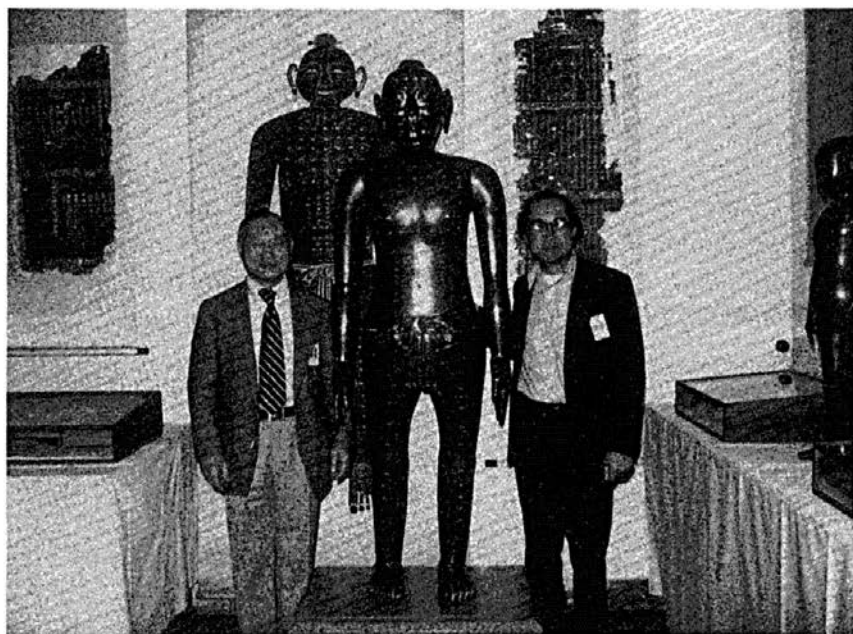


Figure 2.10



Figure 2.11

In order to publicize medicine and acupuncture, the emperor also ordered to have *Huangdi Neijing* engraved on large stone stelae that were usually displayed in a temple. Thus, those who could not afford to buy books could read and study medicine there for free. Figure 2.12 on the next page shows two ink rubbings of broken fragments of such stelae. The one on the left lists acupoints with their locations and describes the course of a meridian. The right one delineates the indications and the usages of each acupoint.

E. ACUPUNCTURE IN ASIA

For centuries in the Far East, China was the cultural center. Many countries in that area were at one time or another her tributary states until the nineteenth century. Hence, China calls herself *Zhongguo*, the Central Kingdom. Acupuncture and traditional Chinese medicine were adapted in different parts of the Far East with modifications to suit the local medical and cultural situations.

In 541 A.D., traditional Chinese medicine was brought to Korea. It was probably the beginning of the spread of acupuncture in the Far East. In 562 A.D., a Chinese physician brought acupuncture books and charts to Japan. In the early seventh century, Japanese scholars studied medicine in China. In 753 A.D., a Chinese Buddhist monk took thirty six students with him to Japan to spread Buddhism. They most probably further influenced the development of acupuncture over there. In 1362 A.D., an acupuncture school was established in Japan. Since then, acupuncture has become an important part of Japanese medical practice. They probably have the most important collection of the Chinese ancient medical and acupuncture materials outside China. Acupuncture went to the Southeast Asian countries along with the trade and the emigration of Chinese. However, India did not seem to seriously adapt it although her Ayurvedic medicine had an influence on Grecian medicine.

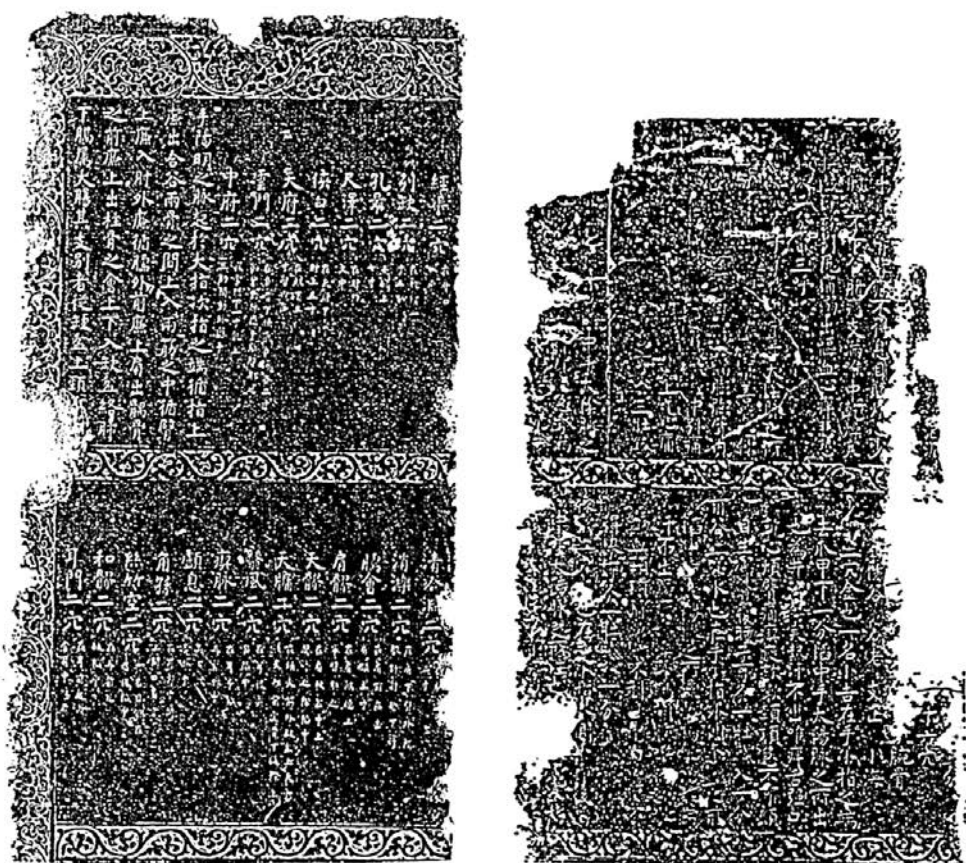


Figure 2.12

E. ACUPUNCTURE IN EUROPE

Chinese culture went to Europe with the trade along the Silk Road. After Nestorianism was declared heretical in 431 A.D., a group of Nestorians from Syria migrated to China and settled in the then Chinese capital Changan (now Xian). For a short period of time, the Chinese emperor and the court adapted Nestorianism as the state religion. However, it did not seem to have much lasting influence on Chinese culture.

In the early 17th century, with increasing commercial traffic between China and the west, Europe was fascinated by Chinese philosophy, art, and technology as well as products like silk, cloth, gun powder, porcelain, lacquer, tea, and wallpaper. Chinese ideas and styles influenced the designs of gardens, Chippendale furniture and cabinet-making. The Chinese willow pattern began to appear on dinnerware and wallpaper made in Europe. Gottfried Wilhelm von Leibniz (1646-1716 A.D.), the great German philosopher and mathematician, was impressed by the 'mathematical' quality of the Chinese language (as were the early 14th century Persians before him). He thought, since we must think symbolically, we should use symbols in our language as in mathematics. This was said to have influenced him in the development of symbolic logic, the binary concept (from the Chinese idea of *Yin-Yang*), and a computing machine. He allegedly proposed to follow the patterns of Chinese characters to develop an ideal universal language. Chinese characters are often pictorial presentations of ideas and events. For example, the word male (Fig. 2.13) consists of two parts: the top part is a picture of a rice field and the lower, a picture of a plow.



Figure 2.13

Thus, the person who plows the field is a male. Another example is the word water (Fig. 2.14 on the next page) which originally had

the appearance of three columns of flowing streaks. During Queen Victoria's reign, the British Parliament wanted to set up a civil service system for the first time. The most important argument in favor of it was that China had employed it so successfully for more than a thousand years. Such social influence of Chinese culture in the western world in those days could have favored their acceptance of acupuncture also.



Figure 2.14

According to Huard and Wong (123) acupuncture was first mentioned by Fernand Mendes Pinto in the sixteenth century. Georges Beau (11) wrote that the first European treatise on acupuncture was published by the Reverend Father Harvieu in 1671 A.D. According to Lu and Needham (215, pp. 269-279) Jacob de Bondt, a surgeon-general of the Dutch East India Company, was probably the first European physician to write about acupuncture in 1658 A.D. Other surgeons of the same company such as Andreas Cleyer (in 1681 A.D.), Wilhelm ten Rhijne (in 1682 A.D.) and Englebert Kampfer (in 1712 A.D.) followed with their books on what they learned of its practice, mostly in the Dutch Indies and in Japan. Based on the information in those books, Europeans started to dispense acupuncture .

Culturally, the most important group was the Jesuit missionaries. In the seventeenth century, Louis XIV sent Jesuit fathers to China. They taught science to the emperor and the court as an "open sesame" for their attempt to convert Chinese. They were amazed by the effectiveness of acupuncture and Chinese medicine. Elsewhere in this book, we further describe their activities in China concerning Chinese medicine and acupuncture.

European doctors began to practice it with great enthusiasm in early part of the nineteenth century. Perhaps they overdid it at

the time. Alfred Velpeau (1795-1867 A.D.), a great French surgeon of his day, publicly accused Jules Cloquet (1790-1883 A.D.) of using acupuncture just to make a quick fortune. It probably prompted the French Academy of Sciences to appoint a committee to study its merits. Nevertheless, it did attract the attention of other prominent physicians, such as Rene Laennec (1781-1826 A.D.), the inventor of stethoscope. Guillaume Duchenne (1806-1875), the father of neurology, performed electropuncture on patients. Joseph Berlioz, father of the famous composer Hector Berlioz, in 1826 published probably the first book on acupuncture in France. However, the rage gradually quieted down.

Around 1823, James Morss Churchill of London wrote (47, Page 1),

"Acupuncture is now employed, not only in the Eastern Hemisphere, in France, and in America, but throughout the British dominions, and in our London hospitals, under the auspices of men, who stand deservedly high in the ranks of literature and science."

He further noted,

"For the part I took in advancing the practice (of acupuncture), I have been assailed by some with unmerited abuse, while others have pitied me as a visionary, and considered the relief ascribed to it, to be the result of mental influence over the corporal sufferings of those, whose understandings are weak."

In 1828 A.D., he commented (48),

"It remains for the medical profession to ascertain its claims to attention by the test of experience, and having undergone the ordeal of experimental enquiry, it will, I have no doubt, so fully develop its merits, as to obtain a conspicuous rank in medical estimation, as a valuable curative measure."

Judging from these excerpts, acupuncture must have been controversial all over the western world, even during those early days.

One of the important works was P. Dabry de Thiersant's (1842-1898 A.D.) *La Medicin chez les Chinois* (Medicine in China), published in 1863. de Thiersant was an infantry captain and later the French consul in China. While there, he learned acupuncture. His innovation was that he numbered all the acupoints sequentially with Arabic numbers in place of the original Chinese names (Fig. 2.15). It was probably the very first attempt to simplify acupuncture for western consumption. However, his efforts did not attract any serious followers.

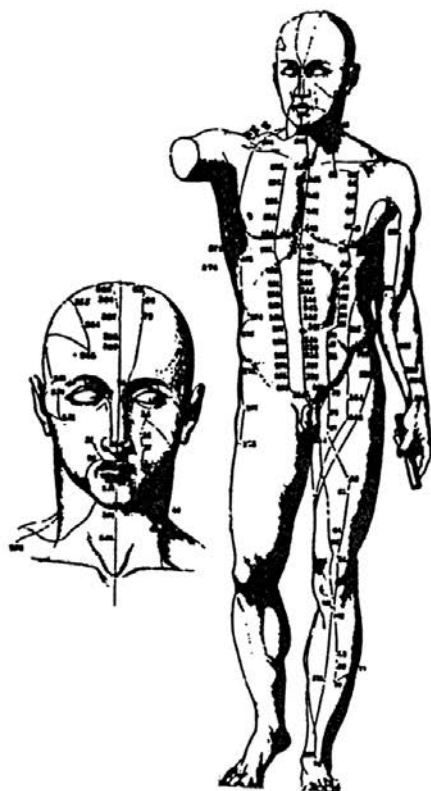


Figure 2.15

Its subsequent semi-demise was revived around 1929 through the efforts of George Soulié de Morant (1880-1955 A.D.). In the 1920s he was a French Consul in China. He was amazed by the therapeutic power of acupuncture during a cholera epidemic. He mastered the art of acupuncture and practiced it in China. After he returned to France, he demonstrated its usefulness in Paris. He taught French physicians. His books (e.g., 242) formed the basis of acupuncture practice in France and other European countries. Since then acupuncture has been practiced by many physicians in Europe.

G. ACUPUNCTURE IN THE UNITED STATES

Acupuncture could have been brought to this country in the colonial days by whaling captains and China traders together with silk, porcelain and other things Chinese. The first known medical writing on this subject in the States appeared in 1825 when Franklin Bache published a translation of M. S. Morand's case reports from French into English (8). Figure 2.16 on the next page shows the title page of his book. Bache was a well-known physician in Philadelphia. He was Benjamin Franklin's grandson. Benjamin Franklin seemed to have shown some interest in it also. At that time, the term *acupuncturation* was used in the English literature, *acupuncture* in the French, *akupunktur* in the German, and *agopunctura* in the Italian.

Bache defined acupuncture in his book (8) as follows:

"Acupuncturation, *acupunctura*, derives its etymology from the Latin, *acus*, a needle, and *punctura*, a puncture. The operation consists in causing a needle (without regard to the metal of which it is made,) to penetrate into some part of the body, either of man or animals."

We do not know, whether acupuncture during Bache's time was as controversial in this new country as in the contemporary Europe and England.

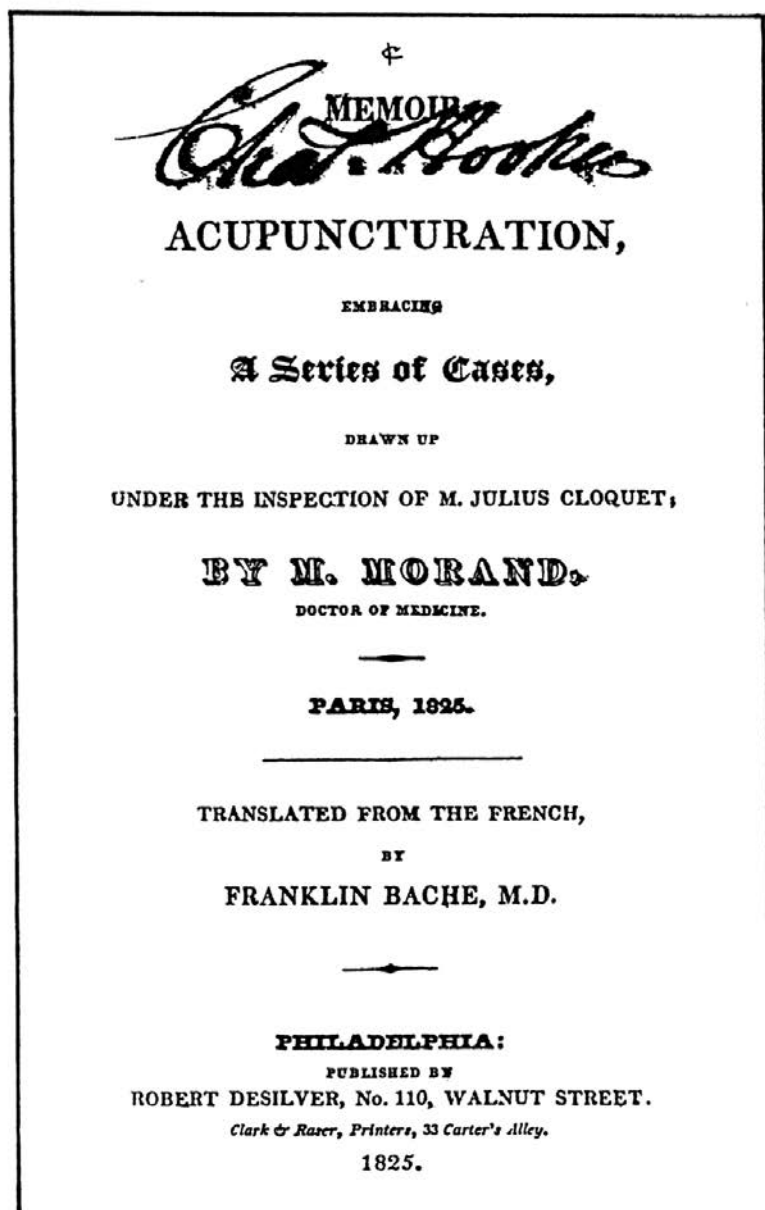


Figure 2.16

Incidentally, until almost the end of the nineteenth century there were no significant medical textbooks by American authors. James H. Hutchinson edited John Syer Bristowe's *A Treatise of the Theory and Practice of Medicine*. He had it published in Philadelphia in 1876 (29). For treatment of neuralgia, he included acupuncture, Galvanism ("occasionally serviceable"), and Duchenne's "cutaneous Faradization." Roberts Bartholow was Professor of Materia Medica and General Therapeutics at Jefferson Medical College in Philadelphia. He mentioned in his textbook, *A Treatise on the Practice of Medicine* (10, published in 1880 A.D.),

"Hammond has revived the method of Magendi, and cures sciatica by inserting an acupuncture needle, insulated to near its end, and passing through it a current from a few cells."

The use of acupuncture was also found in the first edition (published in 1892 A.D.) of *The Principles and Practice of Medicine* by William Osler (1849-1919 A.D.), the great Canadian-American physician and the guiding light of the founding of Johns Hopkins Medical School. He stated (268 page 282),

"For lumbago acupuncture is, in acute cases, the most efficient treatment. Needles of from three to four inches in length (ordinary bonnet needles, sterilized, will do) are thrust into the lumbar muscles at the seat of the pain and withdrawn after five or ten minutes. In many instances the relief is immediate, and I can corroborate fully the statement of Ringer, who taught me this practice, as to its extraordinary and prompt efficacy in many instances. The constant current is sometimes very beneficial."

In another part of his textbook (page 820), for the treatment of sciatica he commented,

"Acupuncture may also be tried; the needles should be thrust deeply into the most painful spot for a distance of about two inches, and left for from fifteen to twenty minutes."

These same statements were continued through the last edition of that world-renowned Osler's textbook (i.e., its 14th, and published in 1944) that was edited by Henry A. Christian (1876-1951), the Hersey Professor of Theory and Practice of Physic at Harvard

Medical School and Physician-in-Chief at Peter Bent Brigham Hospital, Boston (45). Harvey Cushing (1869-1939) in his book, *The Life Of Sir William Osler* (57), told the story of Osler's failure of eliminating the back pain of a Board member of McGill University "by acupuncture, a popular procedure of the day, which consists in thrusting a long needle into the muscles of the small of the back" (page 177).

Apparently, Bristowe, Bartholow, and Osler were not the only eminent physicians in America who wrote about it around that time. It appeared also in Sajous's *Analytic Cyclopedia of Practical Medicine* and in its successor, the *Cyclopedia of Medicine*, both published by F. A. Davis Company (316). In these cyclopediae, it was prescribed for "muscular rheumatism, especially lumbago, in neuritis, sciatica, etc. and for the relief of tension in edematous or congested tissues." "This treatment is efficacious in most instances where other measures have failed." Indeed, similar reference was also made by Osler for its use in extreme dropsy in Bright's disease, in his textbook (268 page 745).

In Volume I of the *First Series of the Index-Catalogue of the Library of the Surgeon General's Office* (125), on page 106, under the heading of **Acupuncture**, it also suggested to see galvanopuncture, electropuncture, and aquapuncture among others. This covered a period from 1823 through 1847. The list of books occupied almost one half page. They were virtually all European works. The above-mentioned Franklin Bache's book was the only American one. In the same volume, the list of journal articles occupied almost three-quarters of a page. It covered a period from 1802 through 1871. There were only five citations in American medical journals. One of them was by Bache in the *North American Medical and Surgical Journal*, Philadelphia in 1826 (9). By 1899, the Surgeon General's Catalogue listed only one book and three journal articles on acupuncture. In 1917, there was one paper in *American Journal of Public Health*, entitled "Acupuncture: the best method of vaccination." By 1925, it did not list acupuncture

at all. This brief survey gives us a glimpse of the gradual decline of interest in acupuncture by the American medical profession. It was said to be attributable to infections from the procedure (172). Somehow, it was practically forgotten in this country despite a few occasional references to it, such as by Veith in 1949, 1962, and 1974 (354-356) and by Dimond in 1965 and 1971 (61-63).

After the ping-pong diplomacy with China around 1969-1970, America rediscovered China. Acupuncture anesthesia and miraculous cures with acupuncture started to be publicized by the popular news media. Acupuncture became an instant celebrity. On July 26, 1971 James Reston reported in *The New York Times*, "Now, About my Operation in Peking" (310). We would like to quote the essential parts of his article here because people still think that his appendectomy was performed under acupuncture anesthesia. It was actually done under conventional chemical anesthetics and only his post-surgical complications were remedied by acupuncture.

"Prof. Wu Wei-jan of the Anti-Imperialist Hospital's surgical staff removed my appendix on July 17 after a normal injection of Xylocain and Benzocain, which anesthetized the middle of my body. ... There were no complications, nausea or vomiting. ... However, I was in considerable discomfort if not pain during the second night after the operation, and Li Chang-yuan, doctor of acupuncture at the hospital, with my approval, inserted three long, thin needles into the outer part of my right elbow and below my knees." "All took about 20 minutes, there was a noticeable relaxation of the pressure and distention within an hour and no recurrence of the problem thereafter." "..... it has been suggested that maybe this whole accidental experience of mine, or at least the acupuncture part of it, was a journalistic trick to learn something about needle anesthesia. This is not only untrue but greatly overrated my gifts of imagination, courage and self-sacrifice. There are many things I will do for a good story, but getting slit open in the night or offering myself as an experimental porcupine is not among them."

Reston timed the onset of his appendicitis to July 12 at the "precise moment, or so it now seems" when he was notified about Henry A.

Kissinger's visit to Beijing from July 9 to July 11, 1971. The late President Nixon visited China in 1972.

In September 1971, four eminent American physicians were invited to visit China. They were Dr. E. Gray Dimond, the then Provost for the Health Sciences at University of Missouri; the late Dr. Samuel Rosen, Professor Emeritus of Otorhinolaryngology at Mount Sinai School of Medicine, New York; the late Dr. Paul Dudley White, the world-renowned cardiologist at Massachusetts General Hospital and Professor of Medicine at Harvard Medical School, and Dr. Victor Sidel, the then Professor of Community Health at Albert Einstein College of Medicine, New York. For the first time after a hiatus of 22 years the western world was given a glimpse of Chinese medical care (62, 63).

These reports created quite a stir among American physicians. However, the American medical profession was not at all prepared to accept the idea that acupuncture actually worked. It was pointed out that none of the four doctors was an anesthesiologist and, therefore, could not truly evaluate the anesthesia (or rather analgesia as we now know it) produced by acupuncture. Some doctors even felt that the four men had been duped. Others thought that Dr. White was too old to understand medicine any more. Many articles and letters of denouncement were published in the *AMA News* at that time. If it had not been for the impeccable professional reputations of those four, their reports might have been disbelieved altogether.

Reston's account of his personal experience fanned the craze further. On June 4, 1972 Harry Schwartz reported in *New York Times*, "Acupuncture: The Needle Pain-Killer Comes to America" (317).

"Nothing in the American discovery of China has excited the popular imagination more than acupuncture anesthesia."

News reporters sought us out for interviews. Scarcely one day went by, when there were no news reports of the wondrous cures with acupuncture. It cured from baldness to paraplegia. By 1972,

"acupuncture clinics" sprung up all over the country. Orientals were imported to give the treatment. Many of them could not speak enough English to communicate with patients and had dubious qualifications. Their employers would list them as doctors in the advertisements. They even ran chartered buses to transport patients from out-of-town and out-of-state areas to their "clinics." The American public flocked to any such place as long as it bore the word acupuncture. Other charlatans took advantage of the public's trust in physicians and set up shops to dispense acupuncture. For example, an alleged high school drop-out claimed that he had several Ph.D.s from well-known universities in this country and a doctorate degree in oriental medicine from a phantom university in the Far East and opened an "acupuncture clinic." A lay oriental medicine group even hired him to teach their acupuncture courses.

The fervent fascination with the occult and the disenchantment with the establishment in the late 1960s and early 1970s provided fertile soil for the dramatic and unwarranted status of acupuncture at that time. That was the epoch of flower children. The traditional Chinese medicine and acupuncture is deeply steeped in medieval philosophico-alchemy. It may be adopted with little difficulty by parapsychology. In the early 1970s, the bookstores in this country used to display acupuncture books on the same shelves with mysticism and other esoteric subjects, rather than in the health and medicine section. When Dr. Felix Mann taught us acupuncture in 1972, we could only buy his books in a little bookstore in Boston. It sold only books and paraphernalia on mysticism and the occult. Of course, this might be attractive to the general public but certainly would not be so to the modern medical world. The situation was so bad that at a medical meeting in 1975, a prominent psychiatrist-hypnotist claimed that, to the lay public any oriental-looking person, unable to speak English but having a needle, was a good acupuncturist. We reminded the good doctor and the audience that when psychology and psychiatry first arrived in this country not that long ago, any person who had a Germanic name,

sported a goatee and spoke with a Deutsche accent must be a good psychologist or psychiatrist. Our friend repeatedly nodded his head and agreed completely. Of course, only people like us who are old enough will remember that kind of situation. This reminds us of the comments by Professor Howard Gardner in his Foreword to the book, *The Exceptional Brain. Neuropsychology of Talent and Special Abilities* (89).

"The topic of this fascinating collection of papers would have raised few eyebrows during the 19th century. During its initial stirrings in the days of phrenology, and during its early history at the time of Paul Broca's epoch-making discoveries, the field of brain-behavior relations comfortably embraced the major issues being examined here. ... Why, then, would this topic have seemed so suspect just a few decades ago? ... Human capacities do not, in most cases, exist and unfold in a vacuum. Rather they evolve within a particular cultural setting to serve certain individual and collective needs, and whether and how they come to be expressed is as much a social and cultural phenomenon as it is an issue of individual neuroanatomy and expression."

Indeed, acupuncture is deeply rooted in Chinese culture. So is the contemporary American medical practice in this country. It is so different from that practiced fifty or sixty years ago. There is also a subtle difference between what is practiced in the western part of this country from that in the eastern part.

On December 6, 1971 Dr. Felix Mann dramatically alleviated the chronic frozen shoulder of one of us (SJL). That astonishing event prompted two of us (MHML and SJL) and the late Frederick Kao, M.D., Ph.D. to found the American Society of Chinese Medicine, Inc. to initiate studies of acupuncture. In February-March 1972, we organized the first tutorial on acupuncture for physicians and dentists in Middlebury, Connecticut. For that session, we invited twelve participants. Dr. Felix Mann was our tutor. He taught us not only acupuncture but also pulse diagnosis. Figure 2.17 shows Dr. Mann signing the certificate of attendance with some participants looking on. Figure 2.18 is a copy of the Certificate of Attendance.



Figure 2.17

美国中医学会

証 明

廖松瑞醫師

於一九七二年二月廿八日
至三月三日在康州中村由
英倫滿福利醫師授課學習
金針療法切脉診斷者檢合
格茲由全班同仁簽字為証

The American Society of Chinese Medicine
certifies that

Sung J. Liao, M.D.

has participated and honorably fulfilled the requirements
of a course in Principles and Practice of Acupuncture
and Pulse Diagnosis given by

Felix Mann, M.D., Ph.D. (Cambridge), F.M.C.C. (McGill)

from February 28, through March 3, 1972 in Middlebury,

Connecticut; in testimony whereof all participants

have affixed their signatures

Luke Ho-Chue
M. B. Day
J. W. C. Fox
Allen D. Lee
Sybil Linn
Alfred ... Day

Felix Mann



William ...
E. ...
Th. ...
Matthew ...
...

Figure 2.18

In July 1972 we organized the second tutorial on acupuncture for physicians and dentists in Southbury, Connecticut. We had Dr. Mann and Dr. Nguyen Van Nghi of Marseilles as tutors. We invited thirty four physicians and dentists to participate. Figure 2.19 shows Dr. Mann with some of the participants. Figure 2.20 shows Dr. Van Nghi with some of the participants.



Figure 2.19



Figure 2.20

This marked the beginning in the recent years of teaching acupuncture to medical and dental professions by renowned physician-acupuncturists. Those who participated in the two courses are now leading experts in this art of healing.

In 1973 a group of physicians and dentists incorporated the New York Society of Acupuncture for Physicians and Dentists. The American Academy of Acupuncture was incorporated in 1974. The American College of Acupuncture, Inc. was granted a charter by the State University of New York as a higher educational academic institution by that august educational system in 1975, essentially through the efforts of Shyh-Jong Yue, M.D., William Greenfield, D.D.S., and the late Saul I. Heller, M.D.. Quarterly conferences on acupuncture and chronic pain have been co-sponsored by these three organizations, together with American Society of Acupuncture, Inc., and New York University Postgraduate Medical School, now mainly under the management of William Greenfield, D.D.S., Peter C. L. Teng, D.D.S., and Alfred T. C. Peng, M.D. In the early 1970s, under the leadership of the late Howard A. Rusk, M.D. one of us (MHML) conducted weekly seminars on acupuncture at the Rusk Institute of Rehabilitation Medicine, New York.

Around 1973, before a suitable electric stimulator for electroacupuncture was available in this country, MHML designed a manipulator of the acupuncture needle as a substitute for manual twirling of it. In 1974, LKYN pioneered experiments with acupuncture treatment for drug addiction of rats in this country. He also started similar studies on humans at the National Institutes of Mental Health and Drug Abuse (251, 262).

Since August 1972, we have been invited to study acupuncture at various traditional Chinese medical colleges on multiple visits to China. In June 1979, SJL was invited to attend the first National Symposia of Acupuncture and Moxibustion and Acupuncture Anesthesia in Beijing by the Chinese Ministry of Public Health. He presented a clinical case report on studies of

thermography and acupuncture. In 1980, under the aegis of the Chinese Ministry of Public Health and Beijing Academy of Traditional Chinese Medicine, the American Academy of Acupuncture, Inc. sent the first official American acupuncture delegation of 11 physicians and dentists to visit the traditional Chinese medical institutions in Beijing, Nanjing, Suzhou, Hanzhou, and Shanghai (200). Figure 2.21 shows the group in Shanghai. On the billboard it wrote "Warmly Welcome American Friends." Figure 2.22 shows MHML signing the certificate of attendance in Shanghai. Figure 2.23 is its Certificate of Attendance.

Dr. Jane F. Lee and her colleagues established the Pacific Institute of Acupuncture in 1974 in San Francisco. Dr. Yoshiaki Omura founded the International College of Acupuncture and Electro-therapeutics in 1979. Under the leadership of William Greenfield, D.D.S., Associate Dean, New York University Dental College, the American Society of Acupuncture was incorporated in 1980. Many other similar organizations were established in this country since then. A review of the excellent activities of the vast number of such organizations in this country is beyond the scope of this book.



Figure 2. 21

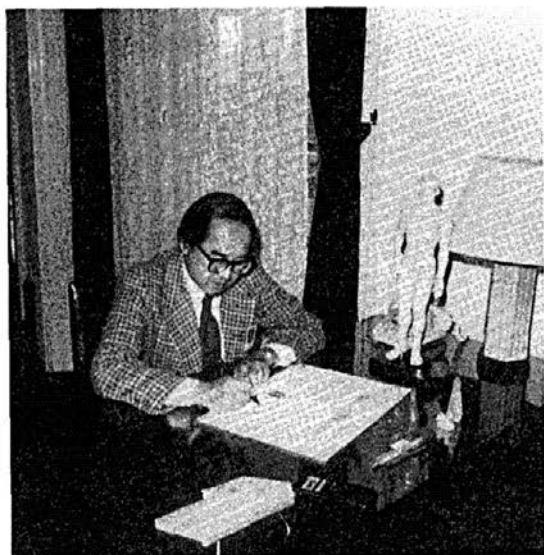


Figure 2.22

证 明 书

THIS IS TO CERTIFY THAT

Sung J. Liao, M.D.

于一九八〇年四月二十日至
五月五日曾参加北京中医研
究院与美国针灸学院合办之
美国针灸考察团立此为证

*Attended the Advanced Acupuncture
Course in China from April 20, 1980
through May 5, 1980 under the sponsorship
of American Academy of Acupuncture, Inc.
and Academy of Traditional Chinese
Medicine, Peking. In witness thereof, the
seal of the Academy and the signatures
of the officers are affixed.*

北京中医研究院

AMERICAN ACADEMY OF ACUPUNCTURE, INC.

院 长
李 德 模
针灸研究所所长
王 雪 岩



Matthew H. Lee, M.D.
President
S. J. Liao, M.D.
Secretary

Figure 2.23

CHAPTER 3

THE TRADITIONAL (PHILOSOPHICO-ALCHEMIC) BASES OF ACUPUNCTURE

Since acupuncture is an integral part of traditional Chinese medicine, a brief description of some of the basic knowledge of traditional Chinese medicine is essential for an understanding of acupuncture.

A. *YIN-YANG* [阴 阳] AND HOMEOSTASIS

1. *Man as Microcosm*

The primary postulate of ancient Chinese philosophical and medical thoughts was the belief that man is a Microcosm or a miniature of the Universe or Macrocosm. As an integral part of the Universe, and at the same time, a summation of it, man is subjected to the same laws of Nature that apply throughout the cosmos. This concept of a relationship between the human organism and the heavenly bodies is not alien to western philosophy, as expounded by Plato, and others. However, none was as highly developed as by the ancient Chinese. The Chinese version is particularly significant in its intricate ramifications because it so profoundly influenced the Chinese culture, the daily life of the Chinese people, and the development of traditional Chinese medicine (186).

The head is the counterpart of the firmament, with the hair associated with stars and the constellations. Human breath is equated with the wind. The internal organs (for example, lungs, heart, kidney, spleen, liver, and others) were related to the natural

elements (metal, fire, water, earth, and wood). Dong Zhongshu [董仲舒] (179-104 B.C.) wrote,

"That man is as such owes his origin to Heaven."

Heaven has four seasons, so man is endowed with four limbs; Heaven has five elements, man with five viscera; Heaven has twelve months, man has twelve large joints; Heaven has 365 days, man has 365 bones. That is, Heaven has created man after its own pattern. Man is, thus, a replica of the Cosmos, or a Microcosm. The laws governing the Cosmos must also regulate man. Of course, the rigid adherence to such concepts in later years hindered the advancement of traditional Chinese medicine.

2. *Yin and Yang* [阴阳]

From the fifth to third centuries B.C., there flourished many *Jia* [家] (the Chinese word for Family or Families, usually translated as Schools in western literature) of philosophical doctrines. Chinese historians called that period the Era of "Hundred Families" (popularly known as "Hundred Schools" to western scholars). Please allow us to explain the usage of the Chinese word Family in this context. Prior to that time, especially during the Zhou Dynasty (1122-255 B.C.) only the feudal lords or the princes (*Jun Zi* [君子]) employed experts of philosophical doctrines and occult arts as their managers and teachers. Their expertise was developed in the family, kept as a family secret, and handed down only to the sons. It became an exclusive family affair. Teaching and managerial jobs, thus, became inherited. Hence, Chinese historians used the word Family. Besides, there were no schools as such in those days. Of course, the little people (*Xiao Min* [小民]) or the masses could not have such privileges. After all, they were just serfs. When the feudal system started to disintegrate during the *Chun Qiu* [or Spring Autumn] Period of the Chinese history (722-480 B.C.), the wealth dispersed from the feudal lords to the masses. The families of hereditary experts lost their positions as government officials and began to render their services to those

Xiao Min who could afford them, particularly during the chaotic period of Warring States (403-221 B.C.). For example, Confucius (551-479 B.C.) was originally a hereditary teacher-expert and a high-ranking official in the State of Lu. He later lost his appointment and had much difficulty obtaining employment by other princes. Financially he was often strapped. He became a peripatetic teacher to a large number of students in many localities so as to make a living. It was quite possible that by doing so his philosophical doctrine became insidiously popular and wide-spread.

Because of the great diversity of the ancient philosophical doctrines and occult arts, Sima Qian [司马迁] (145-86 B.C.) included as the last chapter in his book *Shi Ji* [史记] (the Historical Records) an essay by his father Sima Tan [司马谈] dealing with this situation. It summarized the multitude of philosophical ideas, i.e., the "Hundred Families," into six major ones. Later on, Liu Xin [刘歆] (46 B.C.-23 A.D.) reclassified them and added four more Families. One of these groups was the *Yin-Yang Family*. It originated from the hereditary official astronomers, astrologers, cosmologists, and diviners. Their basic premise was that the Cosmos or the Universe was the Supreme One. It was formed by condensation of *Qi* [气]. Two opposing principal forces, *Yin* and *Yang*, operated within its realm. All the natural phenomena were the results of their interactions. The followers of this Family were, thus, Naturalists or Natural Scientists. Inevitably, they were also diviners since they were inclined to interpret nature with astrology. Later, Taoists embraced this concept and enlarged upon it.

We do not know when it was adopted into traditional Chinese medicine. It is a logical evolution since medicine was practiced by diviners. We have discussed this under the heading of "Medicine and Divination" in Chapter 2. Incidentally, this *Yin-Yang* theory is probably the earliest binary concept.

The theory is that the two opposing forces, *Yin* and *Yang*, within the Cosmos are in equal portions. They are in harmonious

existence, complementing, and supplementing each other. They are not absolute but relative. Similarly, we recognize mathematically that zero approaches but is not equal to the reciprocal of infinity and vice versa. Chinese designated zero as *Yin* and infinity as *Yang*. Gottfried Wilhelm van Leibniz (1646-1716 A.D.), the great German philosopher and mathematician, was said to be inspired by the *Yin-Yang* theory to conceive the binary concept in mathematics and to lead to the eventual development of computers.

Originally this *Yin-Yang* concept existed only in the complicated narrative description. Figure 3.1 is its pictorial representation. This design was originated by Wei Boyang [魏伯阳] of the Later Han Dynasty (25-221 A.D.) as a visual teaching aid. It was said to be finalized by Chen Xiyi [陈希仪], a

renowned Taoist scholar and occultist of Song Dynasty (960-1126 A.D.). The circle represents the Cosmos in perpetual motion and endless circulation. It is divided into two equal tadpole-shaped halves, depicting *Yin* and *Yang* as two opposing forces in equal portions. These two tadpole-shaped halves dove-tail into each other, symbolizing the concept that they are not absolute but relative. There is always some *Yin* in *Yang* and some *Yang* in *Yin*. The tadpole-

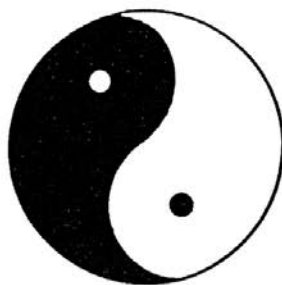


Figure 3.1

shapes of *Yin* and *Yang* also indicate that when *Yin* approaches its maximum, *Yang* its minimum, and vice versa. When a straight line is drawn through the center of this circle, the sum-total of the transacted parts of *Yin* equals to those of *Yang*. At no time, one is greater than the other. That is, they co-exist in equilibrium. They are also in a harmonious co-existence, complementing and supplementing each other. This equilibrium is of great importance in the interpretation of events in the nature and in the humans.

When *Yin* and *Yang* are in balance, the Universe, the nation, and the human being are in harmony. Otherwise, they would be in turmoil. In the case of human beings, sickness is the result. Chinese traditional medicine strives to reverse the imbalance, to preserve that delicate equilibrium, and to achieve normalcy.

In the western world, Claude Bernard (1813-1878 A.D.), the father of modern experimental physiology, first recognized this need to keep a constant internal environment of the body in order to meet the external challenges to survival. To describe this constancy, Walter Bradford Cannon (1871-1945 A.D.), George Higginson Professor of Physiology at Harvard, coined the word, *homeostasis*. (31, 32). The word, *homeostasis*, comes from two Greek words: *homoios* (meaning always the same) and *stasis* (meaning standing still). Cannon's extensive experimentation demonstrated that this homeostasis was regulated mainly by blood chemistry, hormones, and the autonomic nervous system.

All natural phenomena were classified and given their *Yin* and *Yang* opposite characteristics. For example:

*YIN**YANG*

In the Macrocosm

Earth	Heaven
Moon	Sun
Female	Male
Night	Day
Darkness	Brightness
Grand Void	Supreme
Zero	Infinity
Negative	Positive

In the Microcosm

Woman	Man
Ventrum	Dorsum
Abdomen	Back
The Interior	The Exterior
Moisture (Humidity)	Dryness
Blood	<i>Qi</i>
Nourishment	Defensive Factors
Deficiency	Excess
Coldness	Warmth

*Zang:**Fu:*

(Parenchymatous Organs)	(Hollow Organs)
Lung	Large Intestine
Heart	Small Intestine
Spleen	Stomach
Kidney	Urinary bladder
Liver	Gall Bladder
Heart-Envelope	Sanjiao (Triple Warmer)

The body has a front and a back. The ancient Chinese assigned *Yin* to the front and *Yang* to the back. Why, we do not know. Our guess is that it has some connection with the posture of animals. Animals are on their feet with their backs toward the sun. Since the animal's back faces the sun and the sky which are *Yang*, it would be natural to assign *Yang* to the back. Its abdomen faces

the earth which is *Yin*. Thus, the front of our body becomes *Yin*. Figure 3.2 is an attempt to illustrate this suggestion.

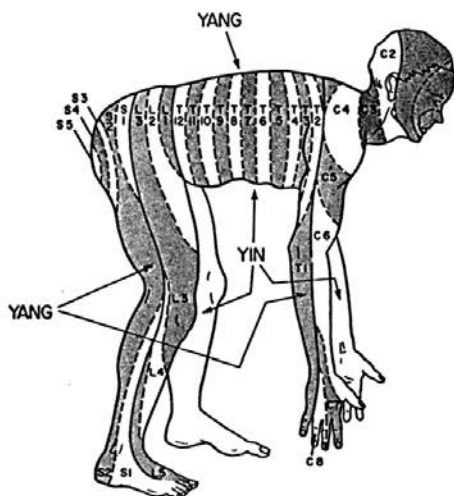


Figure 3.2

This concept of *Yin* and *Yang* seems to lend itself well to scientific interpretation. In semiconductors, some atoms have an extra electron (negatively charged or zero in binary theory, i.e., *Yin*) and others lack an electron, forming "holes" (positively charged or one in binary theory, i.e., *Yang*). Through modern studies of endocrinology we have learned that some female sex hormone exists in the male and some male hormone in the female. In a normal healthy male, most of the female sex hormone in his body is metabolized mainly in the liver. It keeps the male and female factors in balance and the person in the proper male state. When the liver is seriously damaged, as in cirrhosis of liver, the female sex hormone is not properly metabolized in a man. Its accumulation leads to an imbalance of the two sex hormones. Such an excess of the female hormone would stimulate the male breast to develop into the female type, among other abnormal

manifestations. Medically, this condition is called gynecomastia in a man.

Our nervous system works the same way. We have in our body both sympathetic and parasympathetic nerves as two opposing systems. They are concerned with emergency mechanisms, and the repair and preservation of a steady internal environment. This constancy of opposing forces is the normal. An increase in the activities of the sympathetic nervous system, such as when a person is frightened, will induce the pupil to widen, the heart rate to accelerate, the blood pressure to go up, and the bronchioles to dilate. In other word, he/she is ready to fight. If the parasympathetic nervous system has its activities increased, results would be essentially the opposite.

We can also visualize the *Yin-Yang* principle with the negative and positive ions of electrolytes and other chemicals in our blood. When either one of them becomes excessive or deficient, we get sick. Muscle cramps may result from a deficiency of calcium, and anemia from not enough iron. Gout is related to an excess of uric acid; and diabetes to a deficiency of insulin. When the internal environment of our body goes out of balance, our normal physiology is disturbed. This is what traditional Chinese medicine always appreciated philosophically and what our western medicine has come to understand scientifically. This is what our modern medicine is practicing every day.

B. FIVE XING [五行] (or FIVE ELEMENTS)

Five *Xing* is an important concept of Chinese philosophy as well as the philosophico-alchemic basis of traditional Chinese medicine. The word *Xing* has been popularly translated as "Element" in the western literature, probably first by the Jesuit missionaries to China in the 17th century. It does not really convey the original intent and usage of that Chinese word, though the names of five basic materials are used to designate the purpose.

Some Chinese classics scholars raised the doubt about whether *Xing* were really meant to be the basic materials when they were originally used in the antiquity. Recently we tried to bring this to western scholars' attention (198). It must not be misconstrued as an attempt to debunk the concept of Five *Xing*.

Xing literally means to walk, to perform, to act, to move, and the like. It implies movement, activity, and power to indicate the Macrocosm and Microcosm in perpetual motion. The word Element indicates a lifeless static state. It is, thus, contrary to the original objective of a dynamic state, as well as the transmutations of the powers as abstractly represented by these basic materials.

There is plenty of evidence to indicate a lack of commitment to its use by the ancient Chinese to mean basic substance or lifeless materials. In several places in *Neijing Suwen* (Book of Common Questions), *Xing* was used as Xing Xin [行星] (Moving Stars, and known as Planets in the western world) in relation to the development of sickness. For example, detailed relationships between the five Planets and human diseases were described in its Chapter 4, "A Comprehensive Discussion of the Virtuous Works in the Gold Chest;" in its Chapter 67, "A Comprehensive Discussion of the Movements of the Five *Xing* (Moving Stars);" and in its Chapter 69, "A Comprehensive Discussion of Changes of the Weather." At no time, is there any clear indication for them to mean natural substances in relation to diseases. In other books of that time period, such as in the chapter on Calendars in *Historic Records* by Sima Qian (145-86 B.C.), it stated,

"Yellow Emperor studied the status and the changes of the stars, and established the five *Xing* (i.e., the Moving Stars)."

In the chapter on Arts and Literature in the *Book of Late Han Dynasty* by Ban Gu [班固] (32-92 A.D.), he declared, "Harmony or discord of the Five *Xing* depends on the changes of the Five Stars." The orbiting movements of the five Moving Stars (the Planets) during a period of 70 years were depicted in a silk scroll, excavated from a Han tomb (burial date is 168 B.C.). This is the

earliest such record in existence. It indicates that at least up to that time, Five *Xing* still meant the five Moving Stars. All these help to support the suspicion that traditional medical usage of the Five *Xing* took its origin from the Five Moving Stars (the Planets) and not from the lifeless Elements (198).

In order to understand the situation, we will have to review briefly the early development of Chinese culture. China has basically and historically been an agriculture society. It is essential for the people to be able to correlate the planting and harvesting with the changes of the seasons and the weather. Observation of the heavenly events became a part of divination, and was developed later into astrology. The earliest known Chinese record of the stars was carved on the oracle bones in the 14th century B.C. The ancients observed that there were five orbiting, color stars. The rest of the stars remained stationary. These stationary ones were grouped into 28 "Constellations." The Constellations were used as a reference to determine the position of the Moving Stars. The latter in turn were used in astronomy and astrology. The earliest known chart of these constellations was a picture painted on the cover of a lacquer chest in a tomb (burial date: 433 B.C.). The Chinese called and still call these orbiting ones *Xing Xin* [行星] (Moving Stars), possibly since as early as the 20th century B.C. The Chinese named the five as the Star of Metal (i.e., Venus), the Star of Wood (i.e., Jupiter), the Star of Water (i.e., Mercury), the Star of Fire (i.e., Mars), and the Star of Earth (i.e., Saturn). They were awed by such celestial events like any other primitive people. They gradually elaborated the concept so extensively that it became a part of the Chinese life and culture. Even the ancient dynasties were associated with these Moving Stars, because the emperor was the Son of Heaven. There lies the root of the concept of Five *Xing* and the *Yin-Yang Jia* (or *Yin-Yang School*) [阴阳家] in the official astrologers and astronomers (198).

In ancient times, *Fang Shi* [方士] (the occultists) practiced the Five *Xing* as one of the six occult arts, according to Liu Xin's [刘歆] (46 B.C.-23 A.D.) *Qi Lue* [七略] (Seven Synopses). Probably Zou Yan [驸衍] (350-270 B.C.) formally organized this concept into a distinctive line of philosophical thought from occult arts that had been in existence possibly for about one hundred years before him. It was detailed in the Section, *Hong Fan* [洪範] (the Majestic Principles or the Grand Plan), of *Zhou Shu* [周书] (the Book of Zhou Dynasty, published between the fourth and third century B.C.). It was a discourse of the general laws of the Nature by Qi Zi [岐子] to Emperor Wu. A list of "Nine Categories" was noted. Five *Xing* is the first of these Nine. It listed the Five *Xing* as (the Stars of) Water, Fire, Wood, Metal, and Earth. Their relationships with human and social behavior, the conduct of the sovereign, and the seasons, etc. were also presented. By that time, the idea of the Moving Stars started to take on some abstractive meaning and influence. However, such abstractive concepts were still in their crude forms at that time.

After the Beginning Emperor of Qin [秦始皇] unified China in 221 B.C., he banned all the schools of philosophical doctrines except the Legalist's. According to Sima Qian (145-86 B.C.), the Emperor adapted Zou Yan's Five *Xing* concept as one of the basic codes of his administration. Thus, the Five *Xing* (Moving Stars) with an imperial patronage took on much expanded abstractive views, such as Five Etiquette, Five Powers, Five Colors, Five Movements, and the like, to form the general basis of all natural forces and technologic events, including medicine. It was only natural to be absorbed into the Naturalist School (*Yin-Yang Jia* [阴阳家]), as Sima Qian (145-86 B.C.) discussed it in his book *Shi Ji* (the Historic Records).

Zou Yan [驸衍], the systematizer of the Five *Xing* concept, also discussed minerals and plants. He designed some techniques for prolonging life. There were indications that he and some members of the *Yin-Yang Jia* (the Naturalist School) initiated a

rudimentary knowledge of alchemy, according to *Shi Ji* (the Historic Records). Apparently, Zou Yan was one of the most important members in the augmentation of the *Yin-Yang Jia*.

Each *Xing* or Moving Star has a distinctive color. The Star of Metal (Venus) is white. The Star of Wood (Jupiter) is blue-green. The Star of Water (Mercury) is black. The Star of Fire (Mars) is red. The Star of Earth (Saturn) is yellow. Thus, traditional Chinese medicine include the Five Colors in the interpretations of diseases.

The actual Moving Stars, the natural materials or elements eventually became mere representatives of abstractive powers in the Macrocosm and the Microcosm. The significance of the Moving Stars or Planets per se becomes practically forgotten, especially in the practice of the traditional medicine. This may be attributable in part to the habit of abbreviating the writing on the heavy bamboo or wood strips and on the expensive silk. Thus, they tried to use a small number of characters to represent a complex idea or a long expression. They could have used only the first character, *Xing*, to represent the two-character term, *Xing Xin*. When years went by, the original meaning becomes totally obscure. This was commented on by Veith (355),

"The classical Chinese scholar, however, took pride in expressing highly complicated sentences with as a few characters as possible. In such cases, as in the *Nei Ching*, even the smallest grammatical aids are lacking and the translator or even the Chinese reader is frequently confronted by Pythian oracles."

Even today, the Chinese still employ the similar tactic of abbreviation. For example, they use the expression of "Six Big" for "the Sixth Planetary Session of the People's Political Consultative Conference." Those who have no knowledge of current affairs in China could never guess the real meaning of the term, "Six Big." It is also conceivable that the Taoist scholars took advantage of it in order to adapt the five natural elements for the development of alchemy as a means of prolonging life to eternity.

According to the Five *Xing* concept, each of the four seasons has the characteristics of one of the five *Xings*. Thus, spring was characterized by Wood, summer by Fire, little summer (equivalent to our Indian summer) by Earth, fall by Metal, and winter by Water. When it was applied to medicine, it formed the following pattern:

Wood	represents	liver, and gall bladder
Fire	represents	heart, small intestine, pericardium, and <i>Sanjiao</i> (triple warmer)
Earth	represents	spleen, and stomach
Metal	represents	lung, and large intestine
Water	represents	kidney, and urinary bladder

The rudimentary ideas of the Five *Xing* influencing one another probably started before the eleventh century B.C. In *Zuo's History* [左传] for the 32nd year of the reign of Emperor Zhou Zhaogong (i.e., 1021 B.C.), it stated, "Fire overcomes Metal." In another passage, it stated, "Water overcomes Fire." In traditional Chinese medicine, the five *Xing* operate in three circular types of binary fashions:

1. *Xiang Sheng* [相生] - Generating the other:

- Wood ⇒ Fire
- Fire ⇒ Earth
- Earth ⇒ Metal
- Metal ⇒ Water
- Water ⇒ Wood

2. *Xiang Ke* [相 克] - Subduing or counteracting the other:

Wood ⇒ Earth

Earth ⇒ Water

Water ⇒ Fire

Fire ⇒ Metal

Metal ⇒ Wood

3. *Xiang Wu* [相 侮] - Insulting or damaging the other:

Wood ⇒ Metal

Metal ⇒ Fire

Fire ⇒ Water

Water ⇒ Earth

Earth ⇒ Wood

For instance, when the spleen was affected in a disease of the lung, it was the result of subduing the Earth (representing the spleen) by Wood (representing the lung). Similarly, when the lung was affected in the disease of liver, the lung (Metal) was insulted by liver (Wood). By permutations and combinations, the system covered an enormous field. A detailed discussion of their interactions is beyond the scope of this book.

This alchemic concept of Five *Xing* was developed mainly by the Taoist scholar-physicians. It was quite advanced for its day. Unfortunately, it is hard to be integrated or developed in terms of the modern anatomy and physiology. Nevertheless, historically, when occultism sheds its mystique and concentrates on the factual analysis of natural phenomena it becomes science.

C. *QI* [气] AND CIRCULATION

Qi means air, gas, or pneuma. It is usually translated as energy in the western literature. Of course, the ancients did not know

what energy was. To ancient Chinese philosophers, it is the primordial matter. All substances with shape and form, such as mountains, rivers, sun, and moon are formed through the condensation of *Qi*. Wang Chong [王冲] (27-79 A.D.) claimed that "Heaven and Earth contain *Qi*." and suggested that all things and man are made of *Qi*. To traditional Chinese medicine, it is the spirit of life. In a way, it may also be comparable to ether in the physics concept of an imaginary substance for the transmission of light and electromagnetic radiation.

Qi is produced by the *Zang* and *Fu* (the internal organs), that convert it into blood. (We must note here, blood to the traditional Chinese medicine is different than blood as we know it now.) As it circulates throughout the body, *Qi* nourishes the body. It depends on the absorption of food and the inhalation of air. *Qi* is omnipotent. There are three varieties of *Qi*:

1. *Ying Qi* [营气] (Nourishment *Qi*): It circulates inside of the *Jing-Luo* System to nourish the body. It originates in the *Zhong-Jiao* (the Middle Warmer). It is comparable to present-day blood.

2. *Wei Qi* [卫气] (Defense *Qi*): It circulates outside the *Jing-Luo* System. It is produced in the *Zhong-Jiao*. It maintains an even body temperature, keeps the skin in good condition, and protects the body against evil spirits and evil wind. It is comparable to the present-day immune and other defense systems.

3. *Jing Qi* [经气]: It is the essence of the *Jing-Luo* System itself. It is the primordial matter endowed by the Heavens. It complements and supplements *Ying Qi* and *Wei Qi*. It is its conductive and transmissive medium, concerned with the effectiveness of acupuncture. It flows from the tips of the fingers and toes towards *Zang* and *Fu*. It is comparable to our nervous system.

Qi circulates from the tips of the fingers, along the back of the hand and the arm to the head; from there along the back of the

body to the outer side of the leg and foot to the tips of the toes; then, upwards along the inner side of the foot and leg to the abdomen and chest; from there to the front of the arm and the palm; and finally back to the tips of the fingers. The entire process is repeated fifty times a day: twenty-five times each during the day and the night. Why fifty times a day is not clear, but it has not been questioned for several thousand years.

Figure 3.3 illustrates the general concept of circulation of Qi along the various meridians. It is adapted from a diagram in Professor Wang Xietai's excellent *Handbook of Acupuncture and Moxibustion*, with the English translation added by us.

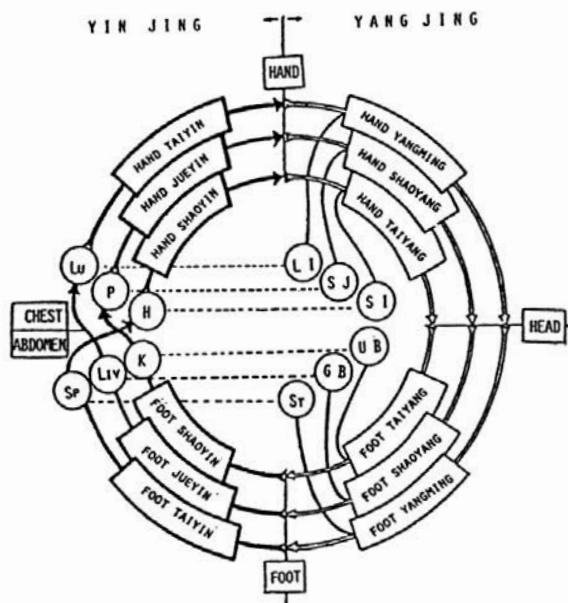


Figure 3.3

When *Qi* (and blood) circulates along the *Jing-Luo* System, it arrives punctually at each point of the body, like the tide of the ocean. If it does not, sickness would result. This concept may not

seem so strange and arbitrary when we consider the physiologic effect of jet travel. Any sort of time lag does indeed disturb our biologic clock. We are still far from understanding jet-lag.

Guan Zi [管子] in the late fourth century B.C., compared the circulation of *Qi* and blood in the *Jing-Luo* system to that of water on the earth. He regarded water as the *Qi* and blood of the earth. This analogy has been accepted by Chinese scholars ever since. *Neijing* describes the heart like a pump or a bellows as the generator of the circulation and the lungs as a part of the regenerator of *Qi* and blood. It is interesting to note that Matteo Ricci had a Chinese scholar, Ruan Taiyuan [阮泰元] write a preface to his *World Map* (published in 1603). In it, Ruan compared the circulation of *Qi* and blood in human body with that of air and water. That reference to circulation was dated 25 years before William Harvey published his *De Motu Cordis* in 1628.

D. THE *JING-LUO* [经络] SYSTEM (i. e., THE MERIDIANS)

We do not know who originated the concept of *Mai* [脉], and *Jing* (i.e., Meridian). The earliest medical text found so far is from a marchioness' tomb at Mawangdui, Changsha, Hunan Province in south central China. The burial date is 168 B.C. That collection is also the largest archaeological find of medical literature (388). It consists of eleven medical treatises written on silk scrolls, and four on strips of bamboo and wood. Three of the silk scroll texts are concerned with *Mai* (Meridians). The title of one of the three is "*the Classic of Moxibustion with Eleven Foot and Arm Mai*" [足臂十一脉灸经]. The other two have the same title and similar contents, entitled "*the Classic of Moxibustion with Eleven Yin Yang Mai*" [阴阳十一脉灸经]. Judging from the style of the script and their contents, the "*Foot and Arm Mai*" text was most probably composed before 210 B.C. while the "*Yin-Yang Mai*" text some time later.

In the "*Foot and Arm Mai*" text, the word Foot is actually meant to be the lower limb and the word Arm, the upper limb. There are eleven *Mai* (Meridians) listed. Six are Foot *Mai*, viz., *Foot Tai Yang*, *Foot Shao Yang*, *Foot Yang Ming*, *Foot Shao Yin*, *Foot Tai Yin*, and *Foot Jue Yin*. There are only five Arm *Mai*, viz., *Arm Tai Yang*, *Arm Shao Yang*, *Arm Yang Ming*, *Arm Shao Yin*, and *Arm Tai Yin*. There is no explanation for the discrepancy of the number of *Mai* between the foot and the arm groups. When compared with the six Foot *Mai*, the missing one in the Arm is the *Arm Jue Yin*. It is equivalent to the Pericardium Meridian of *Hand Jue Yin* in *Huangdi Neijing*. The location and direction of the course of each *Mai* from one acupoint to the next are clearly delineated. They are organized basically from the periphery toward the center of the body. The acupoints are rather vaguely located along the *Mai*. None of them has any name. The symptoms of 78 disease conditions are described in relation to the *Mai*. Their treatments are characterized. The therapeutics are entirely moxibustion. Acupuncture or rather stone-puncture is not mentioned at all. The theoretic bases of the therapeutics are not discussed.

In the two "*Yin Yang Mai*" texts, again eleven *Mai* (Meridians) are listed. They are classified according to *Yin* and *Yang*. The six *Yang Mai* are listed before the five *Yin Mai*. The *Yang Mai* are *Ju Yang*, *Shao Yang*, *Yang Ming*, *Shoulder*, *Ear*, and *Tooth*. Here the *Shoulder Mai* is the same as the *Arm Tai Yang*, the *Ear Mai* as the *Arm Shao Yang*, and the *Tooth Mai* as the *Arm Yang Ming*. The five *Yin Mai* are *Tai Yin*, *Jue Yin*, *Shao Yin*, *Arm Jue Yin*, and *Arm Shao Yin*. The location and the direction of the course of each *Mai* are described in detail but the acupoints are vaguely located. The acupoints are not named. The courses of some of the *Mai* in this text traverse to the periphery of the body, instead of all going from the periphery toward the center of the body as described in the afore-mentioned "*Foot and Arm Mai*" text. For example, the *Shoulder Mai* originates at the back of the ear and ends at the dorsum of the hand. The *Shao Yin Mai* originates at the

abdomen and ends below the medial malleolus of the foot. The number of disease conditions is increased to 147. These two "books" are also concerned only with moxibustion. In them, acupuncture or rather stone-puncture is again not dealt with at all. No theoretic discussions of the *Mai* and their clinical applications are offered either. Otherwise, their contents are more detailed and the descriptions are better than those of the "*Foot and Arm Mai*" text. This indicates that the "*Yin Yang Mai*" texts must be dated later than the "*Foot and Arm Mai*" text. As compared with *Huangdi Neijing*, these three "Classics" are rather primitive. (Please see Chapter 2 regarding *Huangdi Neijing*.)

From these three treatises, there is the distinct probability that the Meridians were classified and named long before Acupoints were. Moxibustion seemed to be preferred to stone-puncture in those days.

The next archaeological find of medical "books" is from a tomb that is possibly of a respected citizen and physician in Wuwei, Gansu Province in north China. They are dated to 25-100 A.D. They were all written on strips of wood. Only seven strips have parts of materials concerning acupuncture and moxibustion. The title of the book is missing. It contains a detailed prescription of acupuncture for treating "abdominal distention syndrome." Three acupoints are mentioned. Two of these three (*Sanli* and *Feishu*) are still in common usage nowadays. The third one (*Quanshui*) has not been seen in other texts. Warnings of death from injuries to particular internal organs by acupuncture at a particular decade of life from one year to one hundred years of age are listed in detail. No meridians are described. No discussion of the theoretical aspects of acupuncture is found in this wood-strip text either.

Huangfu Mi [皇甫謐] (215-282 A.D.) was probably the first one who collated the then existing information and added his personal clinical experience. He systematized the acupoints and the twelve meridians. He, thus, laid the foundation of the *Jing-Luo* System as we know it today. His book, *Zhenjiu Jiayi Jing* [針灸]

甲乙经] became the basis of acupuncture and moxibustion since his time. (It is difficult to translate the title of this book into English literally and meaningfully. Judging from its contents, it may be called "A Comprehensive Manual of Acupuncture and Moxibustion.") In his early forties he started to have a severely painful condition with lameness. It was diagnosed as "Wind Bi (Pain and Lameness) Syndrome." It was probably arthritis or rheumatism. His mother also had a "paralytic condition." Hence, as a pious son, he diligently studied the available medical literature, particularly acupuncture, so as to take better care of his mother. From his personal clinical experience, he revised and enlarged on the philosophico-alchemic theories of acupuncture.

Zhen Quan [甄权] (541-643 A.D.) published *Ming Tang Tu* [明堂图] (An Atlas of Acupuncture) in 610 A.D. For easy recognition, he was the first to apply different colors to distinguish the major *Jings*, and selected green to indicate the extra *Jings*. This was the beginning of using visual aids in teaching acupuncture.

Jings are the major lines along the long axis of the body and *Luos* are the connecting (usually horizontal) lines between *Jings*. There are twelve major *Jings*. The word *Jing* used in acupuncture is the same word used by the Chinese for the vertical lines or the longitudes on the globe in geography. Thus, western scholars translated this word as Meridian. There is no western translation of the word *Luo*. In Chinese, it means connecting or communicating. It branches out from a *Jing*. It serves as a connection between *Jings*. There are fifteen *Luos*.

As a part of their concept that man and nature are cut out of the same pattern, Chinese devised twelve *Jings* to tally with the twelve months of the year. Six of the twelve *Jings* are given *Yin* characteristics while the other six *Yang* characteristics. Three of the *Yin Jings* are assigned to the front of the arm and the other three to the inner side of the leg. Six of the *Yang Jings* are similarly situated on the back of the arm and the outer side of the leg. Two more *Jings* were added by Hua Shou [滑寿] in 1341

A.D. to the twelve original *Jings*. One follows the mid-line in the front of the body and the other on the back. Figure 3.4 is a copy of an illustration from *Zhenjiu Dacheng* [针灸大成] Volume 7 (published in 1601 A.D.). The figure on the left shows the meridians on the back of the body. The one on the right shows meridians on the front of the body.

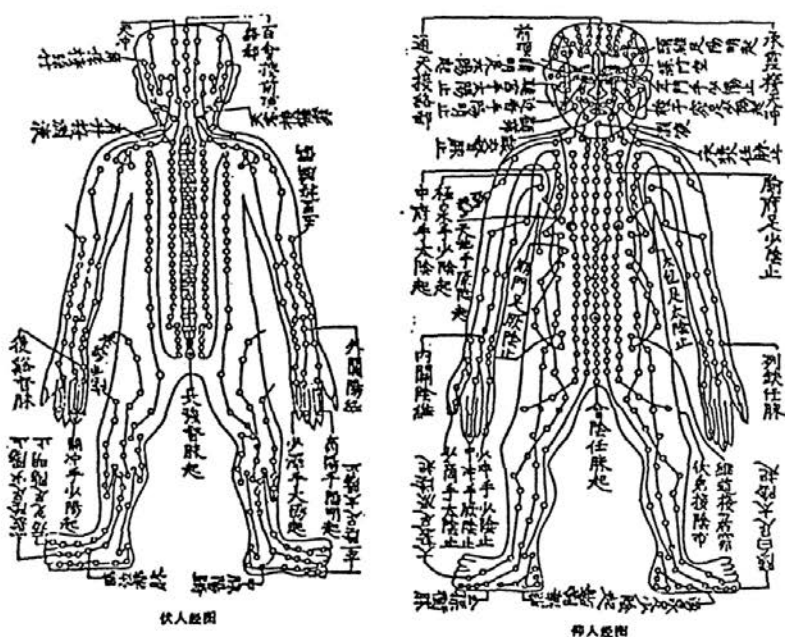


Figure 3.4

The twelve original *Jings* are paired. They traverse limbs: six on each lower limb and six on each upper limb. They were elaborated in *Neijing Lingshu*, of which the popular edition was collated, edited, and annotated by Shi Song [石嵩] in 1155 A.D. In its Chapter 13 of "On the *Jings*," they are listed as Foot *Yang* and *Yin Jings*, and Hand *Yang* and *Yin Jings* with no visceral designations. Their courses are described as follows:

1. The *Foot Tai Yang Jing* (the Urinary Bladder Meridian).

It originates at the little toe of the foot, traverses upwards to the lateral malleolus of the foot, the popliteal fossa, the gluteal region, the paravertebral region, the nape, the occiput, the vertex, the face, and ends at the side of the nose. Along its course, it gives out branches to the adjacent areas.

This above-described course is just the opposite of that in current use. It follows that described in Yang Jizhou's *Zhenjiu Da-cheng* (Comprehensive Acupuncture and Moxibustion, published in 1601 A.D.). It starts from the inner canthus of the eye and ends at the outer side of the little toe. At the present time, there are 67 acupoints along this *Jing*.

2. The *Foot Shao Yang Jing* (the Gall Bladder Meridian).

It originates at the fourth toe, traverses to the lateral malleolus, lateral to the tibia, the lateral aspect of the knee, the lateral aspect of the thigh, the hip, the anterior aspect of pelvis, the flank, the top of the shoulder, along the posterior aspect of the ear to the lateral frontal area, and ends at the outer side of the eye.

The above course is opposite to the one currently in use. The current course starts at the lateral canthus of the eye and ends at the outer side of the fourth toe. There are now 44 acupoints along this *Jing*.

3. The *Foot Yang Ming Jing* (the Stomach Meridian).

It originates between the second and the third toes, traverses to the dorsum of the foot, upwards along the leg, to the outer side of the knee-cap, straight up the thigh to the inguinal region, connecting with genitalia, upwards to the abdomen and chest, to the supraclavicular fossa, upwards on the neck, to the face lateral to the mouth, to the maxillary region, and ends in the front of the ear.

This course is opposite to that in current use. The current course starts below the eye and in the front of the ear. It ends at

the lateral aspect of the second toe. There are now 45 Acupoints along this *Jing*.

4. The *Foot Tai Yin Jing* (the Spleen Meridian)

It starts on the outer side of the big toe, traverses to the medial malleolus, medial to the knee-cap, upwards along the inner side of the thigh, to the inguinal region near the genitalia, to the abdomen near the umbilicus, to the chest, and ends at the axillary region. The above course is the same as that in current use. There are now 21 acupoints along this *Jing*.

5. The *Foot Shao Yin Jing* (the Kidney Meridian)

It starts below the little toe, traverses obliquely to below the medial malleolus near the heel, then upwards to behind the knee-cap, along the medio-posterior aspect of the thigh, enters the body near the genitalia, travels upwards parallel to the spine, to the nape, and ends at the occiput. It is more or less the same as in the current use. There are now 27 acupoints along this *Jing*.

6. The *Foot Jue Yin Jing* (the Liver Meridian)

It starts at the big toe, traverses upwards anterior to the medial malleolus, medial to the knee-cap, along the inner aspect of the thigh, to the genitalia area, and connects with other *Jings*. The current course of this Meridian is quite the same, except it is extended to the lower middle abdomen, to the lateral abdomen, and ends at the costal margin. There are now 14 acupoints along this *Jing*.

7. The *Hand Jing Tai Yang* (the Small Intestine Meridian)

It starts at the little finger of the hand, traverses to the wrist, upwards along the inner aspect of the forearm, to the back of the sharp bone of the elbow (tapping that area will cause tingling sensation of the little finger), to the axillar region, branching to the back of the axilla, turning around to the upper part of the shoulder blade, along the neck, to the bone behind the ear, branching to the inside of the ear, and also branching straight up to the mandible,

and ends at the outer canthus of the eye. This is quite similar to the current course of this Meridian. There are now 19 acupoints along this *Jing*.

8. The *Hand Shao Yang Jing* (the *San Jiao* or Triple Warmer Meridian)

It starts at the end of the finger next to the little finger (i.e., the ring finger), traverses to the middle of the back of the forearm, to the elbow, along the posterolateral aspect of the arm, to the top of the shoulder, to the neck, and joins the *Hand Tai Yang*. One branch goes to the angle of the jaw, penetrating deeply to the root of the tongue. Another branch goes to the side-burns, in the front of the ear, to the outer canthus of the eye, and ends at the corner of the forehead. This is quite similar to the current course of this Meridian. There are now 23 acupoints along this *Jing*.

9. The *Hand Yang Ming Jing* (the Large Intestine Meridian)

It starts at the end of the finger next to the thumb, traverses to the wrist, upwards to the forearm, to the outer side of the elbow, to the tip of the shoulder, to the neck, to the cheek, and ends on the opposite cheek. This is quite similar to the current course of this Meridian. There are now 20 acupoints along this *Jing*.

10. The *Hand Tai Yin Jing* (the Lung Meridian)

It starts at the thumb, traverses to the thenar eminence, upwards along the forearm, to the middle of the elbow, the inner aspect of the arm, into the axilla, out at the supraclavicular fossa, and ends at the front of the shoulder. This is just the reverse of the current course of this Meridian. There are now 11 acupoints along this *Jing*.

11. The *Hand Xin Zhu Jing* (the Pericardium Meridian)

It starts at the middle finger, traverses to the inner aspect of the elbow, upwards along the front of the arm, to the axilla, and turning downwards, ends at the front of the axilla. This is just the

reverse of the current course of this Meridian. There are now 9 acupoints along this *Jing*.

12. The *Hand Shao Yin Jing* (the Heart Meridian)

It starts at inner aspect of the little finger, traverses to the inner aspect of the elbow, and ends in the axilla. This is just the reverse of the current course of this Meridian. There are now 9 acupoints along this *Jing*.

In a previous section of this book, we commented that at the beginning, the acupoints were not specifically localized and had no names. At the end of each of the above-described *Jing*, it simply stated, "Let the tender loci be the acupoints." Probably it was not until the second and the third century A.D. that the acupoints were named by different authors. Thus, for some time the same acupoint might have several different names. Wang Weiyi's bronze acupuncture statue (casted by the decree of Emperor Renzong of Song Dynasty in 1026 A.D.) was a major effort to standardize the teaching and practice of acupuncture and moxibustion. (Please see Figure 2.10 in Chapter 2 of this book.)

The *Jing-Luo* System brought order to the scattered acupoints. It was indeed quite advanced for its time. Such a predilection for categorizing or classifying things systematically is evidenced as early as around the second century B.C., for example, by Sima Qian's [司 马 迁] *Shi Ji* [史 记] (the Historic Records). An analogous scientific methodology to classify Nature's events may be found in the botanical and animal nomenclature. Carolus Linnaeus (1707-1778), the great Swedish physician, hygienist, inventor of therapeutic exercises, and the curator of Queen Lovisa Ulrica's collection of naturalia, was the first westerner to devise such a system.

While the *Jings* and *Luos* do not have any real anatomical basis, a few do appear to have some anatomical and clinical meaning. For example, a part of the Urinary Bladder *Jing* traverses along the back of the lower limb, corresponding more or less to the

course of a part of the sciatic nerve. The Heart *Jing* seems to trace the course of anginal pain from the chest along the inner side of the upper limb to the little finger of the hand.

Since most sicknesses involve the internal organs, it is only natural for *Jings* to be connected with them. Hence, each *Jing* is named after a viscus, such as the Stomach *Jing*. Each *Jing* is supposed to be related to a pulse, which in turn represents the status of a viscus.

In 1963, Kim Bong Han of Korea reported histologic findings of the *Kyungrak* (*Ching-Lo*) System (152). He demonstrated special corpuscles at acupoints and fine ducts as meridians. However, these findings were shown by others to be artifacts.

In 1976 Becker and his associates (13) demonstrated "an overall proximo-distal negative gradient (of electric potential) along (Li and P) meridian lines." "In addition, there appears to be a dorsi-ventral negative gradient on the extremities (14). (For further discussion, please see the section on the biophysical phenomena in Chapter 4.)

In 1983, Nordenstrom (264) proposed a "biologically closed electric circuit" (BCEC) system to explain some heretofore unexplained biologic phenomena. He attempted to explain acupuncture on the basis of the BCEC. He regarded the blood vessels as conducting cables of bioelectricity. It makes use of the contents of the blood vessels and the interstitial fluids as its transmitting agents. His findings are fascinating. He contended that the Meridians in traditional Chinese medicine were the subcutaneous preferential pathways for ionic current flow in his vascular-interstitial closed circuits (265, 266). (For further discussion, please see the section on the biophysical phenomena in Chapter 4.) Judging from our thermographic studies (167, 201), there seems to be a definite involvement of vascular activities in acupuncture. (Please see the discussion on thermography in Chapter 7.) Since the vascular activities are intimately related to

the autonomic nervous system, the *Jing-Luo* System in our particular situation might at least in part invoke the autonomic nervous system, Becker's bioelectric potentials, and Nordenstrom's vascular-interstitial closed circuits.

E. ZIWU LIUZHU [子午流注] (MIDNIGHT-NOON EBB-FLOW SYSTEM, OR CHRONOBIOLOGY)

In Section B of this chapter, we commented on the observations in *Neijing Suwen* regarding the relationship of the seasons, the movements of the five *xings* (i.e., planets) and the prevalence of diseases. In Chapter 64 of *Suwen*, "On Puncture for Diseases due to Changes of the Four Seasons," it noted, "the spring *qi* is in the meridians (*Jing Mai* [经脉]), the summer *qi* is in the collaterals (*Sun Luo* [孙络]), the long summer *qi* in the muscles, the fall *qi* in the skin, and the winter *qi* in the bone and marrow." Similar discussions of the influence of seasonal and environmental changes on health and disease permeated *Suwen*, such as in its Chapters 66, 69, 71, and 74. Incidentally, these chapters were suspected by the ancient historians to have been added by Wang Bing in his 762 A.D. edition of *Suwen* or by others much later. Such discourses were not included in the well-known medical works in the seventh century A.D. The origin of this seasonality concept is not known. It appeared in the medical literature in the tenth to twelfth century A.D. By the thirteenth century it was the prevailing system of therapeutic usage of acupuncture and medicinal herbs. A complicated system of computations was formulated by Dou Hanqing [窦汉卿] around 1240 A.D. A manual of acupuncture was published in 1447 A.D. It formulated a very complex system of calculations utilizing the hour, the day, the month, and the season to determine whether a patient had an "excess" disease or a "deficiency" disease, etc. Acupuncture treatment was administered accordingly. The hour, the day, the month and the year were also assigned numerical values together with *Ba Gua* [八卦] or the trigrams of *Yi Jing* [易经] (or *I Ching*, the Book of

Changes as known in western literature). Figure 3.5 on the next page shows the acupoints specially designated with signs of the trigrams of *Yi Jing*. It was probably the first attempt to quantify medicine in our history.

Since *Qi* flows along the *Jings*, traditional Chinese medicine believes it would be more abundant when arriving at a particular acupoint than when departing. During Jin [金] and Yuan [元] Dynasties (1115-1368 A.D.), Taoist-physicians compared this phenomenon to the ebb and flow of the tide.

At midnight, *Yin* is supposed to be at its maximum and *Yang* at its minimum. At noon, the situation is reversed. In the female, *Yin* is considered at its strongest and *Yang* at its weakest. The reverse is said to exist in the male. By combining the two manifestations of this concept, mother-son, husband-wife, brother-sister, and host-guest relationships of acupoints were formulated and integrated into the Midnight-Noon Ebb-Flow System.

Unfortunately, the emphasis was more on the mechanical pursuit than on the clinical observation of the patient's illness. It dominated the practice of acupuncture for about three hundred years. It evolved into a complicated and rigid system. It became quite difficult to learn by the ordinary mortals and was eventually limited more or less to the pursuit of the Taoist "scholar-physicians" and immortals. Besides, it left the patient-as-a-person out of the computations. Nowadays, few modern Chinese textbooks of acupuncture even attempt to explained it in understandable terms. The desire to systematizing medicine by the ancient scholars more than 700 years ago is very laudable indeed. However, it just could not meet the needs in everyday patient-care. No one knows why the ancient Chinese decided to quantify their medicine, but the desire to apply numbers to data appeared to have been as strong then as it is now. Undoubtedly, they felt that by systematizing their knowledge of medical phenomena into *Yin* and *Yang*, *Jings* and *Luos*, points and numbers, the seasonality and the environment, they could provide better therapeutic techniques and

theories. To that end, they built a philosophical and proto-scientific, but surprisingly intuitive system to explain the human body, and, beyond that, the relationships between natural (Heavens) and human events. It was indeed high technology of its day. Unfortunately, the ancient Chinese, in doing so, made the method too complex and complicated to be mastered readily. Undoubtedly,

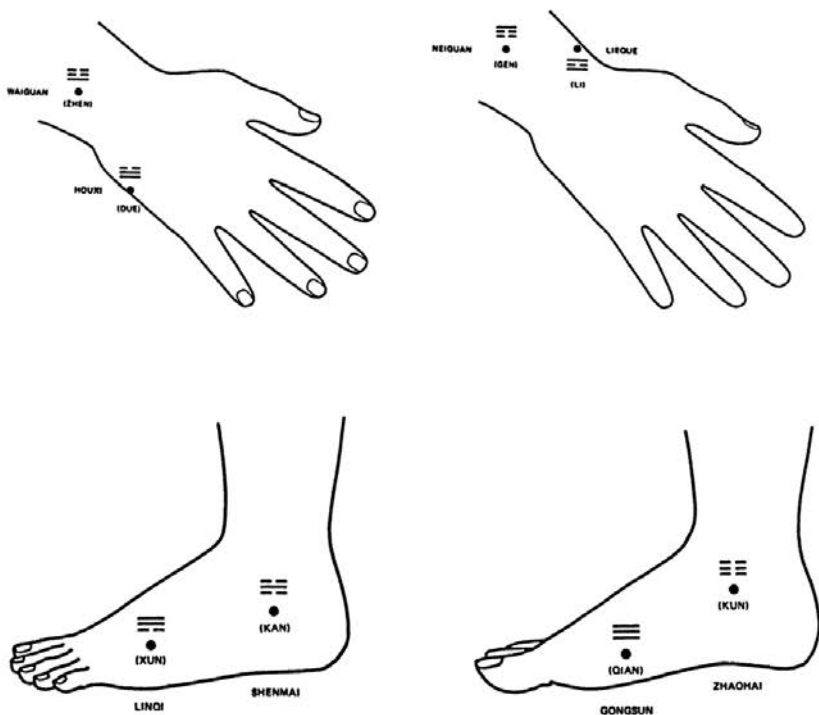


Figure 3.5

it considerably impeded the development and advancement of traditional Chinese medicine since the thirteenth century. Later on, it was condemned by Wang Ji [王机] (1522-1567) and again by Zhang Jiebin [张介宾] (1562-1640). Yang Jizhou [杨继洲] (1522-1620) also denounced it in his famous medical classic

Zhenjiu Dacheng [针灸大成] (Comprehensive Acupuncture and Moxibustion, published in 1601). He admonished,

"The treatment must be given in accordance to the patient's disease, and not to the system of numbers."

The current medical practice in this country seems to have drifted to ever-emphasizing the importance of the various laboratory examinations and to under-play the clinical acumen of the physician, while we are employing the modern high-technology to better medical care. We are seemly repeating what the Chinese did several centuries ago.

The ebb-flow concept does find a recent parallel in the attempts to study the chronobiology or the biologic-clock phenomena in health and disease. It is widely known that people living in and near the arctic circle tend to suffer from depression and other seasonal affective disorders (SAD) when daylight is nil for several months of the year. This can be effectively treated with light therapy by presumably resetting the internal clock (369). Jet lag is another known example. We may claim that, even though shrouded in mystical, exotic and superstitious notions, the Midnight-Noon Ebb-Flow System does seem to be borne out by the latter-day research on chronobiology. Whether or not there is a truly diurnal rhythm as a foundation of acupuncture treatment is a question that requires much scientific investigation to provide a physiologic rather than a speculative basis. We reviewed the situation briefly in a previous communication (260). Analogies of the ebb-flow system in *Neijing* to our rather infant science of chronobiology was reviewed by Wu (379). A detailed discussion of it is beyond the scope of this book at this juncture.

F. ETIOLOGIC FACTORS

Elsewhere in this book, we mentioned that according to traditional Chinese medicine, changes of the climate and the natural environment influence the functional activities of the human body.

Normally, the weather has Six Qi [六气], viz., wind, cold, summer heat, humidity or dampness, aridity or dryness, and heat (fire). These six are associated with the seasons. When they become abnormal and invade the human being, leading to an illness, they are called Six Ying [六淫] (or Excesses). Since these factors are environmental influences, they are classified as "External Evils [外邪]. The diseases thus produced are called "Externally Afflicted Diseases." Western medicine does not understand much of the climatic and environmental influences on the pathophysiology of health and disease. It is not unusual that our chronic pain patients complain of aggravation or exacerbation of their pain before the weather changes. Patients with cervical spondylosis or trigeminal neuralgia tend to complain of exacerbations upon exposure to draft. Another example is from our studies of bacteriology. We know that chickens are resistant to anthrax infection because of their high body temperature. Immersing a chicken's feet in icy water brings its body temperature down to that of the human level, i.e. 37° C. It can, then, be easily infected by anthrax bacillus. This phenomenon was allegedly observed by Louis Pasteur (1822-1895). In the 1930s and 1940s, before the development of antibiotics, hemolytic streptococcal infections and rheumatic heart disease were prevalent. Surveys in England, Ireland, Australia, and in this country (Philadelphia, Georgia, and Connecticut) suggested a relationship between the prevalence of rheumatic heart disease and the micro- and macro-environment (295). Paul and Deutsch in 1941 (272), and Quinn and his associates in 1949 (296) reported a possible relationship between the prevalence of rheumatic heart disease among the seventh- and eighth-grade school children and their environmental humidity, and their home and living conditions. In a serologic-epidemiologic survey Quinn, Liao, and Quinn (294) reported in 1951 a direct correlation of the prevalence of rheumatic heart disease and the levels of streptococcal antibodies among the sixth and seventh grade school children who lived in a residential city as compared with those in a manufacturing city in Connecticut. The

epidemiology of the environmental and climatic factors and the chronobiology are indeed topics that await further investigation.

Humans have Seven Emotions [七情], viz., happiness, anger, anxiety, longing, sadness, fear, and fright. An excess of any of them may damage the Normal *Qi* [正气], leading to the loss of control of the functions of the *Zang* and *Fu* (i.e., the viscera), resulting in sicknesses. Neuroscientists are now theorizing that "neuropeptides and their receptors are the biochemical correlates of emotions" (280).

The additional etiologic factors are indulgence of food or alcohol, poor or imbalanced diet, lack of exercises and poor physical fitness, over-exertion or strain while performing unaccustomed physical activities, trauma, etc.

CHAPTER 4

THE PHYSIOLOGIC BASES OF ACUPUNCTURE ANALGESIA

We mentioned in the last chapter that the ancient Chinese with the knowledge available at hand, formulated many sophisticated (for their time) philosophico-alchemic interpretations of disease and health, essentially by Taoist scholar-physicians. However, the intelligentsia at large was bonded by their extremely restrictive civil service examination system for advancement in the officialdom, thus moving to a higher social status. Learning was limited to the Confucian classics, because they were the exclusive bases of the examination. Medicine was classified as a part of arts and crafts which were considered trivial pursuits. Of course, a thorough knowledge of arts and crafts could not advance anyone socially through that kind of examination system. Because of this cultural bondage, the Chinese never made further advances of their great discoveries and inventions, such as the compass, gunpowder, *Yin-Yang* binary concepts, and many others (338). Realizing the deep-rooted ills of this cultural bondage, the new Chinese government formed by the 1911 revolution immediately abolished the archaic civil service examination system.

Traditional Chinese medicine and acupuncture have remained in their medieval form for centuries. Western science was first introduced to the Chinese Emperor Wan Li [万历] of Ming [明] Dynasty in 1601 by the Jesuit missionary Matteo Ricci (1552-1610), incidental to the latter's express religious intentions. Its impact was severely felt much later by the Chinese after their repeated defeat by the western powers starting in the mid-nineteenth century. Modern scientific inquiry of traditional Chinese

acupuncture did not really begin until the 1960s. Because of the then political situation in the United States, even Chinese medical journals were regarded as subversive materials and not permitted to enter this country. Those sent over from China were destroyed at the ports of entry by customs and the FBI before they could reach researchers here. We were totally ignorant about the new beginnings concerning the scientific research of acupuncture. Reports of acupuncture analgesia for major surgical procedures by Dimond (63) did not arouse much attention among the scientific and medical communities here. However, Reston's report of his personal experience with acupuncture in 1971 (310) really jolted the American public and organized medicine (please see Chapter 2, Section G).

This Chapter is a review of some of the significant advances of scientific research concerning the physiologic and pharmacologic bases of acupuncture for a better understanding of the heretofore considered mysterious alien healing art.

A. THE NEURAL MECHANISMS

1. *The Neuropathways*

In 1973, a Chinese color movie on acupuncture analgesia was available for the first time in this country. It showed a cross circulation experiment on rabbits. The effect of acupuncture analgesia could be transmitted from a donor animal which received acupuncture to a recipient normal one. Figure 4.1 on the next page is a frame from that movie, showing two rabbits with cross circulation. The one on the left was the donor that received acupuncture. That on the right was the recipient that did not have acupuncture. The pain threshold of both animals was significantly increased. It offered us for the first time some evidence that acupuncture must have produced in the animals some kind of chemical substance(s) which could suppress pain.

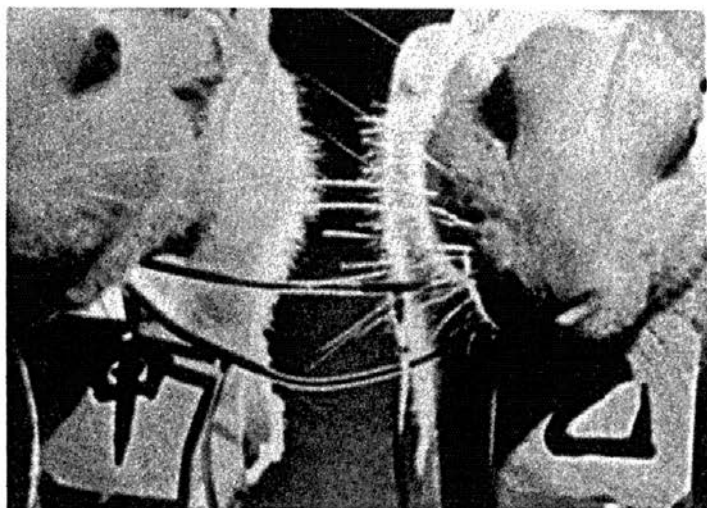


Figure 4.1

In 1973 it was reported that local intramuscular infiltration with procaine at acupoints impeded the analgesic effects of acupuncture while subcutaneous infiltration of local anesthetic at the same acupoints did not (43, 277). This implicated the sensory receptors at the acupoint and their type II and type III small myelinated muscle afferent fibers of the peripheral nerve in the transmission of the impulses as generated by the needling.

Electric stimulation at the *Neck-Futu* Acupoint (Large intestine 18 or LI 18, located at the mid-point along the posterior border of the sternocleidomastoid muscle) could induce sufficient analgesia for thyroidectomy in humans (275). This acupoint is supplied by the cervical cutaneous nerve which receives fibers from the C 3 spinal nerve root. The capsule of the thyroid gland is also innervated by the C 3 spinal segment. By recording the electric discharges of the brain with microelectrodes, it was demonstrated that the impulses from noxious stimuli to the tail of a rabbit could be blocked by acupuncture at its hind leg but not at its front leg (278). The hind leg of a rabbit shares with its tail the nerve

supplies from the same spinal segments but the front leg does not. From the observations of the above experiments, it seems that the analgesic effects of acupuncture are segmentally transmitted. In addition it was demonstrated, their segmental distributions were also bilaterally represented (43).

In hemiplegic patients, needling at *Hegu* Acupoint (LI 4) or *Zusanli* Acupoint (St 36) of the affected limbs did not induce analgesia but a similar maneuver on the normal limbs did (280). In paraplegic patients acupuncture at *Hegu* Acupoint (LI 4) of the hand generated analgesia while needling at *Zusanli* Acupoint (ST 36) of the leg did not (274). Spinal anesthesia eliminated the *de qi* responses (the special needling sensations) and evoked myoelectric potentials at the acupoints (278). These observations suggested that integrity of the central nervous system is mandatory to achieve acupuncture analgesia. Vierck and associates in 1974 (357) generated adequate analgesia with electroacupuncture on monkeys. Such an effect lasted up to 70 hours with peaks of pain attenuation, interspersed with almost normal pain threshold. The precise localization of the acupoints was also found to be important.

The acupuncture stimuli were transmitted cephalad along the extra-laminal system (the spinoreticular, spino-mesocephalic and paleo-spino-thalamic tracts) in the ventral two-thirds of the lateral funiculus of the spinal cord, projecting to the reticular formation, central gray matter and medial thalamic nuclei (43, 318). Group I afferent activities were transmitted in the dorsal and ventral spino-cerebellar tracts but groups II and III afferent activities were mainly transmitted in the spinoreticular tracts (364).

Electroacupuncture at a certain acupoint, squeezing an Achilles tendon, or weak electric stimulation of a sensory nerve could inhibit the pain responses of the neurons in nucleus parafascicularis and nucleus centralis lateralis of the thalamus. The thalamus seems to exert an integrative influence in acupuncture analgesia (34). Destruction of the caudate nucleus seemed to reduce pain-

suppression by acupuncture though it is not located along the known pathways of pain sensation (318).

Melzack and Melinkoff in 1974 (236) speculated that the analgesic effect evoked by needling the distant acupoints in humans might very well be mediated through the widely projecting, pain-inhibitory reticular formation. For example, needling the *Lieque* Acupoint (Lung 7) over the radial styloid could relieve pain of the cervical region. In Bowsher's 1976 review (25) he noted that neurons of the reticular formation failed to respond to peripheral stimulation at a frequency higher than 3 Hz and that gigantocellular reticular formation could only be activated by peripheral A delta stimulation. He suggested an analogy between these factors involving the reticular formation and those required to induce adequate analgesia by electroacupuncture.

The evoked potentials of an animal's sensory cortex as produced by electric stimulation of its cervical cutaneous nerve could be blocked by acupuncture at the *Hegu* Acupoint (LI 4) and the *Neiguan* Point (P 6, located over the median nerve about 4 cm. proximal to the volar carpal crease). Similar cortical evoked sensory potentials generated by stimulating tooth pulp could also be subdued by acupuncture at the *Hegu* Acupoint (LI 4) (275). In 1974, in Dr. Arthur Battista's neurosurgical research laboratory at New York University Medical Center we experimented on a rhesus monkey. First we gave measured amounts of electric current to its forearm and recorded the cortical evoked potentials. Simultaneous with this stimulation on the forearm we applied electroacupuncture at the *Quchi* Acupoint (LI 11, on the lateral aspect of the elbow) and the *Shaohai* Acupoint (H 3, on the medial aspect of the elbow) on the same limb. The previously visible cortical evoked potentials were completely eliminated (195).

2. The Induction Time

When needled, different acupoints offer different degrees of analgesic effect. The increase and decrease of the pain threshold

thus produced tend to follow a general time pattern, with a half-life of 15 to 17 minutes (106).

Melzack and Melinkoff in 1974 (236) enhanced the pain threshold of cats by electrically stimulating their mid-brain reticular formation. The analgesic effect of the procedure developed gradually over a period of five minutes. To achieve sufficient acupuncture analgesia in humans, an induction time from five to 30 minutes is required (272). It may require 20 to 40 minutes to induce acupuncture analgesia in anesthetized and awake animals. The induced analgesia lasted for one hour or so after acupuncture was terminated and then gradually subsided (290, 291). It may take two to five minutes for electroacupuncture to reach its peak inhibitory effect on the electric discharge of the cells in the nucleus centralis lateralis of thalamus (320). From our personal clinical experience, five minutes was sufficient to generate analgesia for tooth extraction, and twenty to thirty minutes were needed to generate sufficient analgesia for tonsillectomy. The stimulation should be continued during the entire session of surgery. On December 12, 1972 we successfully performed acupuncture analgesia on a twenty-one year old male for a tonsillectomy. The effect of analgesia lasted for at least twenty-four hours after the surgery. The induction time was about thirty minutes. During surgery, though the patient experienced no pain, his gag reflex and touch sensation persisted without any diminution (205). This observation is compatible with the fact that acupuncture generates only analgesia or hypalgesia and not anesthesia.

B. CENTRAL NEUROMODULATORY MECHANISMS

Acupuncture is evidently a form of neuromodulation. It generates its analgesic effects through afferent sensory stimulation (43, 145). This analgesic effect is produced from the interactions between signals from the site of pain and those from the site of acupuncture. These interactions take place at different levels in the

central nervous system (290). The implicated sites of such interactions include neurons in the laminae 1 and 5 of the dorsal horn (163, 164), the nucleus raphe magnus (171), the reticular formation, the periaqueductal gray regions of the mesencephalon (209), hypothalamus, and thalamus. Figure 4.2 illustrates the neuropathways and Figure 4.3 on the next page suggests some of the neurochemicals, possibly involved at different levels in the acupuncture analgesia.

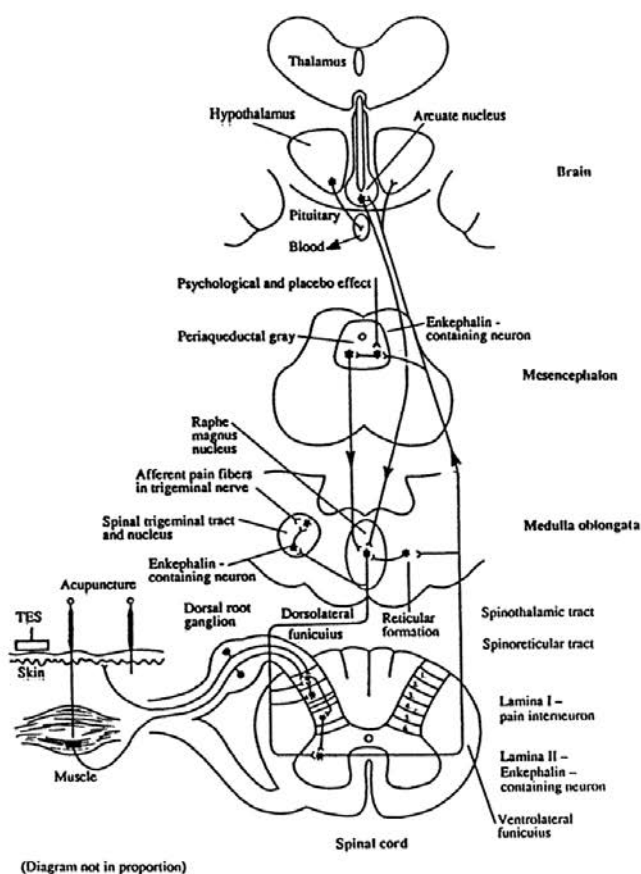


Figure 4.2

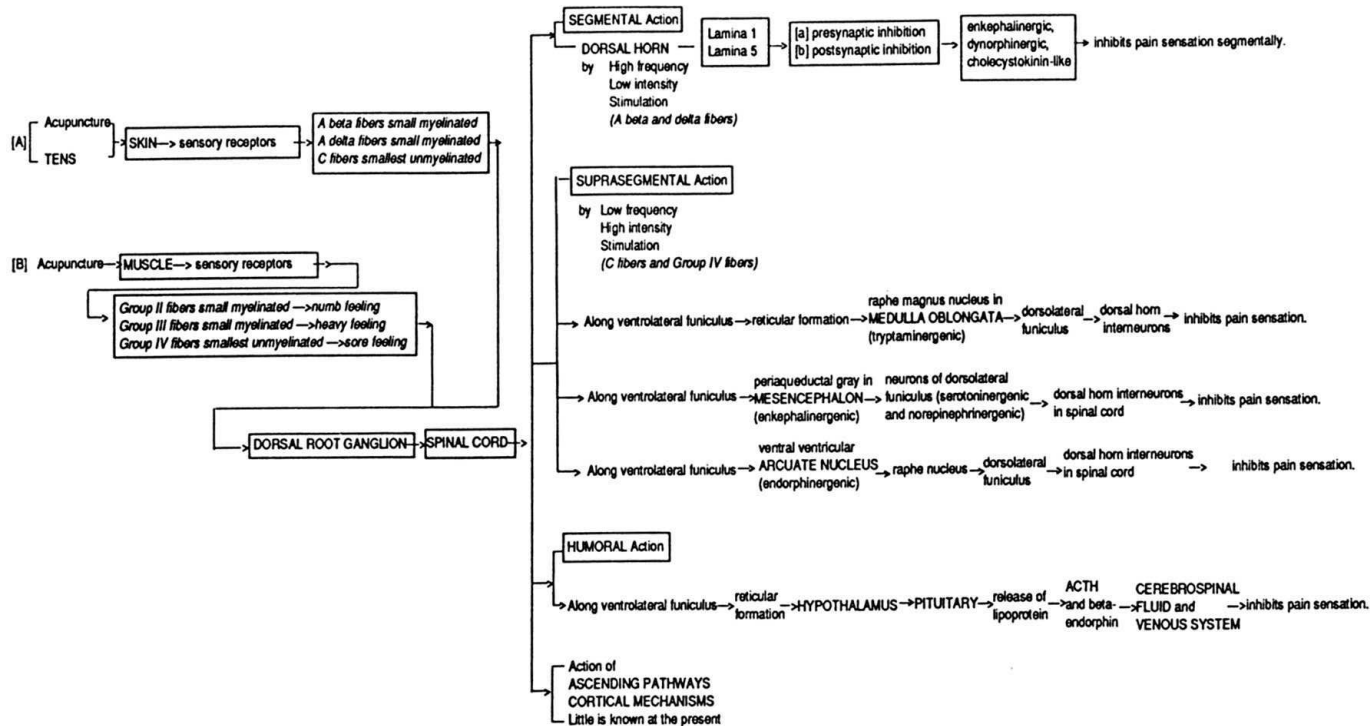


Figure 4.3

The analgesic action of acupuncture is modulated by way of this system of complex neural loops in the central nervous system. The ascending pathway of acupuncture analgesia is from the periaqueductal gray in the brain-stem (enkephalinogenic) to the arcuate nucleus in the hypothalamus, to the amygdala (a subcortical limbic structure), and to the nucleus accumbens (serotoninogenic) of the limbic system. The descending pathway goes through the habenula of the thalamus (enkephalinogenic) as a way station, back to the periaqueductal gray. The periaqueductal gray is abundantly supplied with nerve terminals. It contains large amounts of beta-endorphin, dynorphin, serotonin, dopamine and norepinephrine. It exerts a powerful descending inhibitory control and acts as a "central biasing mechanism" in an inhibitory feedback system to modulate such activities at all levels. (230-232) These ascending and descending loops also form Han's "meso-limbic loop of analgesia" (108, pp. 13-14).

C. NEUROPHARMACOLOGIC MECHANISMS

Scientific research over the past couple of decades led to the discovery of an ever-increasing variety of neurotransmitters involved in acupuncture analgesia. These studies have been reviewed by Han et al. (107, 108), and Pomeranz (290). Available evidence suggests that endogenous opioid substances (e.g., endorphins, dynorphins, and enkephalins), 5-hydroxytryptamine (5-HT or serotonin), reserpine, and acetylcholine have a facilitating effect on acupuncture analgesia. Naloxone, atropine, the blockers of certain neurotransmitter receptors, and other antagonists have reducing or suppressing effects. It is reasonable to speculate that there are many other agonists and antagonists to acupuncture analgesia waiting to be discovered.

The analgesic effect of acupuncture was transmissible by perfusion of the cerebrospinal fluid from the lateral ventricle of the brain of a needled donor animal to a recipient control animal. This

effect was enhanced by the administration of reserpine to the experimental animals. On the other hand, in the reserpinized animals, the analgesic effect of morphine was completely eliminated. However, 5-hydroxytryptamine (5-HT or serotonin), noradrenaline, or dopamine restored the suppressed analgesic effect of morphine by reserpine. Reserpine is known to deplete monoamines. Thus, the effect of morphine is dependent on monoamines, while that of acupuncture is independent of them (309).

Atropine eliminated the analgesic effect of acupuncture. It, however, did not alter that of morphine. Intraventricular administration of acetylcholine and eserine increased the pain threshold of the animals (309).

An involvement of the endorphinergic system is supported by several lines of evidence. First, naloxone partially reversed the analgesic effects of acupuncture in both humans and animals (228, 292, 367). The pituitary stores large amounts of endorphins. Hypophysectomy abolishes most of the acupuncture analgesia. (291). Animals with genetically defective opiate receptors or endorphin deficiencies show a poor acupuncture analgesia response (283). On the other hand, an inhibition of the degradation of met-enkephalin by D-phenylalanine or D-leucine may enhance the analgesic effect of acupuncture. It may be of interest to note here anecdotally the response of a patient with a minute pituitary adenoma to acupuncture treatment. She had migraine headaches of many year's duration. One session of acupuncture treatment immediately alleviated her pain. Thermography demonstrated a marked and intense increase of infrared radiation (202). One wonders whether the adenomatous pituitary stored more endorphins than the normal gland. Electroacupuncture applied to rats resulted in a depletion of endorphins in certain brain loci of the animals and their concomitant elevation in cerebrospinal fluid (279).

Acupuncture analgesia was also enhanced by blockers of serotonin-inactivation, such as chloripramine (108, 112).

The low-frequency electrical stimulation at 2 Hz produced a wide spread and prolonged vasodilation. It was not impeded by naloxone but was reduced by a central serotonin blocker such as cyproheptadine (145).

In addition, acupuncture can alleviate certain signs and symptoms of narcotic withdrawal in human addicts (373) and in rats (251, 252, 256, 258, 261, 262). Our clinical experience seemed to support the experimental results (201). One wonders whether the neuropeptides as released by acupuncture blocked the narcotic receptors in the central nervous system.

Clinically, acupuncture at the Zusanli (S 36 or St 36) or at Neiguan (P 6) can eliminate cardiac arrhythmia. Xia and associates in Shanghai demonstrated that stimulation of the deep peroneal nerve (analogous to electroacupuncture at the Zusanli (S 36) acupoint) abolished experimentally generated ventricular extrasystole in rabbits (by electrically stimulating the defence area of the hypothalamus). This inhibitory effect was reversed markedly by naloxone, or anti-beta-endorphin serum, partially by anti-dynorphin serum, and not by anti-leu-enkephalin serum. They implicated beta-endorphin in the correction of the experimental ventricular extrasystole by its inhibitory effect on the norepinephrinergic neurons (380-383).

There exists within the brain and spinal cord multiple analgesic systems. Watkins and Mayer clarified them into six categories: neural opioid, humoral opioid, neural non-opioid, humoral non-opioid, unknown opioid, and unknown non-opioid (367). Activation of these systems can occur through sensory afferent stimulation.

The sites of action of the opioid peptides may be summarized as follows:

	Brain	Spinal cord
enkephalins	+	+
beta-endorphin	+	-
dynorphins	-	+

+ = action

- = no action

Norepinephrine counteracts the analgesic effect of acupuncture in the nuclei of the periaqueductal gray and of the habenula, but not in the amygdala and nucleus accumbens. However, it may facilitate such an effect in hypothalamus (106, P. 8). Dynorphin analgesia is mediated by kappa-opioid receptors which are relatively resistant to a blockade by naloxone. Met-enkephalin analgesia is mediated by mu- and delta-receptors. Acupuncture activates the serotonergic mechanism in the central nervous system. It can be enhanced by chloripramine, a tricyclic compound that selectively facilitates the serotonin transmission (106, Pp. 6-7).

Experimentally, stimulating hypothalamus also caused an increased release of the monoamines in addition to producing ventricular extrasystole (381).

D. AFFERENT STIMULATION: PERIPHERAL ACTIVATING MECHANISMS

Stimulation of peripheral nerves produces their analgesic effects through multiple mechanisms. One set of stimulating parameters may favor one mechanism whereas another set another mechanism. Acupuncture most likely produces its effects through activation of

sensory receptors in the skin, the muscle, or other innervated structures. Its impulses are carried by these different afferent fibers to the spinal cord, the brain stem, and centrally to the upper levels of the central nervous system.

In principle:

1. The smaller the diameter of excited fiber, the greater its analgesic effect. The smaller the diameter of the fiber that is to be excited, the higher the intensity of stimulation that is required. Conversely, the larger the fiber diameter, the lower the stimulating intensity required.

2. The smaller the fiber diameter, the lower the range of frequency-response, whereas the larger the fiber diameter, the higher its range of frequency-response. For example, A-beta fibers can be stimulated at all frequencies from high to low. Whereas the highest rate of firing of A-delta fibers is approximately 80 Hz, and C fibers are unable to fire at frequencies higher than about 2 to 10 Hz.

3. When the intensity of the stimulus is low and its frequency is high, its effect is probably transmitted by the large myelinated fibers such as the A-beta myelinated fibers.

4. When the intensity of the stimulus is high and the frequency moderate, the A-delta small myelinated fibers are activated.

5. When the stimulation is intense and the frequency low, the smallest unmyelinated C fibers are activated.

6. These principles apply similarly for groups II, III, and IV afferent fibers from the muscle receptors.

The stimulation of the afferent fibers activates the pain modulatory systems. Such activations may be segmental or extrasegmental.

1. The segmental mechanisms can be actuated by relatively innocuous inputs (i.e., high frequency and low intensity stimulation) in the vicinity of the pain. This results in the pre- and

post-synaptic inhibition via interneurons that are activated by A-beta fibers in the dorsal horn (47, 112, 375). This can also be achieved by the use of transcutaneous electric stimulation, local thermal (heat or cold compresses), or vibratory stimuli.

2. For the extrasegmental or suprasegmental mechanisms however, the low frequency and high intensity stimuli are often needed to activate the deep afferents. The extrasegmental mechanism involves an activation of the descending inhibitory pathways from the brain stem and the areas above it. This can be achieved by applying the percutaneous neurostimulation technique (PNS), i.e., stimulation via the needles (or the electroacupuncture technique) or by "hyperstimulation" TENS. The PNS is frequently more effective for this purpose and is often less noxious than the transcutaneous technique because the high resistance of the skin is bypassed by piercing it with a needle, and only a relatively small current intensity is required. Furthermore, the percutaneous approach can be used to activate deep structures with better precision in localization, such as using the *deqi* response of acupuncture as a guide.

The frequency of electric stimulation and its analgesic effects may be summarized as follows:

1. Both low (2 Hz) and high (100 Hz) frequencies generate analgesia. The amount of naloxone required to cause a 50% reversal of the analgesia generated by electric stimulation is as follows:

Frequency	2 Hz	100 Hz
Dosage (mg/kg)	0.5	20

2. Different receptor-blockers have different effects on the analgesia generated at different frequencies of electric stimulation.

	2 Hz	100 Hz
beta-blockers	+	-
kappa-blockers	-	+++

+ = effective
 +++ = very effective
 - = ineffective

3. There is a cross-tolerance of rats to low and high frequency analgesia:

	2 Hz	100 Hz
To 2 Hz	-	+
To 100 Hz	+	-

+ = cross-tolerance
 - = no cross-tolerance

When administered to acupuncture tolerant rats, the analgesic effects of 5-HT or norepinephrine (a catecholamine) were also markedly diminished.

4. The administration of met-enkephalin antiserum reduces the effects of 2 Hz acupuncture analgesia, while dynorphin A antiserum reduces 15-Hz acupuncture analgesia, and dynorphin B antiserum reduces 100-Hz acupuncture analgesia (111).

	2 Hz	15 Hz	100 Hz
Anti-met-enkephalin	+	-	-
anti-Dynorphin A	-	+	-
Anti-Dynorphin B	-	-	+

+ = blockade

- = no blockade

5. There is a preferential release of opioid peptides by electric stimulation at different frequencies:

	2 Hz	100 Hz
Met-enkephalin	+	-
Dynorphins	-	+

+ = yes

- = no

6. The analgesic effect on rats by electroacupuncture may be diminished with repeated administration every 30 minutes. It will no longer be present after six hours of such treatment. Injections of the brain extracts of such acupuncture-tolerant rats into normal rats suppressed the analgesic effect of acupuncture in the latter. It seems that certain natural blockers were also released together with the opioid peptides. Cholecystokinin octapeptide was found to be one such suppressor. This antagonistic action could be reversed by the administration of the antiserum to this octopeptide (107, 185).

David Mayer seemed unable to replicate Han's results regarding the effects of different frequencies of the electric stimulation. However, different intensities did make a difference.

E. STIMULUS PARAMETERS AND POSSIBLE NEURAL SPECIFICITY

As we noted in the preceding section of this chapter, stimulus-parameters are critical in determining whether activation can be achieved locally, segmentally, extrasegmentally, or suprasedgmentally. The neural specificity that can be achieved through the adjustment of the intensity and the frequency of the stimulation have been well established by the studies cited above. Less well established is the neural specificity achieved through wave-form modulation. The wave-form of an electrical stimulus constitutes an important variable in eliciting certain specific effects (144). The sinusoidal wave-form TENS with the constant-current stimulus of a fixed submaximal intensity had the ability to evoke discrete frequency-dependent subjective sensations in humans (144). For example, transcutaneous electric stimulation with square-wave or biphasic pulses lacked this neural specificity. This specificity was probably the result of an activation of neuronal subpopulations within the brain stem through an activation of the selective peripheral nerve fibers.

Even less is known about the parameters required to activate the autonomic circuits. A low-frequency and high-intensity stimulus produces a generalized increase in temperature and microcirculation of the skin. This promotes the healing of chronic ulceration in patients (137-143). These effects were not blocked by naloxone or by any pharmacological antagonists to adrenergic, cholinergic, or dopaminergic mechanisms, nor do they involve prostaglandins or plasmakinins. One likely candidate may be the vasoactive interstitial polypeptide (VIP) (143). It involves the

noncholinergic nervous system. It controls pancreatic and intestinal secretions and gastrointestinal mobility.

Xia and associates (380-383) demonstrated that, experimentally induced ventricular extrasystole and hypertension (by electrically stimulating the defense area of the hypothalamus) could be markedly attenuated by electric stimulation of the deep peroneal nerve (analogous to electroacupuncture at the Zusanli (S 36) acupoint) with low frequency (5 Hz) and low intensity (0.3-0.4 mA and 0.5 ms duration) square-wave DC. When the stimulus intensity was increased, the arrhythmia was potentiated. Such potentiation could also be induced by the stimulation of superficial somatic nerves, such as radial or superficial peroneal nerves with low frequency and low intensity electric current. The composition of the nerve supplying a muscle has a ratio of myelinated fibers to unmyelinated ones of 1:1. That of the cutaneous nerve has a ratio of myelinated to unmyelinated fibers of about 1:3-4 (133). Hence, the inhibitory effect on experimental cardiac arrhythmia by stimulating the deep peroneal nerve seems to be attributable to an excitation of the myelinated fibers while the potentiating effect on the arrhythmia by stimulating the superficial nerves to the involvement of the unmyelinated fibers.

Recently, Ng and associates reported (255) that different sensory nerve fibers responded selectively to different frequencies of constant alternating current electric stimulation. The small C sensory nerve fibers (0.4 to 1.2 micrometers in diameter, for temperature and dull pain) responded to 5 Hz stimuli, the A-delta fibers (2-5 micrometers in diameter, for vibration) to 250 Hz, and the larger A-beta fibers (5-12 micrometers in diameter, for touch and pressure) to 2,000 Hz. They suggested possible application of such characteristics to assess the integrity of the sensory nerve fibers in the diagnosis and therapy of painful neuropathologic conditions.

It is also possible that the waveform of the stimulus could make a difference. The sinusoidal wave may be more effective than the biphasic one.

At this time, it is not possible to state what the optimal stimulus parameters are for each kind of pain problem or for a particular patient. The time may not be too far away, however. Once we have a better understanding of the sensory neural coding of the nervous system, we shall probably be able to define the optimal frequencies, intensities, or waveforms that may be effective for a particular problem, possibly even for a particular patient.

F. THE AUTONOMIC NERVOUS SYSTEM

Needling either *Hegu* (LI 1) or *Zusanli* (ST 36) Acupoints generated analgesia to a more or less similar degree on the forehead, the chest, the abdomen, back and thigh. Needling both acupoints simultaneously generated significantly greater increases of the pain threshold in the same areas of the body than needling either of them individually. Needling a non-meridian point on the hand, between the second and the third metacarpi generated similar analgesic effect as the *Hegu* Acupoint (LI 4) which is located between the first and the second metacarpi. These results are indeed compatible with LeBars and associates' diffuse noxious inhibitory control effects (163, 164).

Acupoints are quite specific physiologically in the sense that the *de qi* responses can only be evoked at the specified loci and are required to induce adequate analgesia. Acupuncture tends to produce diffuse, instead of localized, analgesia. Such a lack of target specificity is basically compatible with the extensive involvement of the neuropharmacologic systems at several levels of the central nervous system. The role of the autonomic nervous system in this aspect might be explained at least partially with our studies using thermography. The implication of the pathways of the referred pain is still totally unknown in relation to the effects

of acupuncture. Nonetheless, acupuncture is probably the most thoroughly researched physical modality to date particularly in regard to its neuropharmacology.

In patients with chronic pain, thermography usually reveals a decrease of the temperature of the affected area. Together with a relief of pain by acupuncture, there is a marked increase of temperature as assessed by thermography (202). Since temperature is a function of the autonomic nervous system, these findings seem to implicate it. These observations may also help to explain the therapeutic effectiveness of the "distant acupoints" and "opposite acupoints" due at least to a partial involvement of the autonomic nervous system. This fascinating subject is discussed in some detail in Chapter 7, Section H.

G. THE BIOPHYSICAL PHENOMENA

1. *The Electrophysical Properties of the Acupuncture Needle*

In 1823, measuring with a galvanometer, Churchill, Cloquet and Becquerel (48) demonstrated repeatedly "a galvanic current" in patients from the acupuncture needle. The amount of current produced by acupuncture was enhanced with "conductors" made of "two metallic plates, zinc and copper which were separated by a woolen rag, wetted with an acid liquor." "A hundred times at least, more considerable than the current that was naturally produced in the patients." They observed also an "oxidation of the needles -- a very variable phenomenon." "It does not appear to account in any way for the good effects of acupuncture. Often marked by distinct gradation all along the needle, so that you may observe zones of a more or less deep grey."

"I have still no theory to offer, on the physiological changes produced by the needles. ... It is, at present, a mere matter-of-fact business; and our ignorance is the less to be regretted, while ... it often effects a cure after all other apparent means have failed." "I have, however, always been anxious to avoid the

importunities, and merely to employ the valuable agent, in cases that appear adapted for its use."

In recent years, there is practically no serious literature in English concerning the above described electric phenomena of acupuncture needles. We sort of take it for granted that the effect of the acupuncture needle itself is more or less mechanical in nature. By causing a noxious stimulus, it sets the entire process in motion. This mechanical intrusion depolarizes the skin and the underlying soft tissues. In turn, it evokes the current of injury. It has always been assumed that this current of injury travels along the nerves.

2. The Electrophysiologic Properties of Acupoints and Meridians

Becker and his associates in 1975 (299) and 1976 (13, 300) measured the D.C. (direct current) potentials along the Large Intestine and Pericardium Meridians. They demonstrated that the conductance reached a maximum with a localized positive shift (averaging about 5 mV) at the acupoints. They also measured a line of similar length in an area where meridians were not supposed to exist. The results with the non-meridian lines did not show any consistent pattern. There was a proximo-distal negative gradient along the meridians and possibly also a dorso-ventral negative gradient of the limbs. "A short period of cyclic fluctuation in total overall D.C. potentials at and in the immediate vicinity of acupuncture points was noted. The cyclic time averaged 15 minutes and while previous determinations on the gross D.C. potentials had demonstrated typical circadian rates of fluctuation, ... " (13, 302). In another report in 1976, they observed similar D.C. conductance increases at the acupoints along the Triple Burner and Lung Meridians (300).

There were marked individual differences among the subjects tested. However, the results were reproducible in the same individual. They measured the conductance of Acupoints Number 2 through Number 12 along the Large Intestine Meridian. They found statistically significant higher conductance than the

background values in all of these Acupoints except the Number 6. When they measured the Acupoints Number 3 through Number 8 along the Pericardium Meridian, they found statistically significant higher conductance in all except the Number 5 and Number 6 Acupoints. They also noticed that all of above-listed acupoints were not found on all the subjects (301).

In 1977, they reported a study of the A.C. (alternate current) impedance of LI 4 and LI 12 Acupoints (301), and in a separate experiment on H 3 and H 4 Acupoints (303) with LaPlace plane analysis of the time domain response to an input voltage perturbation. They found that the resistance of these four acupoints were lower and the capacitance higher than the adjacent non-meridian areas. They interpreted these results as supportive of their suggestion of the acupuncture system as an information transfer network (301, 303).

They compared the meridians to D.C. analog communications channels (possibly involving perineural Schwann cells) and the acupoints to operational or "booster" amplifiers to overcome the combined reducing effects of resistance, capacitance, and inductance with the increasing distance of transmission. They suggested that the acupoint was "a discrete structure with highly specific electrical properties." They postulated that acupuncture influences "a primitive data transmission and (cybernetic) control system." Becker commented that inserting a metallic needle at an acupoint "would produce sufficient electric disturbance that the amplifier could not operate, and pain would be blocked" (13, 14, 302).

Unfortunately their elegant experiments could not be continued because their research grants on this very subject were not renewed. We would like to know, for example, the effect of needling at the Hegu (LI 4) Acupoint on the transmission of the current of injury along the Large Intestine Meridian and changes of conductance of other acupoints along their meridians by challenging their analgesic

effects with naloxone and other antagonists. This is indeed an enormous area that desperately needs further extensive exploration.

3. Nordenström's Electrophysiologic View of Acupuncture

While studying the radiologic changes and regression of lung and breast cancers after electric treatments, Nordenström proposed a "Biologically Closed Electric Circuit" system to explain the transportation of electric energy in the body. He considered the blood vessels as conducting cables, with the blood and interstitial tissue fluids as transmitting agents (264).

In addition, he proposed a "Vascular-Interstitial Closed Circuit." "A local polarization or depolarization induced by a needle introduced into the skin may also induce a flow of current between polarizing processes that are situated at a distance from the needle when preferential conductive pathways for ions ("meridians") are available. In this mechanism, not only the "meridian but also the associated vascular 'return' pathway of the VICC system is activated. In other words, we are modulating the electric energy (Qi?) between polarizing tissue regions" (265). He "contends that the meridians in acupuncture appear to be represented by the subcutaneous preferential pathways for ionic current flow which occurs upon the activation of vascular-interstitial closed circuits (VICC)." (266) Becker commented, "In essence, his basic concept of closed electrical circuits is complex but appears to have little support biologically or in the scientific literature" (12).

H. POSSIBLE CLINICAL APPLICATIONS

1. Those patients who do not respond to morphine may respond to acupuncture. In such cases, acupuncture is not contraindicated.

2. For those patients who do not respond to low frequency stimulation, high frequency stimulation may be tried. A high intensity electric stimulation may be tried on the non-respondents to the low intensity electric stimulation.

3. Stimulation with a combination of alternative parameters of the low and the high frequencies of the electric current.
4. Chloripramine (a 5-HT re-uptake blocker) and/or enkephalin degrading enzyme blocker or cholecystokinin antagonists may be tried with caution on the non-respondents to acupuncture.

CHAPTER 5

ACUPUNCTURE AND HYPNOSIS

Around 1972 and 1973, some hypnotists asserted that acupuncture was a form of hypnosis because they regarded using a needle as a part of the ritual of cure. A well-known psychiatrist-hypnotist declared at a medical meeting that an Oriental-looking person, speaking no English and waving a needle, must be an acupuncturist. We reminded him and the audience that when psychiatry first arrived in this country, a man having a Germanic name, speaking English with a Deutsche accent and wearing a goatee must be a psychiatrist. The distinguished hypnotist nodded his head in full agreement with that comment.

Using Spiegel's eye roll test (331), in 1976 we examined a group of 235 patients with various chronic pain conditions (207), and in 1977 one group of 200 patients with chronic head pain (194) and another group of 220 patients with chronic low back pain (188, 189) for their hypnotizability. In all three of these groups we found no statistically significant correlation between the patients' hypnotizability and the results of acupuncture treatment. Among these three groups of patients those with lower eye-roll scores tended to respond better to acupuncture than those with higher scores. (207) Peng and associates in 1987 reported similar findings by double-blind evaluation of acupuncture results and hypnotic profile using Spiegel's eye-roll test (276).

Goldstein and Hilgard in 1975 (92), and Mayer and his associates in 1977 (228) provided some undisputable experimental evidence of the difference between acupuncture analgesia and hypnotic anesthesia. They observed that acupuncture analgesia could be reduced or abolished by naloxone while hypnotic anesthesia could not be.

CHAPTER 6

CHRONIC PAIN AS A DISEASE

A. PAIN IN TRADITIONAL CHINESE MEDICINE

Chinese traditional medicine is basically problem- and symptom-oriented. It does not entertain a detailed classification of diseases similar to western medical practice. All the problems of pain, numbness, and lameness are regarded as *Bi Syndromes* [痹症]. They are considered to be caused by wind-, cold-, and humidity-pathogens. The common symptoms of the *Bi syndrome* are essentially pain and stiffness of the muscles and the limb joints, and interference of their movements. We may equate *Bi syndromes* roughly to musculoskeletal rheumatism or collagen diseases.

Bi Syndromes are discussed in three chapters in *Neijing Suwen* (Yellow Emperor's Classic of Internal Medicine Book of Common Questions), and in another three chapters in *Neijing Lingshu* (Yellow Emperor's Classic of Internal Medicine Book of Acupuncture) (5). Incidentally, these chapters are not included in Veith's book (355) as we commented on in Chapter 1.

In *Neijing Suwen* Chapter 39, "On Sudden and Severe Visceral Pain," the causation of visceral pains by external environmental factors and internal psychologic factors, and their diagnoses by inspection (mainly of the facial complexion), questioning (i.e., history taking), and palpation (essentially of the abdomen) constitute the major part of the detailed discussion. The relationship of external pain and afflictions of internal organs are also deliberated. This indeed implies that ancient physicians were

well aware of the significance of the referred pain from the visceral diseases.

Its Chapter 41, "On Puncturing for Low Back Pain," describes the different varieties of low back pain. Their causations in relation with the *Mai* (i.e., the meridians) are discussed. Lifting a heavy weight is singled out as one of the causes. The prescriptions of acupoints for each are detailed according to the different pathology of the *Mai* (meridians) involved. Judging from the devotion of an entire chapter to this single condition, it must have been quite common in ancient times as it is now. For those readers who are interested in knowing more about the contents of that chapter we would like to refer them to our recent translation (199). We speculated that the ancient people must be just as susceptible to low back pain as their modern-day counterparts.

Its Chapter 43, "On *Bi* Syndrome," describes three types of *Bi*, viz., *Migratory Bi*, *Localized Bi*, and *Numb Bi*. They are caused by various combinations of wind-, humidity-, and cold-pathogens. The condition with the onset in the winter is *Bone Bi*, in the spring *Ligamentous Bi*, in the summer *Meridian Bi*, in the little summer (equivalent to our Indian summer) *Muscular Bi*, and in the fall *Skin Bi*. Their symptomatologies are discussed in detail. Puncture (stone-puncture or acupuncture) is advocated as the therapeutic modality of choice.

In *Neijing Lingshu*: Chapter 26, "On Miscellaneous Diseases," it discusses the symptoms and the puncture treatment for painful stiff neck, low back pain, toothache, pain of the cheek (possibly trigeminal neuralgia), pain of the knee, chest pain with radiation to the lower back and nausea, chest pain with radiation to the back and respiratory embarrassment, chest pain with respiratory difficulty and abdominal pain.

Its Chapter 27, "On *Zhou Bi*, [周痹]" differentiates the generalized *Zhou Bi* from the localized *Zhong Bi* [众痹]. From the description, *Zhou Bi* is probably polymyalgia rheumatica while

Zhong Bi recurrent myofibrositis. The entire chapter is concerned with the symptoms and the principle of its puncture treatment.

Its Chapter 53, "On Pain," discusses the extent of tolerance to pain by different people due to the strength of their bone, the thickness of their skin, the softness of their tendons, and the firmness of their muscles. Because of such differences, certain people could bear pain better than others. Thus, puncture would benefit the group with the high pain threshold more than those with the low pain threshold. This is probably the first historical dissertation on the pathophysiology of the pain threshold.

In general, the painful conditions as discussed in the Yellow Emperor's Classic of Internal Medicine are chronic ones. Apparently, pain must have plagued the ancients several thousand years ago as does modern people today. In spite of the dramatic leap forward of modern western medicine, in many aspects of health care particularly during the last few decades, the understanding and the management of chronic pain is still lagging far behind.

B. MODERN DEFINITION OF PAIN

John Bonica (20) defined pain as

"An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage."

It is generally recognized that acute pain is different from chronic pain. "Whereas in acute pain the pain is a symptom of disease, in chronic pain the pain itself is the disease." He offered the following two definitions.

1. "Acute Pain is a complex constellation of unpleasant sensory, perceptual, and emotional experiences and certain associated autonomic, psychologic, emotional, and behavioral responses."

2. Chronic pain is "pain that persists a month beyond the usual course of an acute disease or a reasonable time for an injury to heal or that is associated with a chronic pathologic process that causes continuous pain or the pain recurs at intervals for months or years."

C. CHRONIC PAIN AS A MEDICAL ENTITY

Chronic pain is a subjective sensation and a major scourge on the human race. Millions of people suffer from it, usually for protracted periods of time. Billions of dollars were lost from the absenteeism and disabilities due to the pain of the afflicted workers. Sometimes the pain may be so agonizing that the patients' lives become miserable. Such sufferers tend to demand a complete cure. They travel from one doctor to another, from one medical facility to another, and even around the world, to seek relief. Chronic pain may bring on changes in personality. Large quantities of pain-medications are consumed and, thus, great numbers of patients become addicted to narcotics and other pain-killers. Some may become desperate and demand surgery to instantly rid them of their suffering. It is quite common that pain may persist or sometimes even become worse after surgical interventions. Some others may become so despondent as to attempt suicide just to put themselves out of their miseries. In spite of modern medicine's many tremendous technological advances, we still do not understand well enough what causes chronic pain. Our modern medicine still has really little to offer in its medical management.

D. THEORIES TO EXPLAIN THE MECHANISMS OF PAIN

There are a number of theories. We will briefly list only some of them.

1. The Specificity Theory. Among others, Charles Bell (of Bell's palsy fame) in 1811 (16, 21) proposed that pain was a specific

sense, comparable to vision, hearing, and smell. It was perceived by specific end-organs, and transmitted from the skin, muscle, or internal organs by certain fibers of the peripheral nerves to a pain center in the brain. This did not take into account the important roles of the psychological, cultural, and ethnic factors (315).

2. *The Reverberation (or Central Summation) Theory.* Livingston suggested that the persistence of pain was maintained through reverberating connections between the nerve cells (212).

3. *The Pattern Theory.* In 1955 Sinclair (324) and Weddell (368) suggested that a pattern of pain was generated by intense nerve impulses acting on non-specific nerve structure. This is contrary to the current physiologic evidence.

4. *The Gate Control Theory.* Melzack and Wall in 1965 (238) suggested that pain was controlled by the closing of the spinal cord "gate" through activities of certain nerve cells in the spinal cord with modulation by the higher nerve centers. They suggested that the activity generated by myelinated primary afferent fibers (A fibers) would, acting via inhibitory circuits in the laminae of the dorsal horn, inhibit the transmission of impulses by the small unmyelinated primary afferent fibers (i.e., the C fibers). While several aspects of the original theory were shown to be untenable by Nathan in 1976 (248), the key postulate, namely that of the inhibitory effect of A afferent fiber and C fiber transmission, has since been amply confirmed. In general, stimulation of myelinated afferent nerve fibers can activate local inhibitory circuits within the dorsal horn of the spinal cord. This segmental activation loop is largely mediated by the A-beta fibers. Extrasegmental or polysegmental inhibitory circuits can be activated by stimulation of the A-delta small myelinated fibers or the C unmyelinated fibers. Melzack contended that their theory would lend mustard plaster and all other counter-irritants of folklore medicine, a new significance. He suggested that acupuncture might be considered a special case among them. It is the widely accepted theory at the present time. The current use of transcutaneous electric stimulation of afferent

nerve fibers (TENS) to alleviate pain is essentially based on this spinal gate control theory. We will discuss the transcutaneous electric nerve stimulation in Chapter 6.

5. *The Neurohumoral Theory.* Mainly incidental to the studies of the analgesic effects of acupuncture in the past twenty years or so, the understanding of the neurophysiology and neuropharmacology of pain has been greatly advanced. The details of these mechanisms are discussed in Chapter 4 and need not be repeated here.

E. PAIN AND SENSORY DERMATOME

The distribution of chronic pain seems to follow a certain pattern. It is generally of dermatomal nature. At the same time, it is not always so. First, sensory dermatomes are not the same as myotomes. Secondly, different mapping techniques demonstrated some differences of the nerve root patterns. In order to avoid the confusion, it seems essential for us to briefly review some of the experimental methods. There are basically five different approaches.

1. *Sherrington's Remaining Sensibility.* Charles Sherrington (1857-1952) demonstrated in monkeys a segmental fashion of the sensory innervations by the posterior nerve roots, although with extensive overlapping (315).

2. *Head's Hyperesthetic Zones.* Henry Head (1861-1940) observed clinically the segmental distribution of herpes zoster lesions, and zones of cutaneous hyperesthesia in certain visceral diseases (118-120). He found rather little overlapping of the segmental nature of skin lesions of herpes zoster and its hypersensitivity. Figure 6.1 on the next page is a composite copy of his hyperesthetic zones. He noticed that a diseased viscus might produce a dull aching sensation locally and would often, in addition, generate a sharp, stabbing pain and tenderness at a distant

part of the body. He suggested a central inhibitory interaction between pain and other kinds of sensations.

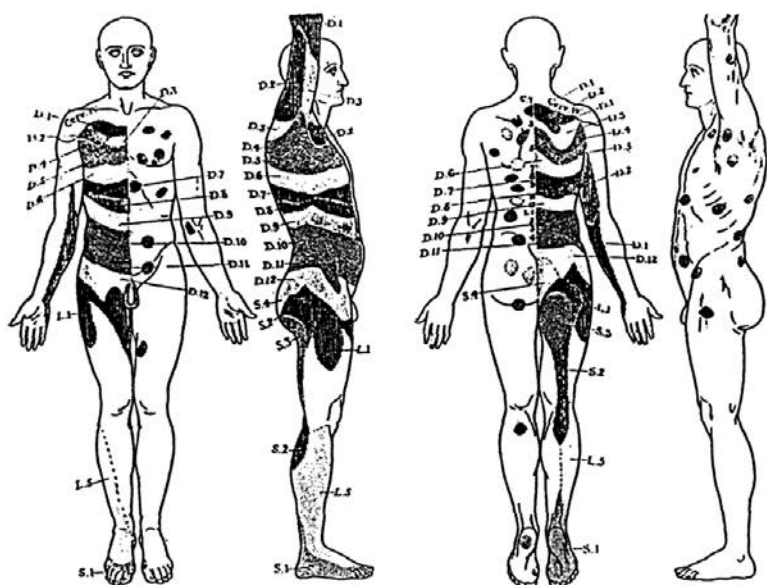


Figure 6.1

3. *Foerster's Vasodilation Areas.* Foerster stimulated the distal end of a divided posterior spinal nerve root of his patients with faradic current (83). This resulted in a vasodilation of the innervated areas of the skin. He also found little overlapping of the segmental, vasodilated areas, like Head's hyperesthetic zones. However, when he traced the areas of cutaneous sensory changes with his "constructive" method, he found extensive overlapping of their distribution, similar to Sherrington's dermatomes. He speculated that two sets of nerve fibers were involved, viz., very fine myelinated nerve fibers for the vasodilation, and thick myelinated ones for the sensory changes.

4. Lewis's Injection of Irritants. Lewis and Kellgren (177, 178) demonstrated in cats "no specific form of pain, referred or otherwise," and that "pain of visceral or somatic origin cannot be distinguished as such." They concluded, "deep somatic and certain visceral structures are supplied by a common set of afferent nerves (including pain nerves)." In decapitated cats, stimulation of a viscus, mesentery or bowel itself, caused a rise of blood pressure. They did not state whether this indicated an involvement of the autonomic nervous systems, though it did seem to implicate the latter.

Using Lewis's technique, Kellgren injected 6% hypertonic saline into interspinous ligaments, resulting in an irritation of the posterior spinal nerve roots. He demonstrated pain in a well-defined segmental pattern with overlapping (147, 148).

Feinstein and associates (80) injected 6% hypertonic saline segmentally into the paravertebral muscles of humans. The deep somatic pain so evoked was referred regionally to several dermatomes with extensive overlapping. They could not inhibit such referred pain by sympathetic ganglion block or by peripheral nerve plexus block. There was muscle spasm in the areas of referred pain. Contrary to the hyperesthesia as in Sherrington's monkeys, in the Head's zones, and by Lewis's irritant, they observed hypalgesia in the areas of referred pain. Their experimental results seem quite analogous to acupuncture analgesia. They emphasized the concomitant autonomic reactions, including pallor, often generalized sweating, bradycardia, hypotension, subjective "faintness," nausea but no vomiting, and rarely syncope. They ascribed their results to a central spinal integrative mechanism.

5. Keegan and Garrett's Hypalgesia in Patients with Herniated Intervertebral Nuclei Pulposus. The herniated intervertebral nuclei pulposus compresses individual spinal nerve roots, resulting in pain and weakness of the limbs. Such symptoms were relieved by surgical decompression. They found continuous, non-overlapping

bands of hypalgesia in such patients. They then injected the individual spinal nerves with procaine in normal subjects (medical students). Similar bands were again demonstrated (146).

In addition to the original, primary purpose of mapping sensory dermatomes, most of the reports of the above-mentioned experiments described the secondarily evoked autonomic reactions. This involvement of the rather ill-defined distribution of the autonomic nerve fibers may help to explain the overlapping of the sensory dermatomes. We will discuss this phenomenon more in Section H of this Chapter on thermography, chronic pain, and acupuncture.

F. ASSESSMENT OF PAIN

There are several physiologic methods devised to quantitatively produce pain for experimentation in humans. For example, some use measured amounts of electricity, some apply a tourniquet to a limb to cause ischemia, and some put freezing water on a finger, a hand, or the pulp of a tooth. The flipping of a rat's tail on a hot plate is often used to represent an objective measurement of pain in animal experimentation. Quantifying the psychological aspects of pain is often frustrating, because its perception depends entirely on the individual. For example, the placebo effect in the medical experimentation is well-known. Placebos work in about 30% of the time. We do not know why they work. Basically we do not understand the fundamental mechanisms of pain perception, although we do have several objective techniques for evaluating pain tolerance, like observing the physiologic responses, such as an increase of the heart rate, or looking at behavioral pattern such as flinching. However, these methods have certain inherent limitations that not only restrict their usefulness but require qualification of the experimental results. Since we recognize pain as a complex combination of sensory, physical, psychologic, emotional, and sociologic experience instead of the same single

sensation in all the individuals, it simply cannot be measured justifiably with a single parameter. For example, in 1974, Clark and Yang (50) proposed to use Green and Swet's signal detection theory (99) to evaluate the analgesic effects of acupuncture. It measures both the physiologic aspects of sensory discrimination, and the psychologic aspects of willingness or reluctance to report the presence of pain.

For a clinical investigation of pain, self reporting by the patient regarding its quality and quantity is often employed. The usually techniques include numerical rating scale (from 0 to 10, with 0 as no pain and 10 as the worst), pain behavior and functional status diary, McGill Pain Questionnaires by Melzack (234, 235), the West-Haven Yale Multidimensional Pain Inventory by Kerns et al. (150), and others. A detailed discussion on the quantification of pain in order to evaluate the effectiveness of an analgesic or acupuncture is beyond the scope of this book.

G. CONTROL OF CHRONIC PAIN

In order to understand how acupuncture may fit into the control of chronic pain we should briefly examine western medicine's current ways of dealing with it.

Drugs, from aspirin to morphine and its derivatives are simple to administer and relatively inexpensive. However, they are not always effective. There is also a tendency toward abuse especially after undergoing personality changes brought on by chronic pain. As a rule, the more potent the analgesic effect of the drug, the more severe its side effects and its addiction. In the last few years, there has been a flood of the new nonsteroid anti-inflammatory drugs. All of them are highly potent in causing gastric irritation and bleeding. They have a great tendency to cause additional serious side effects, such as damage to kidneys, the liver, etc. Many patients simply cannot tolerate these side effects. Their potencies in pain control are not really as great as claimed.

Surgery is another way of dealing with chronic pain. Drastic and irreversible procedures are common, ranging from cutting the nerves (peripheral neurectomy), to severing the nerve roots (rhizotomy), to dividing a small part of the spinal cord (chordotomy), and to destroying a small part of the brain (frontal lobectomy and thalamotomy). The purpose of these surgical remedies is to correct structural defects, such a protruding intervertebral nucleus pulposus or a bony spur, and/or to disrupt the transmission of the pain impulses from the skin and/or internal organs to the brain. Such procedures involve a great deal of risk and complication. Their results are often unpredictable or disappointing. At times they can be quite successful, only to have the pain return within a short time.

Electricity has been used in various manners for alleviation of pain ever since it was invented. In Chapter 6, we mentioned electropuncture in the 1800s. After Duchenne invented skin electrodes, transcutaneous electric stimulation became a standard physical therapy. The simplest method is to stimulate the painful part of the body or the nerves directly. Around 1975, equipment for "transcutaneous electrical nerve stimulation" (TENS) became available commercially for the treatment of chronic pain administered by the patients themselves. The drawings with the loci and the connecting lines in the early editions of the instruction books from manufacturers look very much like traditional acupuncture charts. This is a widely used pain-relief modality. We will describe TENS in Chapter 13.

In the 1960s, "dorsal column stimulation" was the rage in the management of chronic pain. An electrode is implanted on the back part of the spinal cord. This invasive procedure is a lot more drastic than those just to stimulate the nerves or the skin. It requires great surgical skills. Its success is unpredictable. Now, even its strongest former proponents rarely perform such procedures.

The epidural stimulation of the spinal nerve roots with implanted microelectrodes is much simpler and less traumatizing than the dorsal column stimulation. With the implanted stimulator, the patient has control of the electric current intensity and the duration of stimulation. Its results are quite reassuring.

Epidural infusion of local anesthetics is another recent advancement. Measured amounts of the medication can be administered by the patient with the subcutaneous pump. This procedure is much less traumatizing. Its results are usually quite satisfactory.

H. THERMOGRAPHY AS AN AID TO THE STUDIES OF ACUPUNCTURE AND CHRONIC PAIN

While we were searching for objective laboratory tests as aids to the clinical studies of chronic diseases, such as musculoskeletal injuries, arthritides, and stroke, we came across a black/white tele-electronic infrared measuring device made for medical use in the later 1960s. The rather primitive equipment seemed to suggest that the area of the body with chronic pain tended to emit less infrared than the normal areas. In 1969, we had the use of a prototype color thermography apparatus. We reasoned that in stroke patients, the infarcted side of the brain might emit less heat and we might detect a cooler area in the homolateral forehead. We tried this new device on a stroke patient with left-sided hemiplegia. The thermographic picture revealed a small cool area on the right side of his forehead as anticipated. However, in addition, a large cool area was seen on the corresponding left side of the forehead (Figure 6.2). This was totally unexpected. We were astonished that about two days later, this same patient sustained an additional hemiplegia of his right upper and lower limbs. In 1973, one of us (MHML) working with Prof. Erwin Tichauer at New York University Rusk Institute of Rehabilitation Medicine demonstrated changes of thermographic patterns in patients with pain. Figure

6.3 shows the condition of the hands before acupuncture. Figure 6.4 shows that of the same hands fifteen minutes after acupuncture, with an obvious increase of temperature. We were encouraged by such anecdotal observations. It thus led us to explore thermography as a possible aid to the studies of the effectiveness of acupuncture.

Thermography, as the word implies, is a pictorial presentation of the temperature or rather the infrared radiation from the human body. This infrared radiation was discovered by William Herschell in 1800 A.D. while doing dispersion experiments by putting light through a prism. His son, John Herschell, took the first picture of infrared radiation by using a mixture of lampblack and alcohol on paper strips in 1840. Infrared radiation occupies a small section of the radiation spectrum. It is an electromagnetic energy which behaves like waves and also like particles (i.e., photons) at the same time. Waves have wavelengths and frequencies while photons have energy. The photon energy is in reverse proportion to the wavelength. For example, blue light with a wavelength of 40 nanometer and energy of 4.4×10^{-12} erg has almost twice as much energy as red light with a wavelength of 700 nanometer and energy of 2.5×10^{-12} erg. This relationship is a basic postulate of the quantum theory. All radiation travels with the same speed as that of light at about 3×10^5 miles per second. The wavelengths of the infrared radiation range from about 800 nanometer to about 1 millimeter (202).

Since infrared radiation is beyond the visual range of human eyes, it is necessary to use certain devices to detect its presence or convert it into visible images. There are several ways to accomplish this. At the present time, two kinds of detectors are commonly used clinically. One utilizes flexible films embedded with liquid crystals that change color with alteration of the body temperature. The other makes use of the photo-electric property of the infrared radiation. For our studies, we use the latter.

In a normal individual, the distributions of isotherms are essentially symmetrical on both sides of the body. They do not usually follow the sensory dermatomes. Instead, for example, they exhibit almost as circular bands from the tips of fingers toward the wrist, with lower temperature gradients in the distal areas (Fig. 6.5). In the posterior aspects of the leg, the gastrocnemius area demonstrates a warmer zone than the soleus area, that in turn shows a warmer gradient than the Achilles area (Fig. 6.6). It is interesting to note here that the Zusanli (S 36) Acupoint area is the warmest isothermal zone in the anterior aspect of the leg (Fig. 6.7). Whether this may explain therapeutically the superstar status of the Zusanli (S 36) Acupoint partly because of its abundant blood supply is worthy of further investigation. On the back, the spinal area has the warmest isotherm, in the shape of a central longitudinal band (Fig. 6.8). In the male, the thermographic pattern of the chest shows a cold spot at the nipple. Zones of increasing temperature radiate from the nipples centrifugally. The clavicular areas tend to be quite warm (Fig. 6.9). On the abdomen, the coolest zone is centered around the umbilicus, with isothermal gradients as circular bands radiating toward the periphery (Fig. 6.10). In general, there is no suggestion at all of a clearly delineated dermatomal distribution of the isotherms on the limbs, the back, the chest, or abdomen. It, hence, seems reasonably probable that thermographic patterns more or less follow the vascular distributions.

As employed in clinical investigation, thermography may not represent the absolute degrees of the body temperature. Observations of a change in the pattern of distribution of different wavelengths of radiation or the variations of shapes or sizes of the isotherm may have more significant meaning than determinations of the factual degrees of body temperature. Clinical thermography, at this stage of the art, may be more of a qualitative pictorial presentation than a quantitative absolute measurement in terms of temperature changes. Since the area of the body with chronic pain tends to be cooler than the corresponding contralateral normal side

(202), its emphasis, thus, is a study of the asymmetry of the distribution of the isotherms of the affected and the corresponding normal sides. On account of the reliable sensitivity of the devices, we found that a difference of at least 1° C is reasonably probably diagnostic. In cases with peripheral nerve involvement, such as in carpal tunnel syndrome and lumbar discogenic low back pain, the thermographic patterns correspond more or less with the vascular distributions as supplied by the affected nerves but not quite with their sensory dermatomes. Whether this corresponds to the aforementioned Foerster's vasodilation experiment awaits further investigation.

On the contrary, the trigger zones almost always exhibit warm isotherms. The more tender they are, the warmer and larger are the isotherms. This implies a possibly focal hyperemia.

Using the Gibbon-Landis procedure (92, 162) in several cases with reflex sympathetic dystrophy (or dysfunction) affecting the upper limbs we demonstrated increases of infrared gradients of the hands by soaking the patients' feet in hot water.

Immediately after the administration of acupuncture, about 20% to 25% of our patients showed a generalized decrease of the thermographic readings. All of this group of patients tended to complain of discomfort from the needling, including slight light-headedness, queasiness, or clammy skin, particularly when the treatment was given with the patient in sitting position (202).

Using thermography to study the effects of acupuncture, Lee and his associates found an increase of the temperature not only of the treated part of the body but also of the untreated corresponding opposite part (73-75, 168, 169). They also demonstrated a non-segmental long-lasting warming (sympatholytic) effect of a craniocaudal gradient in the temperature distribution. They speculated that this non-segmental activation by acupuncture may be mediated through the reticular formation via the activation of diffuse noxious inhibitory controls on the convergent cells of the

dorsal horn of the spinal cord. Acupuncture was given at the Hegu (LI 4) Acupoint on the hand. There was an increase of skin temperature not only in the treated hand, but also in the untreated one as well. This may help to explain the therapeutic effectiveness of needling the corresponding acupoints on the unaffected side. This further suggests an involvement of the autonomic nervous system by acupuncture. In another experiment, the Zusanli (S 36) Acupoint of the affected leg of a hemiplegic patient induced a slight increase in temperature of the normal leg and a moderate increase of temperature in both hands (202). This is compatible with the traditional dictum of using acupoints in the lower parts of the body to treat conditions of the upper parts and vice versa.

In a thermographic study of 76 patients with chronic pain treated with acupuncture, 48 patients (about 63%) had relief of pain, 27 patients (about 36%) had no change in their pain status, and one patient (about 1%) had an increase in pain (202).

1. Of the 48 patients with a relief of pain by acupuncture, 46 (about 96%) had marked increases of temperature of the affected areas. The remaining 2 (about 4%) had decreases in body temperature.

2. Of the 27 patients with no relief of pain with acupuncture, 6 (about 22%) had an increase of temperature in the affected areas, 2 (about 7%) had decreases of temperature, and 19 (about 70%) had no change in temperature.

3. The patient with an increase of pain from acupuncture had an increase of local temperature.

The correlation between a reduction of pain with acupuncture and an increase of local temperature with no reduction of pain and no change of temperature was statistically significant according to this investigation. With the reduction of pain, the increase of the temperature or rather the infrared radiation usually reaches a maximum in about 15 minutes. Occasionally, there is a fluctuation of the thermographic readings during the treatment period (202).

We examined twenty three consecutive patients with pain and paresthesia due to peripheral neuropathies mainly of the hands and/or the feet.

1. Twelve of them had abnormal electromyographic findings and abnormal motor and sensory nerve conduction studies. Thermography demonstrated asymmetric patterns in all the cases of this group.

2. Eleven patients who had normal electromyography and normal nerve conduction studies, had asymmetric thermographic patterns. Had we not performed thermographic examination, the diagnosis of the patients with negative electrodiagnostic studies could never be confirmed objectively.

3. We also examined a normal healthy young male. He had normal electromyography and normal nerve conduction studies. His thermography demonstrated symmetric patterns. There seems to exist an obvious correlation between the thermographic patterns and the electrodiagnostic results.

In addition, we examined three patients with trigeminal neuralgia. Since the trigeminal nerve is not accessible to electromyography and nerve conduction studies, the diagnosis is mainly clinical. In all three, their thermographic examination revealed asymmetry of their faces, corresponding to the affected branch of the trigeminal nerve. Figure 6.11 shows a cool area just below the left angle of the mouth of a patient who had trigeminal neuralgia involving the left mandibular branch. We reported this study at the Annual Meeting of American Academy of Physical Medicine and Rehabilitation in 1985. Recently, Spielholz, Rosenblum, Lee, and Giesel (332) reported one case of unilateral leg pain following peripheral nerve injury and ipsilateral rhabdomyolysis. The electrodiagnostic studies of this patient's affected leg were relatively normal but thermography demonstrated definite abnormality (Fig. 6.12).

We would like to briefly describe one of the above four cases whose electrodiagnostic studies were essentially normal while the thermography demonstrated asymmetric patterns. This was a 49 year-old female, first seen by us on March 2, 1984. Her presenting symptom was severe paresthesia and pain of the middle, ring and little fingers of the right hand for about two weeks. There was no gross weakness of the affected hand. Physical examination was otherwise essentially within normal limits. Electromyography, and motor and sensory nerve conduction studies were essentially normal. However, thermography revealed marked reduction of the infrared radiation of the affected fingers. No attempt was made to treat her at that time on account of the seemingly bizarre situation. About ten hours later, while she was having dinner, a fork dropped out of her hand. Soon after that she started to experience a right hemiparesis that lasted for about four hours. She also had intermittent dysarthria for about five weeks. The pain and paresthesia of the three fingers of the right hand persisted. She returned to see us on May 29, 1984. Neurologic examination at that time revealed definite signs of positive snout reflex, positive jaw jerk and positive sucking reflex, positive palmo-mental sign, no deviation of the soft palate and tongue, hyperreflexia of the right upper and lower limbs, and extensor plantar reflex. Repeat electromyography and nerve conduction studies of the right upper limb on May 29, 1984 again demonstrated essentially normal findings. Repeat thermography on the same date again revealed reduced infrared radiation of the affected fingers of the right hand. Apparently she sustained transient cerebral ischemic attacks, including the thalamus and the brain stem. Ten sessions of acupuncture treatment did not improve her paresthesia at all. In this instance, thermography showed positive findings before the onset of the clinical condition. It suggested that the patient's pain and paresthesia were probably of thalamic origin, and that acupuncture was probably not effective in relieving thalamic pain.

In summary:

1. Chronic painful areas tend to exhibit a reduction of infrared radiation by thermography.
2. In peripheral neuropathies, when the electrodiagnostic studies are negative, thermography may be positive. Thus, it offers a definitive diagnostic aid.
3. The initial increase, decrease, or lack of change of the infrared radiation seems to have no bearing on the outcome of the acupuncture treatment.
4. A decrease of infrared radiation at the insertion of the needle most probably represents vasovagal reactions of the autonomic nervous system.
5. There is a significant correlation between a reduction of pain with acupuncture and an increase of infrared radiation, and no reduction of pain and no change of the thermographic pattern.
6. In cases where there was a reduction of the infrared radiation but no subjective alleviation of pain with acupuncture treatment, two possibilities might exist. One may be due to the delayed response. (Please see Chapter 9 for detailed discussion of the delayed response to acupuncture treatment.) The other may be a subconscious denial of an improvement on account of external influences.
7. When the pain was rendered asymptomatic, a symmetric thermogram was obtained. In such a pain-free patient, acupuncture did not cause any change in the isothermal patterns.
8. The infrared radiation patterns of a normal individual do not show any remarkable changes under stable ambient room temperature. This implies that an obvious change of the isothermal patterns is not an artifact.

9. The thermographic changes induced by acupuncture implies an intimate relationship between this alternative therapeutic procedure and the autonomic nervous system.
10. Thermography offers a convenient, non-invasive laboratory procedure for the evaluation of chronic pain and therapeutic effectiveness of acupuncture. Further investigations of these intriguing phenomena are clearly needed. The potential for research is enormous, for example, to study phantom limb pain and to design the best possible acupuncture treatment for it.

CHAPTER 7

ACUPUNCTURE RESEARCH

A. AN EMERGING SCIENTIFIC VIEW OF ACUPUNCTURE

Chinese traditional acupuncture consists essentially of astute and age-distilled clinical observations. The ancient physicians attempted to complement their inductive insight with the then available deductive reasoning. However, the old cultural bondage of the 2,000-year old civil service examination system greatly confined traditional Chinese medicine and acupuncture along with science and technology to the medieval level. About thirty years ago, when the Chinese started to apply western research techniques to explore its possible scientific bases, marked the beginnings of some pivotal understanding of this healing art. Historically, when occultism sheds its mystique and concentrates on the factual analysis of observed phenomena, however anecdotal, it becomes science. It also rekindled the interest in the study of chronic pain. At the present time, the romance with traditional Chinese medicine and acupuncture is fueled by the search for alternative medicine as a response to the ever-increasing mechanistic approach of allopathic medicine as well as an answer for the containment of ballooning cost of health care. This has resulted in a strong following by physicians, dentists, and other healthcare practitioners. In this regard, the practice of acupuncture should be viewed as a means to an end, which is the health and well-being of the patient. Hence, it is time for us to shed the mystique and occultism of acupuncture, and concentrate on factual, scientific analysis of the observed clinical phenomena, however anecdotal. We ought to combine the best of traditional acupuncture with that of modern science to form contemporary acupuncture for the benefit of mankind.

B. IMPLICATIONS FOR RESEARCH

In spite of the advances in the understanding of the basic mechanisms of acupuncture, it remains controversial because there are no sufficient scientifically-designed clinical investigations to ascertain its therapeutic effectiveness. In a previous communication (260), we commented, "Although there is substantial evidence to suggest that manual or electroacupuncture works by stimulating somatosensory pathways and central neurohumoral mechanisms, it is still far from clear which of the components embodied in the acupuncture paradigm are causally responsible for initiating the observed response and which factors are responsible for determining clinical outcome. To accomplish this, we clearly need to shift from single cause to multifactorial models. We must also focus our attention on the nature of interactions that can produce sufficient conditions for effective outcomes rather than just confining ourselves to the search for single cause effects."

A conceptual scheme for a five-compartment interactive model for non-drugs (including acupuncture) and other complex multifactorial clinical modalities has previously been proposed by Ng and his associates (145, 260). Figure 7.1 on the next page is a schematic of that model which illustrates the various levels of interactions. The doctor is an integral part of that model. It includes the interactions between the patient and the doctor, as induced by the input stimulus, as well as the results of such interactions. Just as changes occur in a patient following the administration of a therapeutic modality, significant changes also develop in the doctor. The significance of the interaction between the doctor and the patient as a part of this multifactorial environment cannot be over-emphasized in determining the final outcome of the treatment. In the case of acupuncture, the needle, by definition, is a necessary condition, but in and of itself is not a sufficient condition for successful therapeutic effects. If the sensory stimulation should prove to be the critical variable in

producing a desirable effect, then the needle in the acupuncture paradigm would serve merely as a vehicle for sensory modulation, using manual or electric stimulation. This complexity implies the difficulty of designing blinded clinical experiments about acupuncture on human subjects.

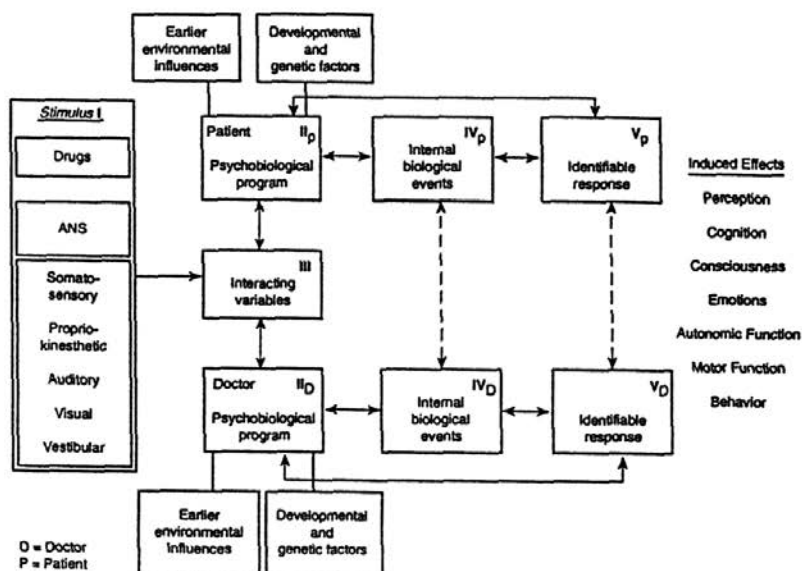


Figure 7.1

Elsewhere in this book, we commented on the incessant desire of ancient (*Ziwu Liuzhu*) and modern (chronobiology) scholars to quantify the symptoms of diseases and the results of acupuncture therapy for them. None of the designs and devices can give us any real insight to the situation. For example, in early cases of arthritis, radiographic studies of the afflicted joint may reveal essentially normal findings while its symptoms and signs may be quite obvious. We have repeatedly observed that when patients came to consult with us for conditions such as chronic neck pain,

the first radiographic examination frequently demonstrated findings within normal limits. It would take another two to five years for such patients to develop positive radiographic findings. This was reported to us particularly by several of our patients who are physicians. We believe that their observations are reliable, however anecdotal. It is quite possible that when the radiographic findings first become positive, the pathologic changes may have involved ten to twenty percent of the joint structures. During joint replacement, surgeons would often report that the conditions of the involved joints were much worse than those demonstrable radiographically. This is not surprising because routine radiographic examination reveals basically gross bony changes. MRI may demonstrate additional pathologic changes of bones and soft tissues but is subject to interpretations depending on the viewer's experience. Thus, in chronic pain, there probably exists a three-dimensional relationship among symptomatology (chronic pain), pathology (structural damages) and disability (functional impairments). Figure 7.2 illustrates such a situation.

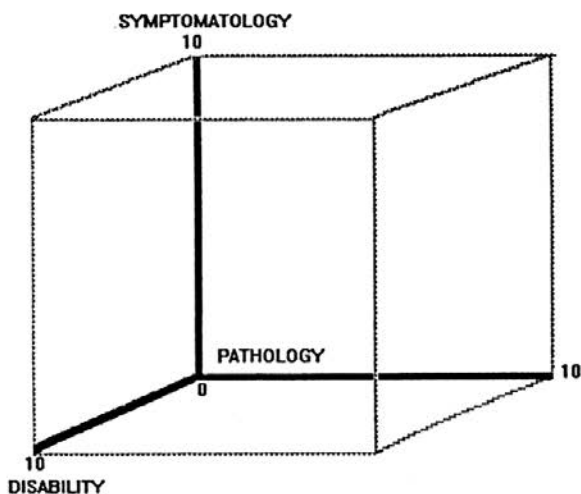


Figure 7.2

Nevertheless, there is a prevalent tendency to consider symptoms and pathologic changes in a linear relationship. This may be true for acute cases. In chronic pain patients, at one extreme the symptoms may be quite severe but discernible pathology may be meager. At the other extreme, the opposite may hold true. At the same time, the current therapeutic approaches, pharmaceutical or surgical, are basically designed according to the linear biomedical model. They are, thus, not as efficient in the management of chronic pain as originally intended. After abatement of chronic pain with acupuncture, the pathology persists even though the patient may regain full capability. In this instance, there is a lack of a linear correlation among symptomatology (chronic pain), pathology (structural damages) and disability (functional impairments). Therefore, quantification of the management of chronic pain must adapt a dynamic functional approach. It still does not lead us to an understanding of how function is processed. One possibility is to apply a systems approach to analyze the considerable cybernetic interactions of the component factors of the acupuncture paradigm and chronic pain.

We cannot overemphasize health and disease as interactively dynamic states. Health is more than just an absence of disease. It is a positive state of wellness and well-being. In the Constitution of the World Health Organization, health is defined as:

"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

We must also appreciate how limited we are in the understanding of the dynamic natural phenomena of health and disease. It was quite scientific for its time when the ancients devised meridians, acupoints, the *Yin-Yang* concept, the *Five Xing*, *Ziwu Liuzhu*, etc. in their attempts to explain nature's interactive balance. Therefore, acupuncture for chronic pain rehabilitation, taking advantage of neuroplasticity, must be aimed at functional restoration, including sensori-motor and cognitive-behavioral activations. The relationship of health and disability due to chronic illnesses as alluded to by

Itoh and Lee in their extensive discussion of the epidemiology of disability (130) is indeed applicable to chronic pain as both a disease and a disability.

C. THE DESIGN OF A CLINICAL EXPERIMENT ON ACUPUNCTURE

The biophysical effects of acupuncture are much different from the biologic effects of drugs. The complexities embodied in the acupuncture paradigm could not likely be explained adequately with single causation theories either. Components embodied in the acupuncture paradigm may be seen broadly as falling into four main domains:

1. The acupoints tend to be localized at the sites of referred pain or the trigger points. However, specific acupoints are prescribed for a specific disease condition. In addition to the "classical" or meridian acupoints, there are *Ashi* acupoints that are tender sites but not localized on the regular meridians. Each of them does not bear any specific name like the "classical" ones do.

2. In Chinese acupuncture, to elicit the *deqi* response, or the needling sensation, is a requirement to assure therapeutic results. On the other hand, Japanese acupuncture does not require the generation of any needling sensation but Japanese practitioners have been successful at achieving therapeutic effects. In addition, they insert the needles rather superficially as compared with the Chinese technique. This implies that the stimulation by simply inserting a needle may be strong enough to cause sufficient therapeutic effect. This is consistent with the observations that puncturing with a needle invokes a current of injury (12, 14), and may generate Lewit's needling effect (179) or what LeBars et al. called the "diffuse noxious inhibitory control" effect (163, 164).

3. The stimulus properties resulting from either manual twirling of the needle or electric stimulation may influence the outcome of the treatment. It is known that different frequencies

in combination with different intensities of stimuli summon different neurochemicals (23). For example, clinically, acupuncture at the Zusanli (S 36) Acupoint is very effective in abating cardiac arrhythmias. Xia and associates (380-383) created ventricular extrasystole in rabbits by causing lesions in their hypothalamus. These investigators, then stimulated these rabbits' peroneal nerve (analogous to acupuncture at the Zusanli acupoint) with an electric current of low frequency and low intensity. The extrasystole was eliminated. However, when an electric current of high intensity was applied to the same nerves of these animals, the extrasystole was converted to ventricular tachycardia instead. They demonstrated that the result of low frequency low intensity stimulation was mediated through endorphins, while that of the low frequency high intensity was related to a sympathetic activation.

4. By definition, a needle is an indispensable ingredient in this healing art. Inserting a needle, in a way, subtly becomes a "ritual." This "ritual" may induce explicit and implicit expectations and assumptions by some patients. Such expectations and assumptions are obviously different from dispensing a pill by a pharmacist, a nurse, a nurse's aide, and even by a physician's prescription.

The challenge is, therefore, to determine how the above four components interact to produce the observed outcome. The commonly accepted double-blind placebo-controlled design used in drug studies to isolate the active ingredient may not be easily and aptly applicable in such a paradigm that involves the interaction of often more than two variables. Incidentally, the word placebo is from Latin meaning "I shall please." Its effectiveness usually decreases when it is used repeatedly.

Depending on the interaction involved in a particular situation, the set and the setting under which these interactions arise could result in synergistic or antagonistic effects, thus, critically altering the outcome. The results of the attempts to insolate the active components in such a situation may prove to be illusive.

We now come to the crux of the matter which we believe is the major weakness in all the clinical studies of acupuncture to date: the lack of a comprehensive model with testable hypotheses. Single causation theories are likely to be inadequate to explain the complexities embodied in the acupuncture paradigm.

The following factors contribute to the difficulty of designing a "blinded" protocol in the acupuncture paradigm:

1. Loci 2 mm. to 20 mm. away from the "real" or the meridian acupoints were selected as "sham" acupoints for control. It is assumed that they are placebos and therapeutically inert. Since there are about 1,600 Extra-*Jing* (Extra-Meridian) Odd Acupoints and New Acupoints scattered all over the body, such a "sham" acupoint might well be one of these therapeutically effective Odd Acupoints. It is also conceivable that the "sham" acupoint so innocently selected may be on a *Luo Mai* (a Connecting Channel between two *Jings*). It may, thus, become therapeutically effective. The situation is further complicated by the traditional theory that meridians are interrelated. For example, according to traditional Chinese medical theory, headache is the result of an ascension of liver fire, and the treatment is to needle acupoints along the Liver Meridian, such as the Taichong (Liv 3) Acupoint on the foot. Since the Liver Meridian is interrelated with the Gall Bladder Meridian, acupoints along the Gall Bladder Meridian, such as the Fengchi (GB 20) Acupoint in the occipital area, are also selected to treat headache. In this instance, if the "sham" acupoint happens to be located along the Gall Bladder Meridian, it can no longer be a placebo. Besides, inserting a needle into the skin tends to evoke a circle of erythema of the skin around the needle (195). This area of biologic activities may be large enough to encroach upon one of the Odd Acupoints nearby. The validity of assumed inertness of "sham" acupoints is, thus, unsubstantiated.

In 1973, the late Samuel Rosen (313) of the stapes-surgery fame attempted to treat deaf-mute children with acupuncture, by

using "sham" acupoints in the control group at loci different from the "real" acupoints in the experimental group. The acupoints were selected for him by Chinese acupuncture authorities. Very quickly and readily, the children discovered the difference between the two groups. This obviated his blind design. Subsequently in a second experiment, Rosen (313) used the same set of acupoints in both groups. He inserted the needles to the proper depths in the experimental group but superficially in the control group. One of each group of twenty children had some improvement. In this instance, the "sham" acupuncture was not a placebo at all as presumed. Merely inserting a needle anywhere in the body, whether at the "real" or "sham" site, involves some degree of afferent sensory stimulation. Thus, it may induce a therapeutic effect. In addition, a noxious stimulus may generate sufficient "diffuse noxious inhibitory control" effects not only to modify chronic pain (163, 164) but also conceivably to generate certain therapeutic effects.

Vincent et al. reported (311, 358-360) that their first experiment "provided some support for the constellation of sensations corresponding to Teh Chi." Their second experiment "did not support the contention that the sensation of Teh Chi occurs more frequently at classical acupuncture needling sites." Nonetheless, Vincent reported that "True acupuncture was significantly more effective than the control procedure (i.e., sham acupuncture) in reducing the pain of migraine headache." He further reported that "True acupuncture was shown to be significantly superior to sham, demonstrating specific therapeutic action," in the treatment of tension headache. Nevertheless, in this instance, needling sensations were generated at both the "classical" and the "sham" acupuncture needling sites. In other words, their results may be interpreted as that the needling sensation or "Teh Chi" is not a prerequisite for the therapeutic effectiveness of acupuncture. These observations were quite different from both the Chinese acupuncture technique and the Japanese.

Margolin et al. (225) examined the ability of normal human subjects (including those who had experience with acupuncture and those who did not) to detect the differences of the needling sensations (or the *deqi* response) between "sham" and "real" acupoints on their ears. "Sham" acupoints were used on one ear while "real" acupoints on the other ear of the same individual. Most of the subjects experienced the needling sensations on both ears. No significant difference in their ability to distinguish the "sham" and the "real" acupoints was demonstrated. However, the subjects did discern a very slight, but statistically significant, difference of the intensity of pain between the "sham" and the "real" acupoints. Theoretically, needling a "sham" acupoint should not evoke any sensation. By definition, the needling sensation is an indication of the *deqi* response. Thus, it seems that theoretically their "sham" acupoints cannot be therapeutically inert, especially considering their proximity to the "real" ones (i.e., with 1-2 mm. gap). These investigators, however, did not record whether there was any erythema of the ear which is a common occurrence when the ear is needled, and to what an extent it surrounded the needled sites. Such wide-spread erythema might provide an indication of the biologic activities of the inserted needle. Nevertheless, their investigation is important. It adds more possible evidence that it is difficult indeed to select therapeutically inert true "sham" placebo acupoints.

2. The meridian acupoints are not as precisely localized as described in textbooks. There are always some individual variations. As we have emphasized in this book, the traditional way to assure that the needle is at a real therapeutically effective location is to obtain the *deqi* response. Otherwise, simply inserting a needle at the textbook-described acupoint may not always assure the most effective therapeutic results.

3. However, when electric stimulation is instituted, its effects can frequently override the need for achieving the *deqi* response. In this perspective, electroacupuncture may be viewed neuro-

physiologically as analogous to "percutaneous electric neural stimulation (PENS)." In this instance, the acupoints may be viewed in a relative sense as providing clues for sites of stimulation, rather than in absolute terms as requiring precise localization, because with electric stimulation one obviously would be stimulating a field or a particular segmental distribution rather than a unique locus.

4. As we mention in Chapter 10, the response to acupuncture can vary greatly from individual to individual, from none to the immediate to the delayed. The duration of relief also varies tremendously. It may last for minutes, hours, days, months, or years. Just these two unique characteristics are enough to make the clinical research of acupuncture a dilemma and suggest that its effects are multifactorial. This variability may be explained on the basis that the effects of acupuncture are mediated through an endogenous activation of the neuromodulatory mechanism which may be individually different.

5. The measurements or assessments must be relevant to the biomedical model. Since chronic pain is a subjective condition, objective means to assess it are an essential part of any clinical investigation. For example, the popularly used ones include the McGill pain questionnaires (234, 235), and the Cooper and Beaver's model (56), Symptom Checklist-R-90, medication diary, health status questionnaire, and functional measurements. We must also bear in mind that the currently accepted techniques to evaluate chronic pain are not absolutely objective and foolproof but the best approximations.

6. The size of the experimental population must be large enough to encompass the variables of the acupuncture paradigm as discussed elsewhere in this book. Several statistical methods have been proposed to determine the number of the patients to be recruited (e.g., 4, 7, 53, 79, 80, 85, 102, 282, 283, 284). Pomeranz (290) calculated from the data published by other investigators, and found that there needed to have at least 122 subjects in order to

show a statistically significant difference of the therapeutic effects between "true" and "sham" acupuncture. The assistance of a statistician in the design of the protocol and analyses of the laboriously collected data is mandatory

7. The investigator's subtle behavior or attitude toward the treatment regime may cast an important effect on the patients.

8. The evaluator of the outcome of the treatment may not be really blinded.

9. The patient's own preconceived expectations of acupuncture and/or of the investigator is another influencing factor.

10 Patients may exchange information concerning the sites of the needles, the needling sensations, their impression of the practitioner, etc. when they meet socially. This would indeed invalidate the blinded nature of the experiment.

The above are what come immediately to mind. There must be other possible factors unknown to us.

D. THE POSSIBLE ALTERNATIVES

Because we suspect that the "sham" acupoint may not be therapeutically inert, we would like to search for a substitute for it. Since the biologic effects of acupuncture are different from those of pharmaceuticals, the question may be raised whether the generally accepted double-blind protocol for clinical investigation of drugs is truly applicable to acupuncture research. We would like to list some possibilities and suggestions as the basis for further discussion.

1. It was suggested to use TENS (functioning or non-functioning), and/or other physical modalities as a placebo to evaluate the efficacy of acupuncture treatment. However, besides their physical differences, their analgesic effects are generated through their different physiologic and pharmacologic

characteristics (260). Thus, they do not seem really comparable to acupuncture.

2. While evaluating the results of treating headache, George and Desu (9) employed the survival curve statistical technique with the pain-free period as the outcome. Lewith and Machin (15) suggested that it was suitable for evaluating the efficacy of acupuncture in the abatement of pain when all the patients were treated with "real" acupuncture. However, in using pain-free time as an indicator, one must keep in mind the possibility of a delayed response to the acupuncture treatment which we discuss in Chapter 9.

3. In our clinical practice, practically all our patients had received multiple conventional western medical treatments, including potent medications, psychotherapy, physical therapy, TENS, surgery, etc. but all such modalities had failed. We wonder whether using this selected group of "medical failures" as the patients' own controls for a clinical investigation of acupuncture may be helpful in circumventing the need for using "sham" acupoints. One of the drawbacks is the "failed" medial modalities may vary widely among the patients. It is conceivable that another variable is introduced, thus, complicating the analyses of the final results. In view of the above-mentioned situations, we believe it is legitimate at least for a pilot study. In a way, this may also be regarded as a variation of cross-over single-blind experiments.

4. One possible way is to divide the patients into two groups. The same conventional western medical treatments are rendered to both groups. Real acupuncture is added only to one of the two groups. The group without acupuncture treatment serves as the control. Of course, the race, age, and sex of the patients of the two groups must be matched.

5. Another suggestion is to divide the patients into four groups. The first group receives conventional medication. The second group receives medication plus acupuncture. The third

group receives medication plus "sham" acupuncture, if the investigator has a good way to design "sham" acupoints or "sham" acupuncture. The fourth group receives attention by talking with the practitioner. The conventional medication should probably be of a relatively low potency. It should be pointed out that there is the possibility of a potentiation of the medication by acupuncture. We observed anecdotally that acupuncture might enhance the effectiveness of the anti-viral medications in treating genital herpes (203).

6. In No. 5, the fourth group receives relaxation techniques instead of just talking with the practitioner.

7. In No. 5, the third group receives placebo medication instead of "sham" acupuncture. The fourth group receives placebo plus acupuncture.

8. Another possible method of the experimental design is to select a particular disease condition with the least amount of pathology. For example, in the case of low back pain syndrome, the initial study may be limited to the group of patients who have no obvious radiographic changes of the vertebrae, and/or the intervertebral disc spaces. Only those with pain, with or without muscle spasm and/or trigger points are recruited. Because chronic pain is a very complex problem, to limit the investigation to a narrow population will possibly simplify the final analyses of the outcome of the acupuncture treatment.

9. Thermography may provide a useful aid to objectively assess the effects of acupuncture. It was discussed in Chapter 6.

10. Evoked potentials may be utilized in the objective evaluation of the effectiveness of acupuncture on experimentally induced acute pain. One of us (MHML) reported in 1975 at the Second World Congress on Pain in Montreal on a study which he and his associates did at Technion University in Haifa, Israel. They employed laser beams of low and high intensities as thermal noxious stimuli. Acupuncture was applied as the analgesic

modality. The outcome was reported by the subjects. It was also assessed with evoked-potential studies. They found: (a) acupuncture reduced the resultant effects of this thermal noxious stimuli, and (b) such reductions were better measured by the physical indicator than by the subjective reporting. It seems that this technique may be particularly helpful in the distinction between the sham and the meridian acupoints.

11. Studies of the electric potentials of acupoints and meridians in normal individuals is still in its infancy. The possible electrophysical changes of the current of injury as evoked by acupuncture in health and disease also seems to be a promising area for further investigation. We discussed it in Chapter 4.

E. THE ANATOMY OF A RESEARCH PROTOCOL

For those who would apply for a research grant which requires peer review, we would like to offer the following suggestions for consideration. A proposal may include, but is not limited to, the following items:

1. Explain the specific goals, aims, or hypotheses clearly in simple terms. The reviewers of your proposal are most probably not familiar with your specialty. Do not use an abbreviation when a term, medical or otherwise, appears for the first time in your proposal. Put the abbreviation in parenthesis immediately following that term. Use the conventionally accepted one. The reviewer may not be familiar with an abbreviation of your own creation.

2. Describe the background and significance of your proposal, including a review of the literature.

3. Report your preliminary or prior studies, if any.

4. Clearly delineate your research design and acupuncture methodology.

a. Human subjects.

- (1) Describe age, gender, and ethnic group, if necessary. Specify the number of the patients to be recruited. State if the condition to be investigated is genetically dominant or recessive. The age, gender and ethnicity must be comparable in the treatment and the control groups when such a genetically related condition is to be investigated.
- (2) There must be a patient's informed consent form.
- (3) Institutional Review Board's approval must be included.
- (4) Advertising for patients is permissible by NIH, but attempts should be made to avoid even an appearance of commercialization by the applicant.

b. Provide a brief description of the symptomatology, pathology, and functional disability of the disease condition. Define the diagnostic examination.

c. Specify the criteria for inclusion and exclusion, including the diagnosis, specific pathologic concern, and the duration and severity of the disease condition .

d. State the estimated number of patients to be recruited in each group and the measures to make up for the "drop-outs."

e. For the treatment group.

- (1) Delineate the specific acupoints with explanation. Be sure that the acupoints to be used are relevant to and justified for the condition.
- (2) If electric or laser stimulation is to be used, specify the type of equipment. Define the waveform, the intensity, the pulse frequency, and the duration of

the stimulus. Explain the purpose of employing such equipment. Specify the loci to be stimulated.

- (3) The current standard of National Institutes of Health permits a combination of acupuncture with other modalities and/or herbal medicines given at the same time. The conventional wisdom is to try one modality or agent at a time in order to simplify the statistical analysis of the outcome.

(4) Describe the sterile techniques.

- f. For the control group. Describe the specifics.
- g. Explain the risks and complications, possible and potential.
- h. Describe in detail the safe-guards to preserve the blinded design and to assure the patients' compliance.
- i. Specify the expected number of treatment sessions per week and the total number of the sessions.

5. The techniques of assessment of pain, psychologic factors, and functional abilities for pre- and post-treatment examinations, and follow-ups should be relevant to the investigation and should be clearly described.

6. Describe the statistical methodology in the design of the protocol and in the analysis of the outcome of the investigation.

7. Describe the methods to assure the observance of confidentiality of the information collected.

8. List the principal investigator, collaborators, and consultants, including their resumes..

9. If you are invited by somebody else to be a consultant or particularly a collaborator, it is advisable that you participate in preparing the proposed protocol. You may wish to assist the applicant in revising the materials to your standard of research and

to your satisfaction. It can be quite embarrassing to be involved in a substandard project.

10. The budget should be reasonable. All items, such as travel, equipment, consultant's fees, advertising expenses, and the like must be justified.

11. If the patients, the staff members, the facilities, and the premises of NIH are to be utilized for the study, even when the applicant himself/herself is not a regular staff member of the NIH, a possible question whether the proposal should be intramural or extramural may be raised.

12. Any apparent conflict of interest or question of impropriety should be avoided.

13. If you wish to investigate the therapeutic efficacy of certain modalities or agents, such as laser or herbal medicines which are not yet approved by Food and Drug Administration, and if your proposal is accepted for funding by NIH, it is our understanding that NIH will negotiate for you with FDA for an exemption for your equipment or agents.

In general, the descriptions and statements of the research proposal must be clear, concise, and precise. Your application is the only means to demonstrate and communicate your competency in acupuncture and in clinical research to the reviewers, so as to win their understanding, sympathy, and approval.

ADDENDUM: At press time, Dr. Richard Hammerschlag forwarded a reprint of his excellent article (391), describing his experience from the Acupuncture Study Section Conference, convened by the Office of Alternative Medicine, NIH, March 1993. SJL was also a participant. It complements our discussions in this chapter, and deserves serious attention of those who intend to apply for research grants.

CHAPTER 8

THE TRADITIONAL CHINESE DIAGNOSTIC TECHNIQUES

It was noted in *Neijing Suwen* (Yellow Emperor's Classic of Internal Medicine Book of Common Questions), Chapter 11, "On the Individual Viscera,"

"In the treatment of a disease, one must ascertain the symptoms, feel the pulse, and observe the appearance and behavior of the patient so as to provide a proper therapy."

Acupuncture and traditional Chinese medicine call for a diagnosis to determine the causes which are quite different in concept from western medicine. Please see Chapter 3 for a brief description of the causative factors in traditional Chinese medicine. The Chinese diagnostic techniques have evolved as the result of their customs and traditions, such as the prohibition of getting undressed, etc. Ancient Chinese were not deterred by such handicaps. They invented the following system of four major procedures:

A. *WANG* [望] - INSPECTION

The patient's facial complexion and the condition of the skin are examined for painful expressions, distress, color flashes, paleness, sweating, dryness, jaundice, swelling or puffiness, congestion or redness, and discharges of the eyes and the nose, etc. The mental attitude and the presence of nervousness or anxiety are observed. For example, a flushed face signifies a "hot" or febrile disease; a pale face, a "cold" disease; a grey face, a "deficiency" disease; etc. If there is coating of the tongue, its color and thickness and pattern of distribution are noted. For example, a thin coating of the tongue points toward an "external" disease; a thick coating to an "internal" disease; and the like. The location of the

coating also signifies the involvement of a particular viscus.

B. *WEN* [聞] - SMELLING or LISTENING:

It should be noted here that this Chinese word, like many others, has more than one entirely unrelated meaning. It is not unusual for a patient with a certain disease to give off different and particular odors which are unmistakable to an experienced physician. A patient with typhoid fever or pseudomonas infection emits an odor peculiar to that disease. Patients with lung abscess have a fetid breath while those with diabetic coma tend to have an apple smell in their breath.

The traditional physicians also pay attention to the characteristics of a patient's voice and the breathing noise, if any, as possible indications of differential diagnoses. During our multiple visits to China since 1972-1973, we have witnessed the usage of stethoscopes and reflex hammers by traditional practitioners even in rural communes and by the house officers in the teaching hospitals of traditional Chinese medicine. Figure 8.1 shows a traditional doctor using a stethoscope in a commune clinic



Figure 8.1

in Guangzhou in 1978. This is indeed an encouraging sign of their modernization of the traditional medicine, though it would be heresy to the orthodoxy not too long ago.

C. *WEN* [问] - QUESTIONING

This is no different from our history-taking in western medical practice. However, a traditional physician may emphasize more the environmental factors, such as exposure to the cold, dampness, heat, etc. than the western counterpart would. They would note the season when the patient becomes sick. Of course, it does have an epidemiologic significance, particularly in infectious diseases. Their diagnosis of meningitis is "spring pestilence". Western medicine knows that meningitis is prevalent or epidemic in the spring.

D. *QIE* [切] - PALPATION

This Chinese word is commonly translated in the western medical literature as Pulse-Diagnosis. That is only a part of its meaning, though its the major one. The traditional physicians do palpate to ascertain the nature of a swelling or puffiness, tender loci, and, of course, the body temperature.

The radial pulses are examined carefully for they are thought to provide the most reliable information concerning a patient's condition. It is claimed that the legendary physician, Bian Qiao [扁鹊] (407-310 B.C.) first used pulse for diagnosis. The most important book on pulse diagnosis, or sphygmopalpation, was compiled by Wang Shuhe [王叔和] (210-285). It formed the foundation of this procedure.

The characteristics of the pulse are determined by feeling a short segment of the radial artery at the wrist. Figure 8.2 on the next page is a copy of an ancient illustration of the pulses and the sphygmopalpation. The segment is divided into three parts. The

distal part is called *Cun* [寸], the middle part *Guan* [关], and the proximal part *Chi* [尺]. *Cun* is a unit measure of length, equivalent to our inch. *Chi* is also a unit of measure, equivalent to our foot. *Guan* implies the connecting point. The physician touches these three parts with the index, middle, and ring fingers.

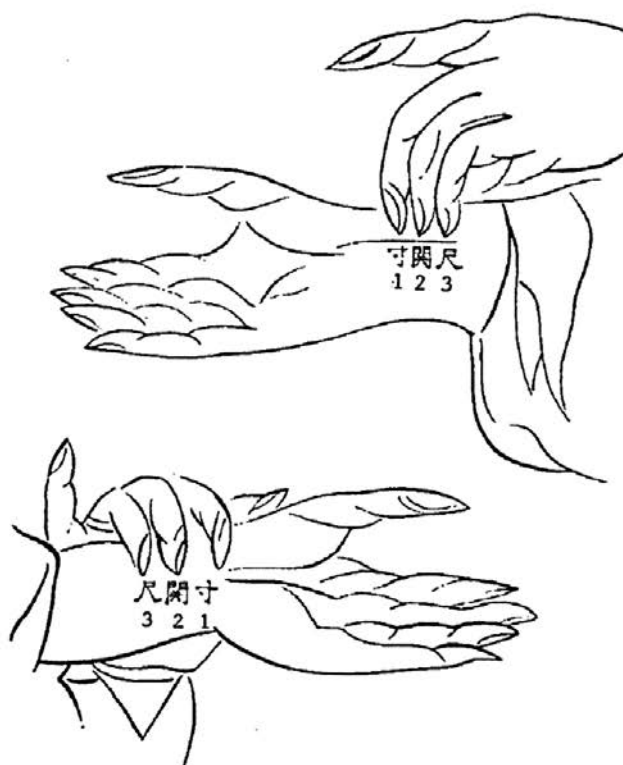


Figure 8.2

The doctor usually uses the left hand to feel the pulse of the patient's right hand and his right hand for the patient's left one. The middle finger is placed against the radial styloid process, which is basically the *Guan* position; the index finger distally on the *Cun* position; and the ring finger proximally on the *Chi* position. In western literature, these three are listed as Positions 1,

2 and 3 from the distal to the proximal. The fingers press the artery lightly to observe *Biao Mai* [表脉] (the superficial pulses), and firmly to observe *Li Mai* [里脉] (the internal pulses). Thus, there are three superficial and three internal pulses on each wrist. The superficial pulses represent the status of the Yang organs. The internal pulses represent the status of the Yin organs.

Table 8.1 illustrates the different pulses and their corresponding organs.

TABLE 8.1

LEFT		PULSE	RIGHT	
EXTERNAL	INTERNAL		INTERNAL	EXTERNAL
Small Intestine	Heart	CUN	Lung	Large Intestine
Gall Bladder	Liver	GUAN	Spleen	Stomach
Urinary Bladder	kidney	CHI	Pericardium	Triple Warmer

Great emphasis has been placed on this technique. It became so highly developed that more than forty pulse characteristics have been described - from light to heavy; floating to sunken; slippery to sluggish; etc. Definitive diagnosis is said to be possible by feeling the pulses alone. The entire matter of pulse diagnosis grew quite mysterious, fanciful, and complex. The ancients wondered whether it was not a part of a scheme by some hereditary healers to make their art exclusive to outsiders. Some ancient scholars even claimed that such complexity was quite unnecessary.

For a man, the pulses of the left wrist are emphasized and for a women the right ones. As you can see this technique is absolutely subjective. The characteristics of the pulses as described by the ancients need to be substantiated with modern techniques. Their real physiologic and pathologic significance should also be verified clinically.

After finishing the four diagnostic procedures, the healer or the traditional doctor might have found that the patient had a deficiency disease by inspection and an excess disease by listening; or a hot disease by questioning and a cold disease by palpating the pulse. According to traditional teaching, when such situations happened, the diagnosis would then be made discreetly on the practitioner's personal judgement.

We saw clinical laboratories, electrocardiographic and electroencephalographic equipment, radiology departments and other similar teaching and research facilities in the traditional medical colleges and hospitals. In some traditional medical colleges, we were told that about 30% of the curriculum was devoted to basic medical sciences. These are parts of the modernization programs of the traditional Chinese medicine. This is very encouraging indeed.

CHAPTER 9

ACUPUNCTURE TREATMENT

Practically all of our patients tried everything available in western medicine to alleviate their sufferings before they came to see us. They were disappointed and disenchanted with the failures by the seemingly promising surgical interventions and by the powerful new drugs. They read about the magic cures of acupuncture in the popular media or heard about the excellent results from their friends. They came as a last resort. Many of them harbored unwarranted high hopes. This chapter serves only as a guide to our colleagues regarding the procedures of puncturing with a fine acupuncture needle at an acupoint.

A. ACUPOINTS (ACUPUNCTURE POINTS)

We do not know how the ancients arrived at choosing the acupoints for treating diseases. One possibility is suggested by the legend of cutting open an abscess on a hunter's leg with a sharp stone that we related in Chapter 2. It is also possible, they found punching some of the tender places on the body with a flint or lode-stone resulted in a relief of suffering besides curing an abscess. Their astute observations led to the development of this healing system.

The oldest medical treatises written on silk scrolls, and on wood and bamboo strips, listed no names of the acupoints, although their locations along the meridians were described, rather vaguely. These texts were found in a marchioness' tomb (burial date: 168 B.C.). The second oldest medical text was written on seven wood strips and dated to the period between 25-100 A.D. Three

acupoints were listed with names. We discussed these in the section on the *Jing-Luo System* in Chapter 2.

In *Suwen* (Book of Common Questions), the locations of acupoints were also described rather vaguely along the *Jings* and *Mais*. Most of them were not given any names at all, such as in Chapter 41, "On Puncture for Low Back Pain" (199). In Chapter 13 of *Lingshu* (Book of Acupuncture), "On the *Jings* (the Meridians)", it described in detail the twelve meridians with their names and related diseases, but simply stated, "Let the tender loci be the acupoints." However, this seems to be the first time that the acupoints were so clearly defined in this manner. Nowadays, such tender loci are called trigger points in our western medicine.

The Chinese term for the acupoint is *Zhenxue* [针灸] (a Hole for the Needle) or *Xuewei* [穴位] (the Location of the Hole). It really is neither a point nor a hole. *Xue* is a generic word. It means anything from minute crevices to a giant cave. A minute hole is probably the nearest literal translation. For all intents and purposes, we will use the term acupoint (or acupuncture point) in this book.

In *Suwen* (Book of Common Questions), Chapter 58, "Discussions on *Qi Xue* [气穴论] (i.e., Acupoints),

Yellow Emperor asked, "I heard that there are 365 acupoints on the human body, in correspondence to the number of days in a year. I would like to learn where they are."

Not all of the acupoints had names though their locations were given, though sometimes rather vaguely. Most of them are counted as two because there is one on each side of the body, for instance, the Hegu (LI 4) Acupoint on each hand. Thus, 365 is the official number of acupoints. As we mentioned elsewhere in this book, there were many versions of this Classic. One version of *Suwen* listed only 132 acupoints while in another version, 138 acupoints. According to the current count, there are 361 acupoints in the *Jing-Luo* (the Meridian) System. The number of acupoints also varies

in other acupuncture textbooks, from 295 to 667. Table 9.1 lists the number of acupoints in some of the better known sources.

TABLE 9.1

Source	<i>Neijing Suwen</i>	<i>Jiayi Jing</i>	Bronze Statue	<i>Zhenjiu Dacheng</i>
Date	c. 2300 B.C.	282 A.D.	1026 A.D.	1601 A.D.
Single Acupoints	25	49	51	51
Duplicate Acupoints	135	300	303	308
Total Number	295	649	657	667

All the classical acupoints are aligned with the *Jing-Luo*. Thus, they are called *Jing Xue* [经穴] (Meridian Acupoints). In the subsequent years, new acupoints were discovered outside the *Jing-Luo System*. They are called *Extra-Jing Odd Acupoints* [经外奇穴]. According to Hao, these *Odd Acupoints* are 1595 in number (115, 116). In 1975 we assisted Dr. Nguyen Van Nghi of Marseilles in translating some of these points into French (348-353). Incidentally, Dr. Van Nghi calls them "Curious Points."

The ancients gave names to the acupoints, usually indicating, for example:

1. Topography: such as *Hegu* [合谷], the Converging Valley, at the depression between the thumb and the index finger;

2. Anatomy: such as *Dachui* [大椎], the Large Vertebra, at the most prominent vertebral spinous process at the base of the neck;
3. Physiology: such as *Tinggong* [听宫], Auditory Palace, the point concerning hearing near the tragus of the ear; and
4. Therapeutic effect: such as *Yamen* [哑门], Gate of Mutism, for treating mutism.

The difficulty of the Chinese language precludes their common usage by the westerners. Thus, western scholars have numbered the acupoints in sequence according to the Meridian (*Jing*), with its visceral designation as the prefix. For example, *Hegu* is the fourth point on the Large Intestine *Jing*, so it is called Large Intestine 4 (LI 4); *Dachui*, the fourteenth on the *Dumai* (or Governing Vessel), *Du* 14 (or Governing Vessel 14, GV 14); similarly acupoint *Tinggong*, Small Intestine 19 (SI 19); and *Yamen*, *Dumai* (or Governing Vessel) 15 (Du 15, or GV 15).

Around 1972, an attempt was made in China to simplify the manner of naming the individual acupoints by using Arabic numbers sequentially without any prefix of a viscus. The hand on the right in Figure 9.1 shows the sequentially numbered acupoints.



Figure 9.1

That on the left in that figure has corresponding classical names. Thus, the Hegu Acupoint became Point 84; the Dachui Point 14; the Tinggong Point 142; and the Yamen Point 143. This is indeed a heroic step. It requires the retraining of every single traditional practitioner. So far as we know, this project has not been carried out any further. We mentioned in Chapter 2, P. Dabry de Thiersant of France, in 1863, made a similar venture (please see Fig. 2.12) but had no followers.

Acupoints are said to be analogous to the ports along rivers and canals. The *Jing-Luo* System are the rivers and canals. The acupoints receive or discharge *Qi* [气] (the Elixir of Life) which flows along the *Jings* and *Luos*. When the *Qi* becomes stagnant at the acupoints, the person becomes sick. At such stagnant points, *Qi* is either in excess causing a flood, or in deficiency causing a drought. To achieve recovery, those acupoints will have to be needled to unplug the stagnation. This would disperse the excessive *Qi* in order to dissipate the flood or bring in more *Qi* to correct the drought, as the case may be. This brings to mind the story of puncturing an abscess, which we told elsewhere in this book. The pus in the abscess was probably regarded as the result of stagnation of evil *Qi* in excess. Puncturing it let the evil *Qi* (i.e., the pus) out to attain the cure.

There is a tendency for acupoints to cluster near joints and distal parts of the limbs. Such acupoints are easily excitable and considered very valuable therapeutically. Different names have been assigned to these acupoints.

In ancient times, the same acupoint might have different names and the same name might be given to several different acupoints. This was because of different versions of texts used, the difficulty in communications and in travels among the communities, the prevalence of adherence to family secrets, and the like. In 1439, Xu Feng [徐凤] clarified many of the discrepancies and simplified them in his book, *Zhenjiu Daquan* [针灸大全] (Complete Acupuncture and Moxibustion).

Trigger points and acupuncture points, though discovered independently and labelled differently, represent the same phenomenon and can be explained in terms of the underlying neural mechanism. Many tender loci are not necessarily on the *Jings*. In the sixth century, Sun Simiao [孙思邈] was the first to point such tender points out in relation to their therapeutic importance. He named them *Ashi Xue* [阿是穴] (or Ouch Acupoints). Their plausible equivalent in western medicine are the trigger points. One of us (SJL) reported about this similarity at the Annual Scientific Meeting of the Eastern Section of American Congress of Rehabilitation Medicine in Georgetown, D.C., March 1973 (187, 237). We will discuss this subject in Chapter 14.

Many of the acupoints also coincide with the motor points of skeletal muscles (190, 195); for instance, the Hegu Acupoint (Large intestine 4 or LI 4) with the motor point of the first dorsal interosseus muscle of the hand (Fig. 9.2), the Zusanli Acupoint (Stomach 36 or ST 36) with that of tibialis anticus muscle (Fig. 9.3 on the next page), and the Jiangjing Acupoint (Gall Bladder 21 or G 21) with that of upper trapezius muscle (Fig. 9.4 on the next page). One of us (SJL) reported on this at American Congress of Rehabilitation Medicine Annual Meeting in 1973.

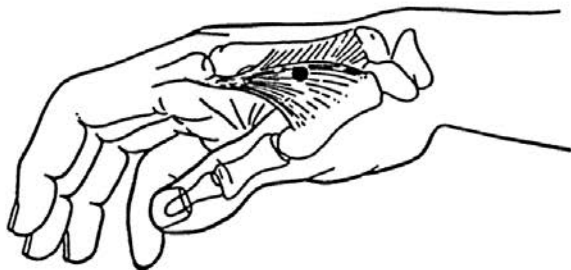


Figure 9.2

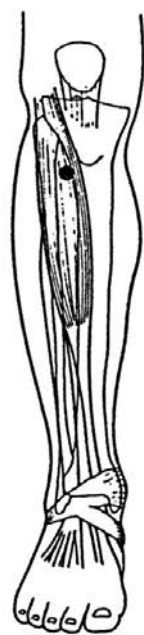


Figure 9.3



Figure 9.4

Acupoints have high electric conductance. Using this characteristic, a detector is constructed to localize acupoints. Figure 9.5 shows such an acupoint detector obtained in China in 1972, for detecting auricular acupoints.

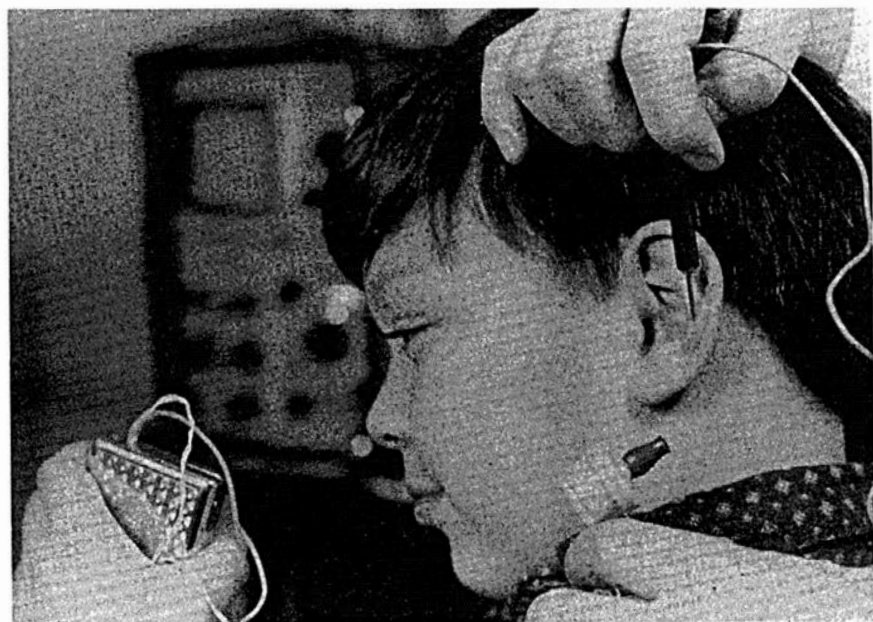


Figure 9.5

An acupoint emits spontaneous electric discharges (195). Figure 9.6 illustrates such fibrillation potentials.

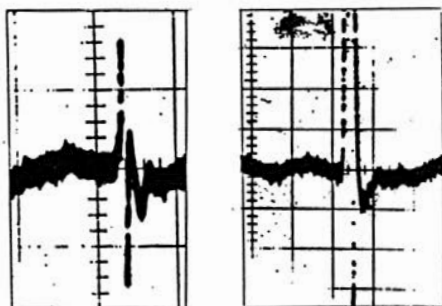


Figure 9.6

The skin around an acupoint may become erythematous after the insertion of an acupuncture needle (170). Figure 9.7, a color plate within Chapter 6, shows areas of erythema about 2 cm. in diameter surrounding the acupuncture needles. This is probably a part of the triple response (i.e., the red reaction, the spreading flush or flare, and the local edema or wheal) of the skin to local stimulation. The local edema or wheal is occasionally seen in acupuncture. It is possible that the erythema from the mechanical trauma by the needling is due to a local release of histamine, Lewis' substance H, substance P, enkephalins, endorphins, serotonin, postaglandins, or the like. This may explain why some patients experience warmth spreading to a wide area around the punctured site. Whether such warmth or erythema could be eradicated by antagonists to endorphins, serotonin or others deserves exploration. This bodes well with an increase of infrared radiation with acupuncture, as demonstrable with thermography. Lewis (177) suggested the term "erythralgia" to description this combination of erythema and hyperalgesia.

Bloom and co-workers in 1976 (19) found that beta-endorphins produced hypothermia and gama-endorphins hyperthermia in rats. Clark in 1977 (52) reported a hyperthermic effect of met-enkephalin in cats. This may partly help to explain our thermographic findings of an increase of the local temperature together with a relief of pain with acupuncture treatment (204).

B. THE ACUPUNCTURE NEEDLE

1. The Size of the Acupuncture Needle

Before they came to consult with us, many patients had heard stories about acupuncture treatments from their relatives or friends directly or indirectly. Sometimes, such stories could be quite bizarre. For example, an elderly lady came and she appeared quite nervous. We spent a lot of time talking with her but failed to find out what was making her so nervous. Finally, we decided to show

her an acupuncture needle. She gave a big sigh of relief. She volunteered, "Everybody has been telling me you use knitting needles." In another instance, a young man came for the second treatment of his low back pain. He brought his wife along. During the treatment the young lady spoke up, "Joe (not his real name), the needles are not really as big as you told me." Apparently, during the first treatment that was given with him in the prone position, of course he could not see the needles on his back. He must have thought the needles long and big. Indeed, in pre-historic days Chinese used stone-puncture, as we mentioned elsewhere in this book. Jabbing with a sharp stone must hurt badly.

Lingshu [灵枢] (Book of Acupuncture) described nine varieties of acupuncture needles in its Chapter 1, "On the Nine Needles and the Twelve *Yuan* (Source Acupoints)." Figure 9.8 on the next page is a copy of an illustration of the nine varieties of acupuncture needles, adapted from *Zhenjiu Dacheng* (1601 A.D.). The first, the fifth, the sixth, and the ninth from the left in that Figure are actually scalpels. This seems to indicate that in ancient days, minor surgery was also a part of acupuncture. This lends some credence to the story that we told in Chapter 2, concerning the beginning of acupuncture as the opening up an abscess by a sharp stone on a hunter's leg. Some of the depicted needles are thicker than others. Nowadays, we use the filament types, similar to the third one from the left in Figure 9.8. Nine as the number of varieties of the needles was said to tally with the nine regions of China at that time.

Acupuncture needles are now usually made of stainless steel. They are solid, not like the hollow needles for injections with a syringe. Their usual lengths vary from 0.5 inch (1.25 centimeters) to 2 inches (5 centimeters). Their diameters are usually from 0.012 to 0.013 inch (0.30 to 0.33 millimeter). In engineering terms, they are 28 to 30 gauge. The caliber of the smallest of the commonly-used syringe needles, such as for intradermal inoculation, is 25

gauge, about 0.024 inch or 0.6 to 0.7 mm. That is, they are twice as big as the acupuncture needles. Japanese traditional practitioners tend to use very thin needles, such as 34 to 36 gauge. They place the needle in a guiding tube to assist its insertion.

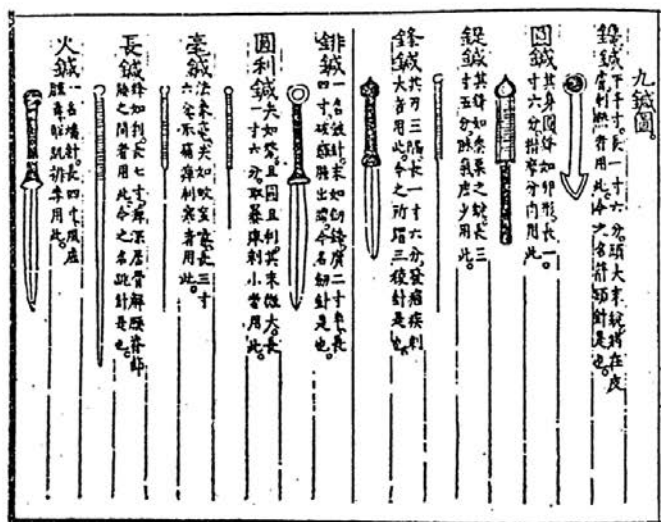


Figure 9.8

The French practitioners, at one time, used quite thick needles. Figure 9.9 on the next page is a picture of the French acupuncture needles in a metal clam-shell case, given to us by the late Herman Kamenetz, M.D. who took an acupuncture course in Paris in 1950.

William Osler in 1892 (268) described in his famous textbook the use of "bonnet pins" (i.e., ladies' hat pins) for acupuncture treatments. Because of the fine caliber of the modern acupuncture needle, it usually does not provoke a real pain sensation. After the treatment patients are often surprised to find no needle mark on the skin. It is important to point out that the tip of an acupuncture needle is sharp and has no cutting edge like a syringe-needle. Therefore, it does not cause any damage to the tissues. Incidentally, Japanese practitioners often bury long gold threads

subcutaneously or intramuscularly for long-term treatment. It is supposed to perpetuate the therapeutic effects. There is no scientific verification of this as far as we know. In Chapter 15, we will discuss the hazards of such a practice.

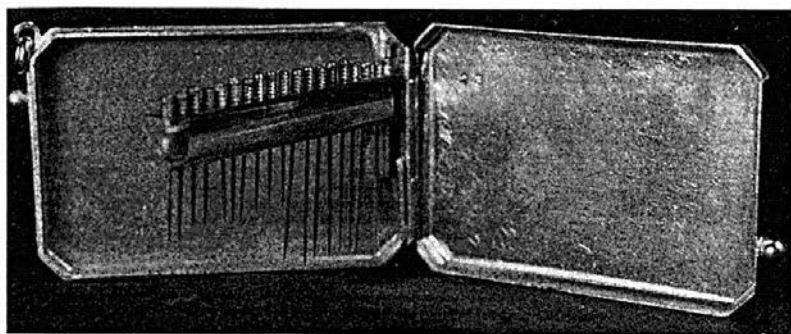


Figure 9.9

2. The Sterilization of Acupuncture Needles

It is exceedingly important that the needles used for acupuncture be properly sterilized, and that sterile procedures be strictly observed throughout the treatment, so that infectious materials will not be transmitted by the contaminated needles from one patient to the next, or from the practitioner to the patient.

Sterile techniques were alien to Chinese traditional practitioners until its introduction into China by western missionary doctors about one hundred years ago. For centuries, some traditional practitioners demonstrated their expertise by inserting needles through a patient's clothing while the latter was fully dressed during the treatment. Such practice was condemned by Gao Wu [高武] in his book *Zhenjiu Juying* [针灸聚英] (A Collection of the Essence of Acupuncture and Moxibustion, published in 1529 A.D.).

The traditional practitioners customarily hold the shank of an

acupuncture needle between their fingers to insert into a patient's body. That is because the needles are so thin that they would bend when pressed against the skin. Another traditional custom is the use of the so-called "warm needle." They thought a cold needle might cause over-stimulation. So, they simply held the needle in their own mouths to warm it up before it was inserted into the patient. Contamination in this case is obvious. Figure 9.10 is an illustration of six methods of inserting a needle as often shown in textbooks. Five of them seemingly involve some apparent contamination with the practitioner's fingers.

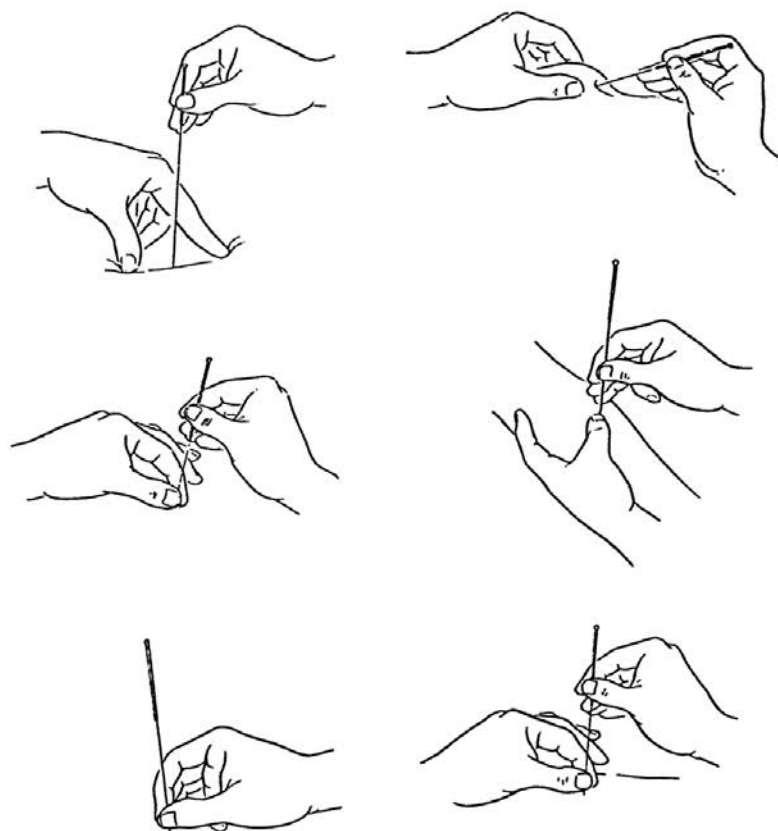


Figure 9.10

In recent years, traditional practitioners learned from western missionary doctors to use alcohol as an antiseptic agent. So, they soak the needles in alcohol and regard it as a sterilization procedure. We know alcohol does not sterilize anything. They often wipe the excess alcohol solution off the soaked needle with their fingers before inserting it into a patient.

Such unhygienic practices caused much alarm and denouncement by some eminent visitors from the American Medical Association and other similar medical organizations. The traditional practitioners countered that they had been using it throughout the millennia without overt infections why it should be changed just because of the westerners' complaints. One plausible explanation for a lack of obvious ill effects is that the vast majority of the Chinese population have acquired antibodies against such diseases as hepatitis or poliomyelitis soon after they were born.

For sterilization of acupuncture needles, the usual autoclaving with steam under pressure for fifteen minutes or with hot air at 200° C. for at least fifteen minutes will do. Since sterile disposable needles are commercially available now, it is advisable that they be used routinely. We particularly prefer the type packaged individually with a guiding tube. Strict sterile techniques must be observed at all times.

C. THE NEEDLING TECHNIQUES

After the acupuncture needle is inserted, it may be twirled or push and pulled, gently or vigorously, for a while. The purpose is to enhance its therapeutic effect. According to traditional teaching, there are different ways to manipulate the needle for different therapeutic purposes. There are two major ones: *Bu* [補] and *Xie* [瀉]. *Bu* is usually translated as Tonification. The Chinese meaning of *Xie* is Purgation (implying Purification), but it is usually translated as Sedation in the western literature. Generally speaking, twirling the needle to the left is for the *Bu* effect and to

the right the *Xie* effect. Thrusting the needle down in three steps and withdraw partially in one step is for *Bu*. Thrusting the needle down in one step and withdrawing it partially in three steps is for *Xie*. Many different methods have been described to accomplish *Bu* and *Xie*. When the needle is inserted quickly it is supposed to have a different therapeutic effect than when it is inserted slowly. Similarly, when the needle is inserted superficially or deeply, the effects are supposed to be different. To treat a man, the needle is twirled to the left and a woman to the right. Eventually, the needling technique became a exotic and mysterious ritual. The real effects of the different techniques await scientific investigation. Nevertheless, such ancients' clinical practices remind us about the different frequencies and intensities of electric stimulation at acupoints generating different neurophysiologic and neuropharmacologic effects. We discussed such phenomena as observed by the latter-day scientific investigators in Chapter 4.

D. THE DEPTH OF THE NEEDLE INSERTION

The depth of needle insertion varies from patient to patient. In the same individual, it varies from locality to locality, and from one session to the other, depending on the patient's status at the time of treatment. The depth is actually guided by the anatomical make-up in the area of the acupoint and the *deqi* response at the time of inserting the needle. Chinese acupuncture textbooks usually indicate the optimal depth of insertion at each acupoint. This is the result of the ancients' clinical experience. In view of the fact that traditional practitioners are usually not trained in basic medical sciences, including anatomy, it is essential for them not to violate the dictated depth for each acupoint in order to avoid possible disastrous results. In Chapter 13, such hazards will be discussed.

E. THE NUMBER OF ACUPUNCTURE NEEDLES USED IN EACH TREATMENT

Some patients want to know how many needles were used for the treatment. Some thought they might look like a porcupine, for they saw it shown on television, or saw pictures in magazines and newspapers. We cannot over-emphasize that it is not the number of needles required to achieve the good results of the treatment. Most importantly, it depends on the precise selection of the relevant acupoints for the patient's particular condition. The renowned ancient physicians attempted to use the minimal number of needles to achieve the best result.

F. THE NUMBER OF SESSIONS OF THE TREATMENT

Several sessions of the treatment are usually required to achieve the therapeutic goal. There is no fixed number required. Each patient responds to acupuncture differently. The number of sessions must vary according to each patient's need. Different conditions require different numbers of the treatment sessions, just as in western medical practices. Generally speaking, less than 5% of the patients with pain problems would have a dramatic improvement after one or two treatments, while the vast majority require somewhere between five to ten sessions, on the average. If no improvement whatsoever is observed after fifteen sessions of treatment, we would usually recommend discontinuation of it. Incidentally, five, ten and fifteen are our magic numbers. There is no reason that they could not be some other numbers. If there are indications of a beneficial effect of acupuncture, further treatments are warranted. If the patient's condition is only partially alleviated after a reasonable number of sessions it may be advantageous to stop the treatment for a while to see if the condition will further improve or become worse without it. After that resting period, a decision is then made whether acupuncture should be resumed. One must realize that the effect of acupuncture is not entirely all-

or-none. Even when the condition is only partially improved by acupuncture, it is better than no relief at all with other medical treatments. Nevertheless, all this depends on the practitioner's clinical judgement according to the patient's condition at that particular time.

G. THE FREQUENCY OF THE TREATMENT

We really do not know what the optimal frequency of acupuncture treatment is. It depends on the patient's clinical status and his/her response to acupuncture. It must be geared to the patient's needs. We usually render it one to three times weekly at the beginning. In animal experiments, the analgesic effect of acupuncture usually lasted for 48 hours or so. Additional acupuncture after the 48th hour would booster the analgesic effect to a higher level. It is also plausible that our body may need one to two days in between to prepare for and respond to the next treatment. Hence, it is reasonable to render such treatments once every third day. As the patient's condition improves, it is quickly tapered off and discontinued as soon as feasible.

H. THE IMMEDIATE RESPONSE

During the first visit, it is not unusual for some patients to be very tense, anxious and nervous. Since this is a totally new and different experience from their usual visits to other doctors' offices, they do not know what to anticipate. Besides, their fear of needles enhances that anxiety. Acupuncture quickly exerts its tranquilizing and sedating effects, and the majority of patients become fairly quickly relaxed.

During the treatment, many of our patients feel completely relaxed, maybe drowsy, and even fall asleep. Some may even feel groggy. After the treatment, the treated limb may feel quite heavy, especially if it is the shoulder or the hip being treated. Some

patients report feeling tired. Most of them are very happy that now they can enjoy a good night's sleep since the chronic condition has interfered with their sleep for so long. We advise our patients if they feel even slightly drowsy when driving a car, they must stop the car by the roadside and rest for awhile before proceeding again. Partly for this reason, we routinely urge the new patient to bring someone along, at least for the first visit. There is no way to predict who will be excessively relaxed and who will not.

Other patients reported that they felt "energized" or had a wonderful sense of well-being for the first time in the many years of suffering from their chronic condition. Some may feel elated. The extreme of this is that some patients reported feeling "high," "on cloud nine," or even mildly euphoric. Some patients felt "full of energy" so much so that they did many things which they had not been able to do while they were ill. In one such instance, a low back pain patient built a stone wall after his pain disappeared with acupuncture treatment. Three women patients individually reported that they giggled during the treatment and also for several days after each acupuncture treatment. They were not related, lived in different towns, did not know one another, and had their treatments for different conditions at different times. Unfortunately, we could not obtain permission from them to determine their personality inventories.

The patient's family also found that he/she was more cheerful, did not complain as much as before, and was much easier to live with. Sometimes families were on the brink of breaking up because they could no longer tolerate the chronic pain patients' abnormal behavior. With acupuncture treatments, not only were the patients' chronic pain conditions remedied but also the patients became such lovable people that the family strains were completely eliminated. In at least two instances known to us, such possible family break-up situations were averted after our acupuncture treatments.

So far as we know, these types of psychological responses have not been reported previously. Because we did not expect them, we were not prepared to record them systematically. Several years ago, we attempted to study this phenomenon in all our patients in relation to their personality inventories and neurochemical levels. We failed to obtain a research grant to employ a psychologist and to pay for the neurochemical determinations. Now, we can only comment on them retrospectively and anecdotally.

I. THE *DEQI* RESPONSE (THE NEEDLING SENSATION)

At the insertion of the needle, the patient may feel a pricking sensation, no more than a mosquito bite. There is no real pain to speak of. When the needle reaches the proper acupoint, the patient may feel soreness, tingling, numbness, warmth, or an expanding sensation of the needle. This is called *deqi* in Chinese acupuncture. It may be felt locally and/or may, sometimes, radiate to the adjacent areas of that acupoint. The patient may experience a tingling sensation in a distal part of the limb but no evoked sensation at all in between. At other times, this sensation may travel along the entire limb to its distal part and exit at the tips of the fingers or toes as the case may be. For example, when the shoulder is treated, additional tingling sensations may be felt travelling from the forearm to the dorsum of the homolateral hand and exiting from the tips of the fingers with no particular sensation in the arm. Similar sensation may also be experienced when the lower back is treated, with the sensation radiating down to the posterior aspect of the homolateral leg and foot with no particular sensation in the posterior aspect of the thigh. Some times, he/she may feel heaviness of the treated limb. All these sensations may be accentuated by gentle twirling of the needle. A patient usually experiences only one kind of these sensations at a time. During the next treatment, he/she may have an entirely different experience. The presence of the *deqi* response is a prerequisite of a possible therapeutic success in Chinese acupuncture. Thus, it is an essential

part in the acupuncture treatment. However, it is not required at all in Japanese acupuncture

J. THE DELAYED RESPONSE

Certain patients with chronic pain conditions did not respond to a short series of one to five sessions of acupuncture treatment. However, one to four weeks later they suddenly realized that their pains had subtly and completely been eliminated. We have seen such cases often enough and believe that there does exist a delayed response to acupuncture.

We searched the Chinese literature, including the old classics, and failed so far to find any reports of this phenomenon. Such a delayed response compounds the difficulty in the assessment of the effectiveness of this therapeutic modality. However, it is encouraging to those patients who apparently did not respond immediately to acupuncture treatment.

K. FEAR OF PAIN FROM ACUPUNCTURE

Of course, any person will feel some sensation when pricked by a needle. When we first learned acupuncture, we practiced it on ourselves. Thus, we know what a patient may experience. There is no real racial difference in the perception of pain, even though some people claimed that Chinese and other orientals are stoics and they do not feel pain.

Whether it hurts or not really depends entirely on the individual. The pricking sensation from acupuncture is actually less than that from a sewing needle. After the needle is inserted, one would rarely, if at all, notice that it is still there. With our peculiar American culture, needles are used very often. We usually start to immunize a baby against the common childhood infectious diseases early and repeat the procedure several times even in the first year and half of life. These are practically all done with

syringe-needles. We get injections in the mouth by dentists. We are needed to draw blood for laboratory tests. Many drugs are administered parenterally. It seems that we have a sort of needle culture. More often than not, such experiences are quite traumatic psychologically, especially in children. In the minds of the American public the word needle, when associated with medicine and dentistry, often provokes the memory of pain. Thus, many people are afraid of needles. At times, one can work oneself up to the extent that even touching the skin lightly with a finger or alcohol swab could provoke a pain sensation. Occasionally, at the sight of a needle a person may faint. As is mentioned in an earlier part of this Section, the injection needles are at least two to three times thicker than acupuncture needles. Besides, their cutting edges add to the trauma and discomfort. It is understandable why we Americans are needle shy. Hence, whether acupuncture hurts or not depends very much on a person's subjective fear of needles.

By definition, an acupoint is usually tender when pressed. Even when a very thin needle is inserted into such a tender locus, the patient would experience some sensation. A normal individual does not have sore spots. When an acupuncture needle is inserted into a non-tender area, it would, of course, cause little discomfort.

L. THE NEED FOR REST AFTER ACUPUNCTURE TREATMENT

In an above section, we observed that after alleviation of pain by acupuncture, some patients tended to carry out activities which they had not been able to perform for quite some time. By overextending themselves, their original problems very frequently became aggravated. This kind of aggravation also tends to make the original pain condition more severe. As a preventive measure, we advise our patients to take it a little easy for a couple of days after the treatment. This does not mean that one has to "baby" oneself. One should use common sense to carry on the usual work routine in moderation and not to show off.

M. THE NEED TO CONTINUE WITH CURRENT MEDICATIONS

Because of the remarkable reduction or elimination of pain by acupuncture, some patients stopped all the medicines at once on their own. They did not realize that some of drugs were very potent, such as steroids, methotrexate and the like prescribed for severe cases of arthritis. Sudden withdrawal from them is often life-threatening. We advise our patients to consult with their own physicians before they take any such action, no matter what drugs they are taking at the time. We feel strongly that we cannot be a specialist to all our patients' diverse disease conditions. The patients' physicians should follow their own patients with us and be responsible for the medications that are prescribed by them.

N. ACUPUNCTURE FOR PREVENTION

We have no sufficient scientific experience to show that acupuncture can be used as a preventive procedure. Many of our patients who received acupuncture treatments as far back as 1972 have remained free from their previous sufferings. When one does not have pain, we really do not know precisely what to prevent. We do not have statistically designed data to support our contentions. However, such prolonged alleviation of pain has happened often enough with many of our patients that it leads us to believe there is such a distinct possibility. We wish to get enough funding to contact all our previous patients for verification. At this point in time, we do not have an explanation for this kind of prolonged suppression of recurrences.

From our experience with treating nicotine addiction, the vast majority of the patients stopped smoking immediately. However, their long-term results are basically a psycho-social problem of rehabilitation. So is narcotics addiction. Please see Chapter 12 for a detailed discussion.

From our limited experience with treating certain skin diseases, such as psoriasis, herpes, poison ivy contact dermatitis, acne, and the like, acupuncture seems to enhance the immunity sufficiently to prolong remissions and to prevent recurrences. This is a fascinating aspect of acupuncture that needs further exploration. Please see Chapter 12 for a detailed discussion.

O. THE CONSENT FORM AND PATIENT-EDUCATION BROCHURE

In some states, a consent form is required before a patient is given acupuncture treatment. In general it is always advisable to have the patient sign it before any treatment is rendered. An example of the consent form is included as Appendix II as a suggestion. Please note that it is for those practitioners who do not participate in medicare fee schedules. For those participating practitioners, please delete that particular sentence concerning this matter. The consent form is a legal document. You must have your attorney review this form or have him/her to design a new one to suit your situation.

Before the patients sign the consent form, it is necessary to explain the nature of the treatment to them. In order to save the practitioner's time and energy, we printed a one-page short brochure, "Questions and Answers about Acupuncture" for patient education purposes. A sample of it is included as Appendix III. We usually mail it to them when we confirm their appointments with us. At other times, we give it to them to read while waiting to be seen by us. It is available in bulk quantities for your convenience.

CHAPTER 10

THE COMMONLY USED ACUPOINTS

Including all the *Jing Xue* [经穴] (Meridian Acupoints), Extra-Meridian Odd Acupoints, and New Acupoints there are about 1,960 acupoints scattered on the body. Only about 100 to 200 Acupoints are commonly used in the every-day practice of medicine. Many of the others have therapeutic functions duplicating those along the same meridian. We shall list and describe the ones that we use most often. The choice is entirely personal, though based largely on our own clinical experiences. Other experienced doctors may not agree with our list. Our readers are encouraged to develop a list of their own and be familiar with their usage.

In this book the acupoints are not listed according to *Jings* or Meridians in the conventional manner but to the regions of the body, in order to facilitate our readers to search for an acupoint. The phonetic spelling of the acupuncture points is according to that of *Xinhua Zidian*, i.e., the New Chinese Dictionary (6). The nomenclature in this book is basically the same as that in *Essentials of Chinese Acupuncture* (15) and *An Outline of Chinese Acupuncture* (1). It is slightly different from that used in World Health Organization's Standard Acupuncture Nomenclature. The major differences are the *Sanjiao Mai* [三焦脉] and the Extra-Meridian Odd Acupoints. The *Sanjiao Mai* was translated by Felix Mann as Triple Warmer Meridian (222, 223). The WHO's translation is Triple Energizer Meridian (377). The vast majority of acupuncture practitioners in this country have been using Mann's nomenclature since the early 1970s and may not be familiar with the WHO nomenclature which was developed around 1982. The names and numbers of the Extra and the New Acupoints differ between Mann's and the WHO's. We try to include both in the listing and the description of the acupoints.

The names of the acupoints are spelled according to the current romanization of Chinese characters, i.e., the *Pinyin* [拼音] System. This new spelling is markedly different from that appearing in the existing English, French, German, and other languages, the origins of which may be traced back to the 18th or the 19th century. Some of the old phonetic spelling may be based in local dialects. The intent here is that there should be only one spelling of one Chinese word throughout the world for all languages.

In order to avoid confusion, each acupoint is provided with its numerical sequence of its *Jing* (i.e., Meridian, or Channel) as listed in the above-mentioned Chinese textbooks. The numerical sequences of some of the acupoints may be different from those used by Dr. Felix Mann, Dr. Nguyen Van Nghi, and others. We commented on this in some detail in Chapter 1.

For localization of the acupoints, we have followed *An Anatomical Atlas of Acupoints* by Shandong Medical College and Shandong Traditional Medical College (319) and *State Standard of the People's Republic of China: The Location of Acupoints* (127). Though the location of each point has more or less remained uniform since the beginning of the tenth century, there still existed discrepancies in various prominent old texts. For example, there are nine different descriptions of the location of the *Zhangmen* Acupoint (Liver 13). Five of them relate it to the tip of the next to the last rib, three measured it from the umbilicus, and one used the tip of the elbow. In this book, we will use anatomic landmarks as much as possible for localization of the acupoints. For the *Zhangmen* Acupoint, we use both the eleventh rib and the olecranon process of the elbow as references. Whenever possible, we use immobile bony landmarks instead of movable parts of the body. For example, one method of localizing the *Zusanli* Acupoint (Stomach 36) is to trace it from the lower pole of the patella by four fingerbreadths. The patella is movable and changes its position when the knee is fully extended or flexed to different

degrees. Therefore, we use the tibial tubercle as the reference point.

The acupoints may also be localized by using the "Body-Length-Equivalent Unit." Huangfu Mi [皇甫谧] (215-282 A.D.) devised an ingenious method of measurement for this purpose by dividing each part of human body into a fixed number of units. He defined the unit of measurement as the length of the side of the middle phalanx of a person's middle finger between the distal and proximal interphalangeal creases. Figure 10.1 is an ancient illustration of this basic Body-Equivalent Unit. In this way, the individual variation is said to be mitigated. His unit is called "Middle-Finger-Body-Length-Equivalent Unit" or *cun*. It is still the standard and in common usage in China today.



Figure 10.1

However, Zhu Lien [朱琏] stated in her 1954 book (389),

"We did a survey. It proved that the 'finger-body-unit' was hardly a reliable standard of measurement. According to the ancient books, the height of a person was 75 times this finger-body-unit. We measured one hundred persons. The least multiple was only

60 times of the unit. The most was 134 times. Only five people had multiples of from 74 to 75 times."

As a variation of this body-equivalent unit, the width of the thumb may be regarded as one *cun*. The combined breadths of the index, middle, ring and little fingers of the hand at the level of the second metacarpophalangeal joints may be considered three *cun*. Figure 10.2 is an illustration of a modern version of the Body-Equivalent Units.

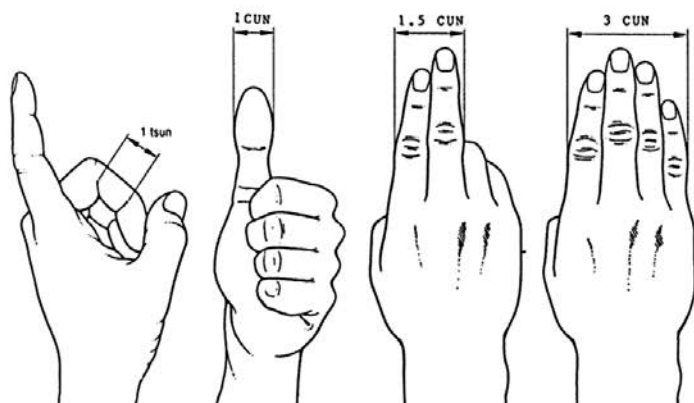


Figure 10.2

Another way of measuring the different parts of the body is to divide each part into a fixed number of units (i.e., *cun*). For example, the calvarium is divided into 12 *cun* along the midline from the anterior hairline to the posterior hairline.

Figure 10.3 on the next page is an ancient illustration of the units assigned to various parts of the body (from the book, *Zhenjiu Dacheng* [针灸大成], published in 1601, A.D.).

Figure 10.4 on the next page is a modern version of the same body-length units as in Figure 10.3.

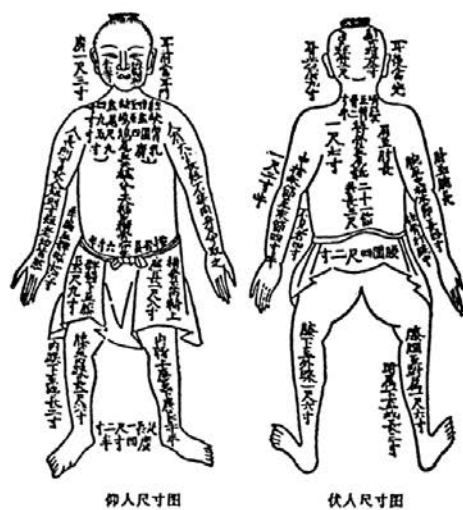


Figure 10.3

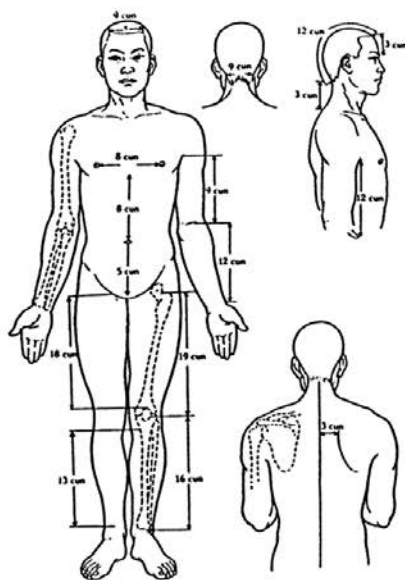


Figure 10.4

Zhu Lien further declared (391),

"The various means of measurement for the localization of acupoints could merely be used as rough guides. Another method is to look for tenderness and/or numbness when the acupoint is palpated."

We may recall that *Neijing Suwen* defined, "Let tender loci be acupoints." In Chinese acupuncture, the precise localization of an acupoint does depend very much on the *deqi* response when the needle is inserted at the prescribed site. Otherwise, therapeutically it would less likely be effective, (please see Chapter 9).

Each acupoint may have many therapeutic indications. We have only listed what seems most applicable to western medicine and do not intend to be encyclopedic. Whether the listed indications are really as claimed in some of the Chinese texts awaits confirmation from our own and our readers' experiences as well as by statistically designed clinical investigations.

Several acupoints may be used in combination to obtain better therapeutic effects, with possible mutual enhancement. This is quite similar to a combination of drugs in a physician's prescription. We use the term CONJOINT USES under each acupoint in this book to indicate some possible combinations for such usages. The selection of an acupoint, and its conjoint use with some other points for a particular clinical condition depends upon the practice and experience of the clinician. We only offer them as no more than a suggestion. The traditional practitioners use acupuncture to treat infectious diseases, such as tuberculosis, pleurisy, pneumonia, dysentery, cholera, polio, parasitic diseases, etc. Now, we have much better pharmaceuticals for such diseases and there is no need to treat them with acupuncture. Thus, acupoints and acupuncture techniques to treat infectious diseases and the like are mentioned only for historic purposes in this book.

The ancients noticed that certain acupoints were more effective in treating certain diseases than most of the others. They grouped

such acupoints together and assigned a name to the group. There are several such groups. For illustration, we will list a few.

1. The Six *Zong* (Premier or literally Summary) Acupoints [六总穴]: Each of them functions as a "summary" of the therapeutic effectiveness of a meridian for a particular area or system of the body. They are basic acupoints that cover the every-day clinical practice.

- a. Zusanli Acupoint (S 36) for diseases of the gastrointestinal system.
- b. Weizhong Acupoint (B 40) for diseases of the lower back.
- c. Lieque Acupoint (L 7) for diseases of the head and neck.
- d. Hegu Acupoint (LI 4) for diseases of the face and oropharynx.
- e. Neiguang Acupoint (P 6) for diseases of the chest and heart.
- f. Sanyinjiao Acupoint (Sp 6) for diseases of the pelvic region (i.e., the urogenital system).

2. The other groups are, for example:

- a. The Five Shu Acupoints [五俞穴].
- b. The Twelve Yuan (Source) Acupoints [十二原穴].
- c. The Fifteen Luo (Connecting) Acupoints [十五络穴].
- d. The Sixteen Xi (Interspace or Cleft) Acupoints [十六穴].
- e. The Twelve Back-Shu Acupoints [十二(背)俞穴].
- f. The Eighteen Chest-Abdomen Mu Acupoints [十八募穴].
- g. The Eight Influential Acupoints [八会穴].
- h. The Eight Connecting Acupoints joining the Eight Extra Meridians [八脉交会穴].

Each of these groups is supposed to have specific therapeutic effects. Some of the current Chinese textbooks on acupuncture do not always mention them and their clinical applications. A discussion of these special acupoints is beyond the scope of this book. Those who are interested in learning about them may wish to read *An Outline of Chinese Acupuncture* (1) and *Essentials of Chinese Acupuncture* (15).

A. THE HEAD

1. The Calvarium

SHANGXING [上星]

JING: Governing Vessel 23 (GV 23) or Dumai 23 (DU 23).

LOCALIZATION: On the calvarial midline, 2 *cun* posterior to the anterior hairline (Figs. 10.5 and 10.6).

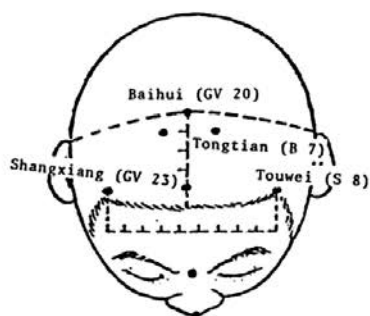


Figure 10.5

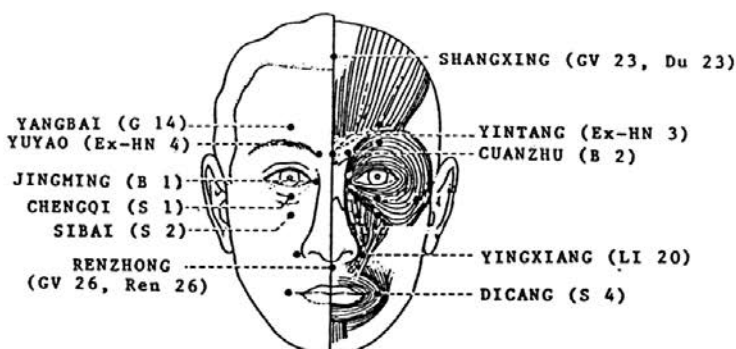


Figure 10.6

ANATOMY: At the junction of the left and right frontalis muscles. The supratrochlear and supraorbital branches of the

ophthalmic division of the trigeminal nerve. The frontal artery and vein, and the superficial temporal artery and vein.

PRINCIPAL INDICATIONS: Headaches. Rhinitis. Ocular pain.

CONJOINT USES:

1. With Baihui (GV 20) and Hegu (LI 4) to treat headaches.
2. With Hegu (LI 4) and Taichong (Liv 3) to treat rhinitis.
3. With Suliao (GV 25) and Yingxiang (LI 20) to treat epistaxis.

TECHNIQUE: Insert the needle obliquely for 0.5 to 1 cun.

BAIHUI [百 会]

JING: Governing Vessel 20 (GV 20) or Dumai 20 (Du 20).

LOCALIZATION: At the intersection of the calvarial midline and the line connecting the tips of the ears, i.e., at the midpoint of the sagittal suture (Figs. 10.5 and 10.7).

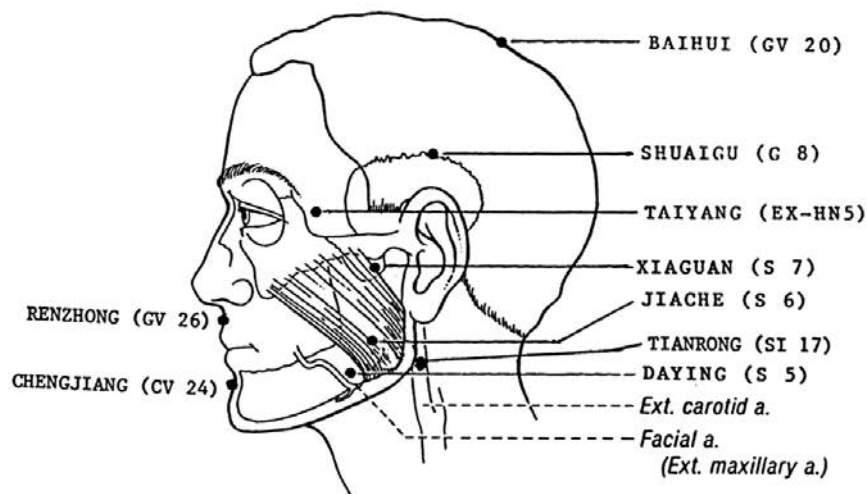


Figure 10.7

ANATOMY: Galea aponeurotica. The greater occipital nerve (C 2) and the supratrochlear and supraorbital nerves of the ophthalmic division of the trigeminal nerve. Anastomotic network of the left and the right superficial temporal arteries and veins, and the left and the right occipital arteries and veins.

PRINCIPAL INDICATIONS: Headaches. Dizziness. Shock. Hypertension. Insomnia.

CONJOINT USES:

1. With Neiguan (P 6) and Renzhong (GV 26) to treat shock.
2. With Yintang (Ex-HN 3), Taiyang (Ex-HN 5), and Hegu (LI 4) to treat headaches.

TECHNIQUE: Insert the needle horizontally forwards, backwards, and laterally for 0.5 to 1.5 cun.

PRECAUTION: Insert the needle with great care in infants and hydrocephalic patients where the frontal and sagittal fonticuli (fontanelle) are not closed.

TONGTIAN [通天]

JING: Urinary Bladder 7 (B 7 or UB 7).

LOCALIZATION: One cun anterior and 1.5 cun lateral to Baihui (GV 20) Acupoint (Fig. 10.5).

ANATOMY: Galea aponeurotica. Branches of the greater occipital nerve (C 2). Anastomotic plexuses of the superficial temporal arteries and veins, and of the occipital arteries and veins.

PRINCIPAL INDICATIONS: Rhinitis. Headaches. Dizziness.

CONJOINT USES:

1. With Shangxing (GV 23), Yintang (Ex-HN 3), and Hegu (LI 4) to treat rhinitis.

2. With Taiyang (Ex-HN 5), Fengchi (G 20), and Hegu (LI 4) to treat headaches.

TECHNIQUE: Insert the needle horizontally forwards or backwards for 0.5 to 1 cun.

TOUWEI [头 维]

JING: Stomach 8 (S 8 or St 8).

LOCALIZATION: At the temporal corner of and about 4.5 cun lateral to the midpoint of the anterior hairline (Fig. 10.5).

ANATOMY: Galea aponeurotica. At the upper border of the temporalis muscle. Branches of the greater occipital nerve (C 2). Anastomotic network of superficial temporal arteries and veins and of occipital arteries and veins.

PRINCIPAL INDICATIONS: Migraine headaches and other headaches. Facial nerve palsy.

CONJOINT USES:

1. With Lieque (L 7) to treat migraine headaches.
2. With Yangbai (G 14), Yifeng (T 17), Dicang (S 4) and Yingxiang (LI 20) to treat facial nerve palsy.
3. With Zanzhu (B 2) to treat twitching of the eye lids.

TECHNIQUE: To subcutaneously insert the needle backwards and horizontally for about 1 to 1.5 Cun.

2. *The Face*

YINTANG [印 堂]

JING: Extra-Jing Odd Acupoint or Extra Acupoint (Ex-HN 3)

LOCALIZATION: The midpoint between the eyebrows, i.e., the glabella (Figs. 10.5 and 10.6).

ANATOMY: The corrugator glabella muscle. The supratrochlear nerve of the ophthalmic division of the trigeminal nerve. Branches of the medial frontal artery and vein.

PRINCIPAL INDICATIONS: Headaches. Sedation. Dizziness. Rhinitis. Hypertension. Insomnia. Eclampsia.

CONJOINT USES:

1. With Taiyang (Ex-HN 5) and Fengchi (G 20) to treat headaches.
2. With Taiyang (Ex-HN 5) for sedation.
3. With Yingxiang (LI 20) and Hegu (LI 4) to treat rhinitis.
4. With Quchi (LI 11) and Fenglong (S 40) to treat hypertension.
5. With Shenmen (H 7) and Sanyinjiao (Sp 6) to treat insomnia.

TECHNIQUE: Insert the needle horizontally downwards, or slightly laterally toward the inner canthus of the eye or underneath the eyebrow for 0.5 to 1 cun.

SULIAO [素髎]

JING: Governing Vessel 25 (GV 25) or Du Mai 25 (Du 25).

LOCALIZATION: At the tip of the nose (Fig. 10.5).

ANATOMY: The nasal cartilage. The external nasal branch of the ophthalmic division of the trigeminal nerve. The dorsal nasal branch of the ophthalmic and the lateral nasal branch of the facial arteries and veins.

PRINCIPAL INDICATIONS: Shock. Hypotension. Bradycardia. Rhinitis. Rhinophyma (Strawberry nose).

CONJOINT USES:

1. With Neiguan (P 6) and Zusanli (S 36) to treat toxic shock.
2. With Neiguan (P 6) to treat bradycardia and hypotension.

3. With Yingxiang (LI 20) and Hegu (LI 4) to treat rhinophyma.
4. With Shangxing (GV 23) and Yingxiang (LI 20) to treat epistaxis.
5. With Neiguan (P 6) and Yongquan (K 1) to treat electrocution.
TECHNIQUE: Insert the needle obliquely upwards for 0.5 to 1 cun.

RENZHONG (SHUIGOU) [人中(水沟)]

JING: Governing Vessel 26 (GV 26) or Dumai 26 (Du 26).

LOCALIZATION: In the philtrum, at the junction of the upper third and the lower two thirds (Figs. 10.6 and 10.7).

ANATOMY: In the orbicularis oris muscle. The buccal branch of the facial nerve and the branches of the infraorbital nerve (from the maxillary division of the trigeminal nerve). Superior labial artery and vein. The labial arteries from each side of the face that anastomose freely across the midline. (The severed artery would spurt blood from both ends.)

PRINCIPAL INDICATIONS: Acute lumbar sprain and strain. Fainting spell. Shock. Coma. Heat stroke. Hysteria. Motion sickness. Puffiness of the face. Diseases of the nose. Foul breath. Spasms of the muscles of the mouth and eyes. Abdominal colic.

CONJOINT USES:

1. With Weizhong (B 40) to treat sprain and strain of the low back.
2. With Changqiang (GV 1), and Shousanli (LI 10) toward Wanli (LI 7) to treat rheumatic arthritis.
3. With Zhongchong (P 9) and Hegu (LI 4) to treat coma due to stroke.
4. With Neiguan (P 6), Yongquan (K 1) and Zusanli (S 36) to treat septic shock.

- 5 With Huiying (CV 1) and Zhongchong (P 9) to treat suffocation due to drowning.
6. With Shixuan (Ex-UE 11), Yongquan (K 1) and Weichong (B 54) to treat heat stroke.
7. With Qianding (GV 21) to treat puffiness of face.

TECHNIQUE:

1. Insert the needle upwards subcutaneously for 0.5 to 1 cun.
2. To treat drooling, insert the needle toward nasal septum, withdraw the needle to the subcutaneous level and, then reinsert toward the left and right alae nasi.

CHENGJIANG [承浆]

JING: Conception Vessel 24 (CV 24) or Renmai 24 (Ren 24).

LOCALIZATION: Along the midline of the chin, in the depression at the midpoint of the mentolabial sulcus (Fig. 10.7).

ANATOMY: Orbicularis oris and mentalis muscles. Branches of the facial nerve, and the mental nerve of the mandibular division of the trigeminal nerve. Branches of inferior labial artery and vein.

PRINCIPAL INDICATIONS: Facial nerve palsy. Toothache. Canker. Drooling.

CONJOINT USES:

1. With Fengfu (GV 16) to treat stiffness of the neck.
2. With Heliao (LI 19) and Fengchi (G 20) to treat facial palsy.
3. With Dicang (S 4) and Lidui (S 45) to treat canker and buccal blisters.

TECHNIQUE: Insert the needle obliquely, upwards and toward the back for 0.3 to 0.5 cun.

CUANZHU (ZANZHU) [攢竹]

JING: Urinary Bladder 2 (B 3 or UB 2).

LOCALIZATION: The medial end of the eyebrow (Figs. 10.6 and 10.8).

ANATOMY: The frontalis and corrugator muscles. The medial branch of the frontal nerve of the ophthalmic division of the trigeminal nerve. The frontal artery and vein.

PRINCIPAL INDICATIONS: Headaches. Facial nerve palsy. Twitching of the eyelids.

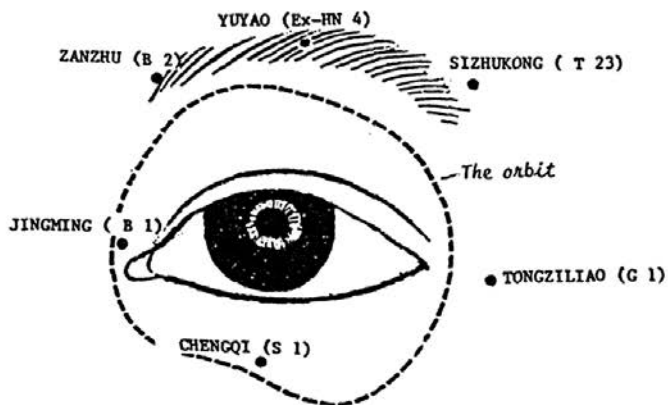


Figure 10.8

CONJOINT USES:

1. Through to Yuyao (Ex-HN 4), with Fengchi (G 20) and Hegu (LI 4) to treat frontal headache.
2. With Sibai (S 2) and Jiachengjiang (Extra-meridian) acupoints to treat facial spasms.
3. With Yuwei (Extra Point) and Binao (LI 14) to treat ocular pain.
4. With Touwei (S 8) to treat ocular pain.

TECHNIQUE:

1. Perpendicular insertion for 0.3 to 0.5 cun.
2. To treat headache or facial nerve palsy, insert the needle horizontally through to Yuyao (Ex-HN 4) for 1 to 1.5 cun.
3. To treat supraorbital neuralgia, insert the needle horizontally toward the supraorbital foramen for 0.5 cun.
4. To treat eye diseases, insert the needle toward Jingming (B 1) for 0.5 to 1 cun.

JINGMING [睛 明]

JING: Urinary Bladder 1 (B 1 or UB 1).

LOCALIZATION: With eyes closed, 0.1 cun above the inner canthus of the eye (Figs. 10.6 and 10.8).

ANATOMY: Medial palpebral ligament. Medial rectus muscle in the deeper layer. Supra- and infra-trochlear nerve of the ophthalmic division of the trigeminal nerve. Angular artery and vein. Supra- and infra-trochlear arteries and veins. Ophthalmic artery and vein in the deeper layer.

PRINCIPAL INDICATIONS: Facial nerve palsy. Ophthalmic neuritis.

CONJOINT USES:

1. With Qiuhou (Ex-HN 6), Fengchi (G 20) and Taichong (Liv 3) to treat glaucoma.

TECHNIQUE: With eye closed, gently push the eyeball outward and hold it in that position, slowly insert the needle along the orbital bone for 1 to 1.5 cun. Do not twirl or puncture with the needle.

PRECAUTION:

1. This point tends to bleed readily. After the removal of the needle, apply pressure to that area for two to three minutes to prevent bleeding. If there is any bleeding after removal of the needle, apply ice immediately.
2. The needle should not be inserted too deeply in order to avoid its entrance into cranial cavity.

YINGXIANG [迎香]

JING: Large Intestine 20 (LI 20).

LOCALIZATION: 0.5 cun lateral to the ala nasi in the nasolabial groove (Fig. 10.6).

ANATOMY: Quadratus labii superior muscle. At the edge of piriform aperture (anterior nasal aperture) of the skull. Anastomotic network of the facial nerve and the infraorbital nerve of the ophthalmic division of the trigeminal nerve. Facial artery and vein. Infraorbital artery and vein.

PRINCIPAL INDICATIONS: Facial nerve palsy. Rhinitis. Sinusitis.

CONJOINT USES:

1. With Shangxing (GV 23), Quchi (LI 11) and Hegu (LI 4) to treat sinusitis.
2. With Yingtang (Ex-HN 3) and Hegu (LI 4) to treat chronic rhinitis and postnasal drip.

TECHNIQUE:

1. To treat nasal diseases, insert the needle toward Bitong (Extra Acupoint) for 0.5 to 0.8 cun.

PRECAUTION: From our clinical observations, this acupoint is very effective in relieving nasal congestion and, thus, improve the drainage of the nasal sinuses. It may increase postnasal drip

markedly for several hours to a day or so. Patients may be alarmed by the sudden copious increase of the postnasal drip. They may mistake it as worsening of the condition by acupuncture treatment. It is advisable to forewarn the patients of such a possibility.

YANGBAI [阳白]

JING: Gall Bladder 14 (G 14 or GB 14).

LOCALIZATION: Eyes looking forward, in line with the pupil, one cun above the eyebrow (Fig. 10.6).

ANATOMY: This is the motor point of frontalis muscle. Supraorbital branch of the frontal nerve of the ophthalmic division of the trigeminal nerve. Lateral branches of the frontal artery and vein.

PRINCIPAL INDICATIONS: Supraorbital neuralgia. Facial nerve palsy. Ptosis.

CONJOINT USES:

1. With Sibai (S 2), Qianzheng (New Point) and Dicang (S 4) to treat facial nerve palsy.
2. With Taiyang (Ex-HN 5), Touwei (S 8) and Fengchi (G 20) to treat Ptosis.

TECHNIQUE:

1. Insert the needle subcutaneously toward Yuyao (Ex-HN 4).
2. For the treatment of facial nerve palsy the needle may be inserted toward Zanzhu (B 2) or toward Sizhukong (T 23), for 1 to 5 cun.

YUYAO [鱼腰]

JING: Extra Jing Odd Point (Ex-HN 4).

LOCALIZATION: In the middle of the eyebrow, in line with the center of the pupil, with forward gaze (Figs. 10.6 and Fig. 8).

ANATOMY: The orbicularis oculi muscle. The lateral branches of the frontal nerve of the ophthalmic division of the trigeminal nerve. The later branches of the frontal artery and vein.

PRINCIPAL INDICATIONS: Supraorbital neuralgia. Facial nerve palsy. Paralysis of the eye muscles.

CONJOINT USES:

1. With Zanzhu (B 2), Sidu (T 9) and Neiguan (P 6) to treat supraorbital neuralgia.

TECHNIQUE: To treat supraorbital neuralgia, insert the needle horizontally toward the Zanzhu (B 2) or the Sizhukong (T 23) for 0.5 to 1 cun.

SIBAI [四白]

JING: Stomach 2 (S 2 or St 2).

LOCALIZATION: Eyes looking forward, one cun directly below the pupil (Fig. 10.6).

ANATOMY: Right at the infraorbital foramen. Between orbicularis occult and superior quadratus labii muscles. Branches of facial nerve and infraorbital nerve. Branches of facial artery and vein. Infraorbital artery and vein.

PRINCIPAL INDICATIONS: Facial nerve palsy and spasm. Trigeminal neuralgia. Sinusitis. Allergic facial swelling. Keratitis. Myopia.

CONJOINT USES:

1. With Yangbai (G 14), Dicang (S 4), Fengchi (G 20) and Hegu (LI 4) to treat facial palsy.

TECHNIQUE:

1. Perpendicularly for 0.3 to 0.8 cun or horizontally 0.8 to 1 cun.
2. Obliquely upward and outward for 0.3 to 0.5 cun to treat trigeminal neuralgia.

PRECAUTION: When the needle enters the infraorbital foramen, do not insert it too deeply in order to avoid injury to the eyeball.

DICANG [地仓]

JING: Stomach 4 (S 4 or St 4).

LOCALIZATION: Lateral to the angle of the mouth by 0.4 cun (Fig. 10.6).

ANATOMY: Motor point of orbicularis oris muscle. Buccinator muscle lying in the deeper layer. Branches of the facial nerve, and the infraorbital nerve of the maxillary division of the trigeminal nerve. The buccal branch of the facial nerve lying in the deeper layer. Facial artery and vein.

PRINCIPAL INDICATIONS: Facial nerve palsy. Trigeminal neuralgia. Drooling.

CONJOINT USES:

1. With Yuyao (Ex-HN 4) and Sibai (S 2) to treat trigeminal neuralgia.
2. With Jiache (S 6), Yingxiang (LI 20) and Hegu (LI 4) to treat facial palsy.

TECHNIQUE:

1. Insert the needle subcutaneously.
2. For treatment of facial palsy, point the needle toward Jiache (S 6) for 1.5 to 2.5 cun.
3. For treatment of trigeminal neuralgia, point the needle toward Yingxiang (LI 20) for 1 to 2 cun.

SIZHUKONG [丝竹空]

JING: Triple Warmer 23 (T 23), Sanjiao 23 (SJ 23), or Triple Energizer 23 (TE 23).

LOCALIZATION: In the depression just lateral to the outer end of the eyebrow (Fig. 10.8).

ANATOMY: Lateral to the zygomatic process of the frontal bone. The orbicularis occult muscle. The upper zygomatic branches of the facial nerve. The zygomatico-facial and zygomatico-temporal branches of the maxillary division of the trigeminal nerve. The frontal branches of the superficial temporal artery and vein.

PRINCIPAL INDICATIONS: Headaches. Facial nerve palsy. Ocular pain. Blurred vision.

CONJOINT USES:

1. With Zhongzhu (T 3) and Fengchi (G 20) to treat migraine headaches.
2. With Zuzhu (B 2), Sibai (S 2), and Dicang (S 4) to treat facial nerve palsy.

TECHNIQUE: Horizontal insertion of the needle posteriorly or towards Yuyao (Ex-HN 4) for 0.5 to 1 cun.

3. The Zygomatic Region**TAIYANG [太阳]**

JING: Extra Jing Odd Point (Ex-HN 5).

LOCALIZATION: In the depression about 1 cun posterior to the mid-point between the end of the eyebrow and the lateral canthus of the eye (Fig. 10.7).

ANATOMY: The temporal fascia and the temporal muscle. The auriculotemporal nerve of the mandibular division of the

trigeminal nerve and facial nerve in the superficial layer. The deep temporal nerve in the deeper layer. The zygomatico-orbital artery and vein. The deep temporal artery and vein.

PRINCIPAL INDICATIONS: Headaches. Migraine headaches. Facial nerve palsy. Trigeminal neuralgia. Diseases of the eye.

CONJOINT USES:

1. With Yingtang (Ex-HN 3) and Hegu (LI 4) to treat headaches.
2. With Yifeng (T 17) to treat toothaches.

TECHNIQUE :

1. Insert the needle perpendicularly for 0.5 to 1 cun.
2. Insert the needle horizontally to treat migraine headaches, pointing backwards toward Shuaigu (G 8), for 1 to 2 cun.
3. Insert the needle subcutaneously downwards toward Jiache (S 6) for 3 cun to treat facial nerve palsy.

XIAGUAN [下关]

JING: Stomach 7 (S 7 or St 7).

LOCALIZATION: At the mandibular foramen, formed by zygomatic arch and the mandibular notch (Figs. 10.7).

ANATOMY: Below the lower margin of the zygomatic arch. The parotid gland. The zygomatico-orbital branch of the facial nerve and the auriculotemporal branch of the mandibular division of the trigeminal nerve. The origin of the masseter muscle. The transverse facial artery and vein, The maxillary artery and vein.

PRINCIPAL INDICATIONS: Toothache. Temporomandibular arthritis. Masseter spasm. Facial nerve palsy. Trigeminal neuralgia.

CONJOINT USES:

1. With Hegu (LI 4) to treat temporomandibular arthritis.

2. With Jiache (S 6) and Yifeng (T 17) to treat masseter spasm.

TECHNIQUE:

1. Insert the needle perpendicularly for 1.5 cun to treat trigeminal neuralgia.
2. Insert the needle obliquely for 0.8 to 1 cun to treat temporomandibular arthritis.
3. Insert the needle subcutaneously for 1.5 to 2 cun to treat toothache --- toward the angle of the mouth for teeth of the upper jaw, and toward the angle of mandible for those of the lower jaw.
4. To treat masseter spasm, insert the needle obliquely downwards for 1.5 to 2 cun.
5. To treat diseases of the ear, insert the needle obliquely toward the ear for 1.5 cun.

4. The Mandibular Region

JIACHE [颊 车]

JING: Stomach 6 (S 6 or St 6).

LOCALIZATION: One finger-breadth anterior to the angle of the jaw. When biting the teeth, this acupuncture point is at the prominence of the masseter muscle (Figs. 10.7 and 10.9).

ANATOMY: The motor point of the masseter muscle. Greater auricular nerve (C 2), and the buccal branch of the facial nerve. Masseter artery and vein.

PRINCIPAL INDICATIONS: Toothache. Temporomandibular arthritis. Masseter spasm. Facial nerve palsy.

CONJOINT USES :

1. With Xiaguan (S 7), or with Xiaguan (S 7), Hegu (LI 4) and Neiting (S 44) to treat toothache.

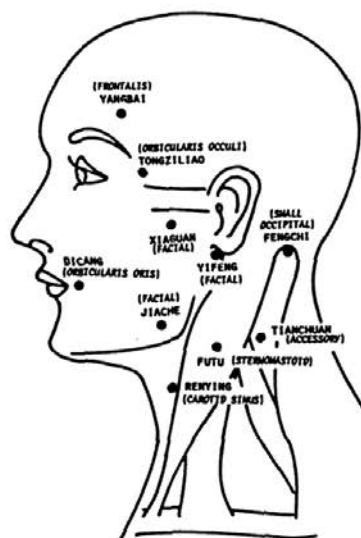


Figure 10.9

TECHNIQUE:

1. Insert the needle perpendicularly for 0.5 cun.
2. Insert the needle horizontally toward Dicang (S 4) for 2 to 3 cun to treat facial palsy.
3. To treat toothache, point the needle toward the affected tooth.
4. Point the needle upwards to treat masseter spasm.

5. *The Auricular Region*

ERMEN [耳 门]

JING: Triple Warmer 21 (T 21), Sanjiao 21 (SJ 21), or Triple Energizer 21 (TE 21).

LOCALIZATION: In the depression anterior to the tragus of the ear, with the mouth open (Fig. 10.10).

ANATOMY: Branches of the auriculotemporal nerve of the mandibular division of the trigeminal and the temporal branch of the facial nerve. Below the zygomatic arch, superficial temporal artery and vein.

PRINCIPAL INDICATIONS: Tinnitus. Hearing impairment. Toothache. Temporomandibular arthritis.

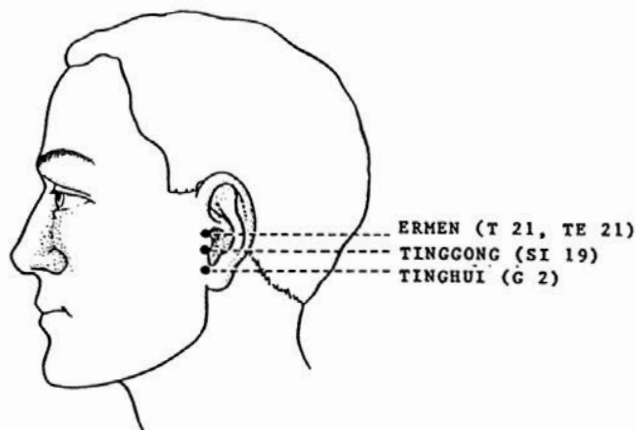


Figure 10.10

CONJOINT USES:

1. With the needle pointing to Tinggong (SI 19), Tinghui (G 2) together with Yifeng (G 17) and Zhongzhu (T 3) to treat hearing impairment.

TECHNIQUE: Insert the needle downwards toward Tinggong (SI 19) and Tinghui (G 2) for 1.5 to 2.5 cun.

TINGGONG [听宫]

JING: Small Intestine 19 (SI 19).

LOCALIZATION: With the mouth open, in the middle of the depression anterior to the tragus and posterior to the condylar process of the mandible (Fig. 10.10).

ANATOMY: Branches of the facial and auriculotemporal nerves. The anterior branches of the superficial temporal vessels

PRINCIPAL INDICATIONS: Toothache. Tinnitus. Impairment of hearing.

CONJOINT USES:

1. With Tinghui (G 2), Yifeng (T 17), and Huizong (T 7) to treat tinnitus.

TECHNIQUE: With mouth open, insert the needle perpendicularly and slightly downwards for 1.5 to 2 cun.

TINGHUI [听会]

JING: Gall Bladder 2 (G 2 or GB 2).

LOCALIZATION: In the depression anterior to the intertragic notch (Fig. 10.10).

ANATOMY: Branches of the greater auricular (C 2) and facial nerves. The anterior branch of the superficial temporal artery. In the deeper layer, the external carotid artery and the retromandibular (the posterior facial) vein.

PRINCIPAL INDICATIONS: Toothache. Facial nerve palsy. Facial tic.

TECHNIQUE: Insert the needle perpendicularly and slightly posteriorly for 1 to 1.5 cun.

YIFENG [医风]

JING: Triple Warmer 17 (T 17), Sanjiao 17 (SJ 17), or Triple energizer 17 (TE 17).

LOCALIZATION: Posterior to the ear lobe, at the depression between the mastoid and the mandible (Figs. 10.9 and 10.11).

ANATOMY: The external jugular vein. The greater auricular nerve (C 2). The trunk of the facial nerve lying in its deeper level at its emergence from stylomastoid foramen. Posterior auricular artery.

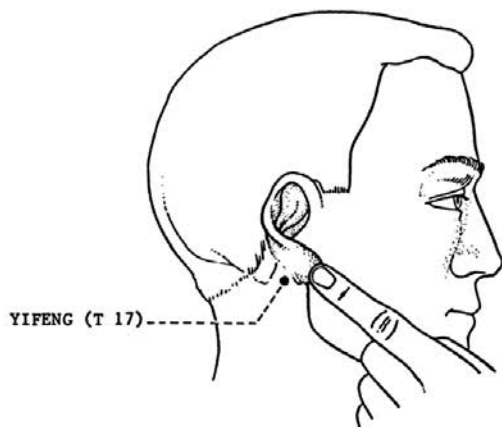


Figure 10.11

PRINCIPAL INDICATIONS: Facial nerve palsy. Temporomandibular arthritis. Toothache. Tinnitus. Hearing impairment.

CONJOINT USES:

1. With Xiaguan (S 7) to treat temporomandibular arthritis.
2. With Qianzheng (New Point), Dicang (S 4) and Yingxiang (LI 20) to treat facial palsy.
3. With Tinggong (S 19), Tingchun (New Point), and Tinxue (New Point) to treat tinnitus.

TECHNIQUE:

1. Insert the needle for 0.5 to 1 cun in the direction of the opposite eyeball for the treatment of facial palsy.

B. THE NECK**TIANRONG [天容]**

JING: Small Intestine 17 (SI 17).

LOCALIZATION: Inferoposterior to the mandibular angle, at the anterior border of the sternocleidomastoid muscle (Figs. 10.7 and 10.12).

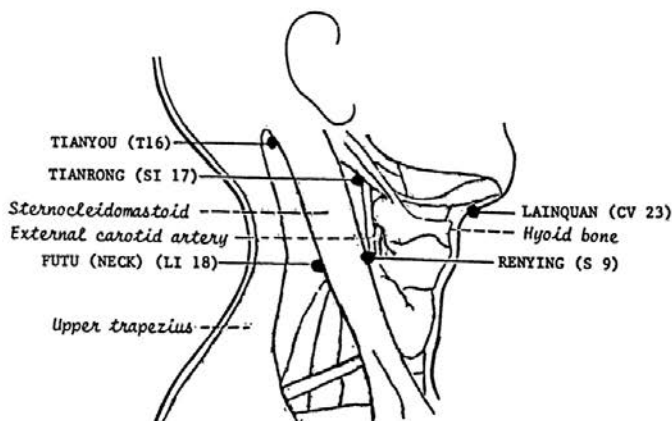


Figure 10.12

ANATOMY: Below the posterior belly of the digastric muscle. Anterior branch of the greater auricular nerve (C 2). Cervical branch of the facial nerve. In the deeper layer, the superior cervical sympathetic ganglion. Posterior to the external superficial cervical vein.

PRINCIPAL INDICATIONS: Neck pain. Asthma. Tinnitus.

CONJOINT USES:

1. With Tianzhu (B 10) and Hegu (LI 4) to treat pharyngitis.

TECHNIQUE: Insert the needle perpendicularly for 1 to 1.5 cun.

TIANYOU [天牖]

JING: Triple Warmer 16 (T 16), San Jiao 16 (SJ 16), or Triple Energizer 16 (TE 16).

LOCALIZATION: Posteroinferior to the mastoid, at the level of the angle of the mandible and on the posterior border of the sternocleidomastoid muscle (Fig. 10.12).

ANATOMY: Posterior to the sternocleidomastoid muscle. The lesser occipital nerve. The occipital artery.

PRINCIPAL INDICATIONS: Stiffness of the neck. Tinnitus. Deafness. Sore throat. Ocular pain. Excessive dreams.

CONJOINT USES:

1. With Houxi (SI 3) to treat stiffness of the neck.
2. With Tinggong (SI 19) and Yemen (T 2) to treat deafness.
3. With Yifeng (T 17) and Hegu (LI 4) to treat sore throat.

TECHNIQUE: Insert the needle perpendicularly for 0.5 to 1 cun.

RENYING [人迎]

JING: Stomach 9 (S 9 or St 9).

LOCALIZATION: About 1.5 cun lateral to the thyroid cartilage (Fig. 10.9 and 10.12).

ANATOMY: Corresponding to the carotid body at the bifurcation of the common carotid artery. At the area where the anterior border of the sterno-cleido-mastoid muscle meets the thyroid cartilage. The platysma muscle. The anterior cutaneous nerve of the neck (C 2, 3). The cervical division of the facial nerve. In the deepest layer, the sympathetic nerve trunk, the descending branch of the hypoglossal nerve, and the vagus nerve. The superior thyroid artery. The internal jugular vein.

PRINCIPAL INDICATIONS: Pain and swelling of the throat. Hypertension and hypotension. Asthma. Dysphasia. Coughing.

CONJOINT USES:

1. With Quchi (LI 11) and Zusanli (S 36) to treat hypertension.
2. With Renzhong (GV 26), Taichong (Liv 3), Neiguan (P 6), and Suliao (GV 25) to treat hypotension.

TECHNIQUE: Insert the needle perpendicularly or obliquely for 0.5 to 1 cun.

PRECAUTION: Deep insertion of the needle should be avoided. Otherwise, it may injure the carotid body and the arteries in that area.

FUTU (NECK) [扶突]

JING: Large Intestine 18 (LI 18).

LOCALIZATION: About 3 cun lateral to the thyroid cartilage (Figs. 10.9 and 10.12).

ANATOMY: In the sternocleidomastoid muscle, between its sternal and clavicular heads. The greater auricular (C 2) nerve, the anterior cutaneous nerve of the neck (C 2, 3), the lesser occipital nerve (C 2), and accessory nerve. In the deeper layer, the levator scapulae muscle, and the ascending cervical artery.

PRINCIPAL INDICATIONS: Analgesia for thyroidectomy. Pain and swelling of the throat. Cough. Postnasal drip. Hoarseness of voice. Difficulty in swallowing.

CONJOINT USES:

1. With Tiantu (CV 22) and Taixi (K 3) to treat cough.
2. With Tiantu (CV 22) and Hegu (LI 4) to treat hoarseness of the voice.

TECHNIQUE: Insert the needle perpendicularly for 0.5 to 1 cun,

YAMEN [哑 门]

JING: Governing Vessel 15 (GV 15) or Du Mai 15 (Du 15).

LOCALIZATION: Above the posterior hair line by 0.5 cun, between the spinous processes of the first and second cervical vertebrae (Fig. 10.13).

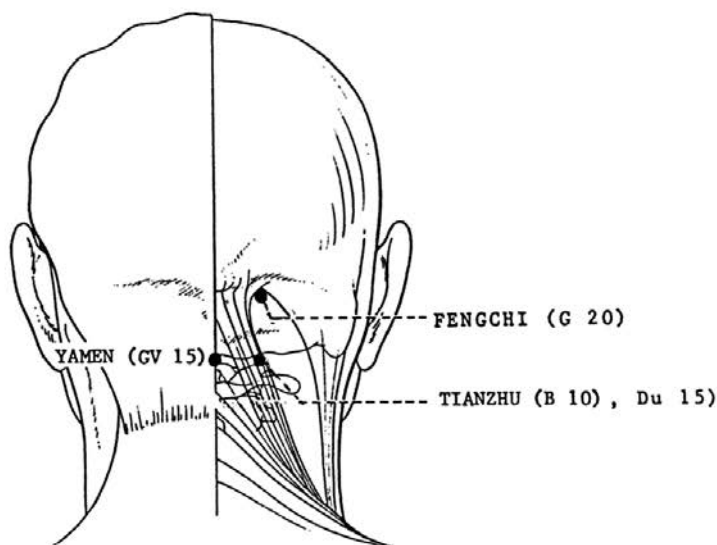


Figure 10.13

ANATOMY: The lesser occipital nerve (C 2). The occipital artery and vein. Interspinous venous plexus.

PRINCIPAL INDICATIONS: Deaf-mutism. Headaches.

CONJOINT USES:

1. With Dazhui (GV 14) and Jinsuo (GV 8), Yaoyangguan (GV

3), Renzhong (CV 26), Houxi (SI 3) and Shenmai (B 62) to treat tinnitus.

TECHNIQUE: Insert the needle perpendicularly for 1 to 2 cun toward the mouth at the level of the ear lobe. Do not push, pull or twirl the needle.

PRECAUTION: The old literature advised against deep insertion of the needle. During the deep insertion of the needle it should not be directed upwards to avoid injury to medulla oblongata. When the patient experiences a tingling sensation, the needle should be withdrawn immediately with no push-pull, or twirling. During the Cultural Revolution in the 1960s and early 1970s, the Chinese used this acupoint to treat deaf-mutism. They claimed that the cure was achieved by generating such generalized tingling sensation. Later on, after the down fall of the Gang of Four, they refuted such heroic accomplishments.

TIANZHU [天柱]

JING: Urinary Bladder 10 (B 10 or UB 10).

LOCALIZATION: About 1.3 cun lateral to Yamen (GV 15) (Fig. 10.13).

ANATOMY: The origin of upper trapezius muscle. In its deeper layer, semispinalis capitalis muscle. The trunks of the greater auricular nerve (C 2). The trunks of the occipital vessels.

PRINCIPAL INDICATIONS: Occipital headache. Spasm of cervical paravertebral muscles. Pharyngitis. Chronic fatigue syndrome. Depression. Nasal obstruction.

CONJOINT USES:

1. With Luozhen (New Acupoint) to treat stiffness of the neck.
2. With Shaoshang (L 11) to treat pharyngitis and chronic cough.
3. With Taodao (GV 13) and Kunlun (B 60) to treat giddiness.

TECHNIQUE: Insert the needle perpendicularly for 0.5 to 1 cun.

FENGCHI [风池]

JING: Gall bladder 20 (G 20 or GB 20).

LOCALIZATION: Below the occipital prominence and posterior to the mastoid process. Between the insertions of sternocleidomastoid and upper trapezius muscles (Figs. 10.9 and 10.13).

ANATOMY: Splenius capitis muscle in the deep layer. Branches of lesser occipital nerve (C 2). Branches of the occipital artery and vein.

PRINCIPAL INDICATIONS: Headache. Stiffness of the neck. Backache. Rhinitis. Dizziness. Tinnitus. Hearing impairment. Hypertension. Eye diseases.

CONJOINT USES:

1. With Dazhui (GV 14) and Hegu (LI 4) to treat common cold.
2. With Quchi (LI 11), Zusanli (S 36) and Taichong (Liv 3) to treat hypertension.

TECHNIQUE:

1. Insert the needle perpendicularly at the level of the ear lobe, pointing slightly downwards in the direction of the inner canthus of the opposite eye for 1 to 1.5 cun.
2. Insert the needle toward Fengchi (G 20) of the opposite side for 2 to 3 cun.

C. THE UPPER BACK AND SHOULDER GIRDLE

DAZHUI [大椎]

JING: Governing Vessel 14 (GV 14), or Dumai 14 (DU 14).

LOCALIZATION: Between the spinous processes of the seventh cervical and the first thoracic vertebrae (Fig. 10.14).

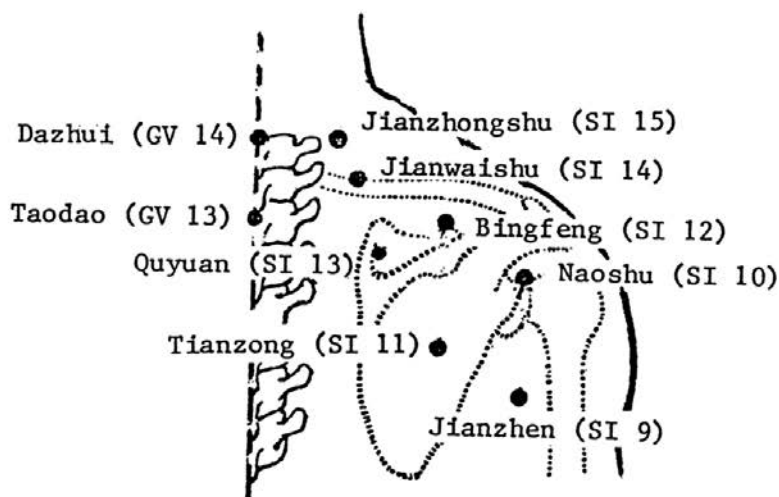


Figure 10.14

ANATOMY: In the supraspinous and interspinous ligaments. The medial branch of the posterior ramus of the seventh cervical spinal nerve. The interspinous subcutaneous venous plexus.

PRINCIPAL INDICATIONS: Lameness and pain of the upper back. Allergy. Asthma. Eczema. Bronchitis. Heat stroke.

TECHNIQUE: Perpendicularly and slightly upwards for 1.0 to 1.5 cun.

PRECAUTION: Under normal circumstances the needle should not be inserted too deeply. If there is a tingling sensation of the

arms or in the body, the needle should be withdrawn immediately. Twirling or push-pull technique should be discontinued immediately.

DINGCHUAN [定喘]

JING: Extra point (Ex-B 1).

LOCALIZATION: Lateral to the C 7 spinous process by 0.5 to 1 cun (Fig. 10.15).

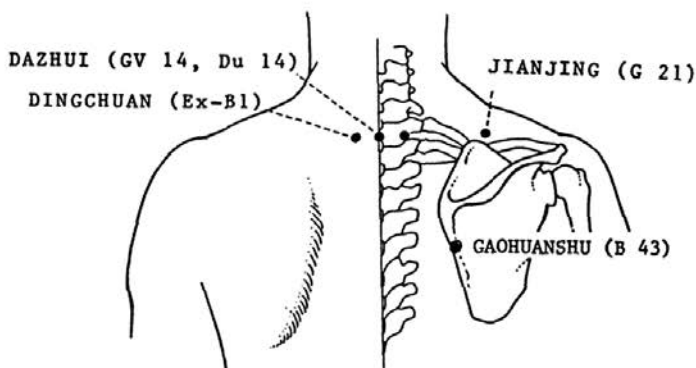


Figure 10.15

ANATOMY: The skin in this area is quite thick. Upper trapezius, rhomboids, serratus posterior, longissimus capitis and semispinalis muscles. The cutaneous branch of the posterior ramus of the C 7 spinous nerve. In its deeper layer, the medial ramus of the posterior primary division of the C 8 spinal nerve. Transverse colli and deep cervical arteries and veins.

PRINCIPLE INDICATIONS: Cervical spondylosis. Asthma. Urticaria. Coughing. Bronchitis.

CONJOINT USES:

1. With Tiantu (CV 22), Xianji (CV 21), Shanzhong (CV 17), Neiguan (P 6) and Fenglong (S 40) to treat bronchial asthma.

2. With Fengmen (B 12), Feishu (B 13), and Hegu (LI 4) to treat bronchitis.

TECHNIQUE: Perpendicularly, but slightly toward the vertebra for 0.5 to 1 cun.

JIANJING [肩井]

JING: Gall Bladder 21 (G 21 or GB 21)

LOCALIZATION: The midpoint between the C 7 spinous process and the acromion. It is the highest point on top of the shoulder (Fig. 10.15).

ANATOMY: The motor point of the upper trapezius muscle. The posterior border of the deltoid muscle. The upper trapezius muscle. In its deeper layer, the levator scapulae and supraspinatus muscles. The posterior branches of the supraclavicular nerve (C 3, 4) and the accessory nerve in its deeper layer. The transverse colli artery and vein.

PRINCIPAL INDICATIONS: Pain of the upper back, shoulder, and/or the neck. Mastitis. Functional uterine hemorrhage.

CONJOINT USES:

1. With Fengchi (G 20), and Jianyu (LI 15) to treat neck and/or shoulder pain.

TECHNIQUE: Perpendicularly for 0.5 to 1 cun. Preferably, pinch and lift the upper trapezius muscle gently while inserting the needle.

PRECAUTIONS: Deep insertion of the needle is prohibited because the apex of the lung lies underneath this acupoint. Cases of pneumothorax and hemothorax have been reported after inadvertent deep insertion of the needle..

JIANZHONGSHU [肩中俞]

JING: Small Intestine 15 (SI 15).

LOCALIZATION: 2 cun lateral to Dazhui (GV 14) (Fig. 10.14).

ANATOMY: At the end of the transverse process of the first dorsal vertebra. The trapezius muscle in the superficial layer and the levator scapulae muscle in the deeper layer. The medial branch of the posterior ramus of the first intercostal nerve. The dorsal scapular nerve (C 5). The accessory nerve. The transverse colli artery and vein.

PRINCIPAL INDICATIONS: Cervical spondylosis. Shoulder and/or upper back pain. Asthma.

TECHNIQUE: Vertically for 0.5 to 0.8 cun.

TAODAO [陶道]

JING: Governing Vessel 13 (GV 13) or Dumai 13 (DU 13).

LOCALIZATION: Between the spinous processes of the first and the second vertebrae (Fig. 14).

ANATOMY: The supra- and inter-spinous ligaments. The medial branch of the posterior ramus of the first intercostal nerve. The posterior branch of the first intercostal artery. The interspinous subcutaneous venous plexus.

PRINCIPAL INDICATIONS: Headaches. Pain of the head and/or neck.

TECHNIQUE: Vertically but slightly upwards for 1 to 1.5 cun.

DASHU [大杼]

JING: Urinary Bladder 11 (B 11 or UB 11).

LOCALIZATION: Lateral to the spinous process of the first thoracic vertebra by 1.5 cun (Fig. 10.16).

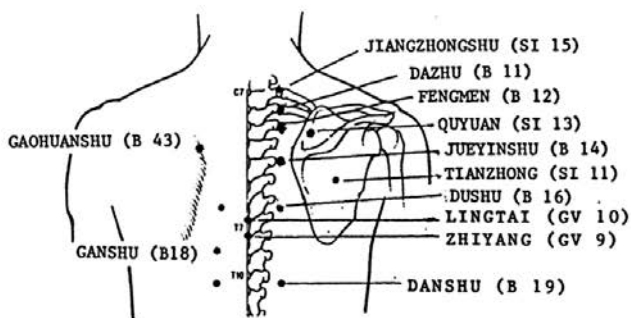


Figure 10.16

ANATOMY: The motor point of the rhomboid minor muscle. The upper trapezius, rhomboids, and serratus posterior superior muscles. The longissimus muscle in its deeper layer. The medial branch of the posterior primary division of the first thoracic nerve, and, in its deeper layer, its lateral branch. The posterior branches of the first intercostal artery and vein.

PRINCIPAL INDICATIONS: Stiffness and pain of the neck and/or the upper back. Numbness and lameness of the upper limbs and torso.

CONJOINT USES:

1. With Dazhui (GV 14), Shenzhu (GV 12), Zhiyang (GV 9), Jinsuo (GV 8), and Yaoyangguan (GV 3) to treat rheumatoid spondylitis.
2. With Shanzhong (CV 14), and Fenglong (S 40) to treat asthma.

TECHNIQUE: Obliquely toward the vertebral body for 0.7 to 1 cun.

FENGMEN [风 门]

JING: Urinary Bladder 12 (B 12 or UB 12).

LOCALIZATION: Lateral to the spinous process of the second thoracic vertebra by 1.5 cun (Fig. 10.16).

ANATOMY: The upper trapezius, rhomboids, serratus posterior superior, and, in its deeper layer, longissimus muscle. The dorsal branch and the medial cutaneous branch of the second thoracic nerve, and its lateral branch in the deeper layer. The medial branch of the second posterior intercostal artery and vein.

PRINCIPAL INDICATIONS: Soft tissue injuries of the upper back. Asthma. Urticaria.

CONJOINT USES:

1. With Quchi (LI 11), Lieque (L 7), and Xuehai (S 10) to treat urticaria.

TECHNIQUE:

1. Perpendicularly but slightly toward the vertebral body for 0.5 to 1 cun.
2. Horizontally downwards along the muscle layers for 1 to 2 cun.

PRECAUTIONS: Deep perpendicular insertion is prohibited to avoid injury to the lung.

QUYUAN [曲 垣]

JING: Small Intestine 13 (SI 13).

LOCALIZATION: In the depression at the medial end of the supraspinous fossa of the scapula (Fig. 10.16).

ANATOMY: Just above the spine of the scapula. In the upper trapezius and supraspinatus muscles. The medial branch of the posterior ramus of the second thoracic intercostal nerve. The accessory nerve. In its deeper layer, the muscular branch of the

suprascapular nerve (C 5). The descending branches of the transverse colli artery and vein. In its deeper layer, the muscular branches of the suprascapular artery and vein.

PRINCIPAL INDICATIONS: Tendinitis of the supraspinatus muscle. Diseases of the shoulder and its surrounding soft tissues. Pain of the scapular region. Painful conditions of the neck.

CONJOINT USES:

1. With Jianyu (LI 15) and Yanglingquan (G 34) to treat tendinitis of the supraspinatus muscle.

TECHNIQUE: Perpendicular insertion for 0.5 to 0.8 cun.

TIANZONG [天宗]

JING: Small Intestine 11 (SI 11).

LOCALIZATION: In the middle of the infraspinatus fossa of the scapula (Fig. 10.14).

ANATOMY: The motor point of infraspinatus muscle. Infraspinatus muscle. Suprascapular nerve (C 5). Branches of circumflex scapular vessels.

PRINCIPAL INDICATIONS: Pain of the shoulders, the upper back, and the scapular areas.

CONJOINT USES:

1. With Jianyu (LI 15), Jianliao (T 14) and Yanglingquan (G 34) to treat capsulitis of the shoulder.

TECHNIQUE: Insert needle perpendicularly or obliquely in all the directions for 0.5 to 1.5 cun.

JUEYINSHU [厥阴俞]

JING: Urinary Bladder 14 (B 14 or UB 14).

LOCALIZATION: 1.5 cun lateral to the spinous process of the fourth thoracic vertebra (Fig. 10.16).

ANATOMY: The trapezius and rhomboid muscles. In the deeper layer, the latissimus dorsi muscle. The medial branch of the posterior primary division of the fourth intercostal nerve. In the deeper layer, the lateral branch of the posterior primary division of the fourth intercostal nerve. The medial branches of the posterior divisions of the fourth posterior intercostal artery and vein.

PRINCIPAL INDICATIONS: Intercostal neuralgia. Chronic fatigue syndrome.

CONJOINT USES:

1. With Xinshu (B 15), Ganshu (B 18) and Shenshu (B 23) to treat chronic fatigue syndrome.

TECHNIQUE: Same as with Fengmen (B 12).

GAOHUANGSHU [膏肓俞]

JING: Urinary Bladder 43 (B 43 or UB 43).

LOCALIZATION: Three cun lateral to the spinous process of the fourth thoracic vertebra (Fig. 10.15).

ANATOMY: The motor point of the rhomboid major muscle. At the border of the medial end of the spine of the scapula. The trapezius and rhomboid muscles. In its deeper layer, the iliocostalis muscle. The medial branch of the posterior primary division of the second intercostal nerve. The lateral branch of the posterior primary division of the third intercostal nerves lies in its deeper layer. Branches of the dorsal scapular nerve (C 5). The trunk of the fourth intercostal nerve lies in its deepest layer. The dorsal

branch of the fourth posterior intercostal artery and the descending branch of the transverse colli artery.

PRINCIPAL INDICATIONS: Chronic fatigue syndrome. Debility due to chronic illness. Asthma.

CONJOINT USES:

1. With Tiantu (CV 22) and Dingchuan (Extra Point) to treat asthma.
2. With Guanyuan (CV 4) (with moxibustion) and Zusanli (S 36) (with moxibustion) to treat disability due to chronic illness.

TECHNIQUE: Insert the needle obliquely, outward for 0.5 to 1 cun.

PRECAUTION: Perpendicular insertion or deep insertion is prohibited to avoid puncturing the lung.

DUSHU [督俞]

JING: Urinary Bladder 16 (B 16 or UB 16).

LOCALIZATION: 1.5 cun lateral to the spinous process of the sixth thoracic vertebra (Fig. 10.16).

ANATOMY: The trapezius, latissimus dorsi, longissimus muscles. The dorsal scapular nerve. The medial branch of the posterior primary division of the sixth intercostal nerve. In the deeper layer, the lateral branch of the posterior primary division of the fourth intercostal nerve. The medial branches of the posterior division of the sixth thoracic artery and vein. The descending branch of the transverse colli artery.

PRINCIPAL INDICATIONS: Hiccups. Itchiness. Psoriasis.

CONJOINT USES:

1. With Feishu (B 13), Gushu (B 18), Quchi (LI 11), and Xuehai (Sp 10) to treat psoriasis.

TECHNIQUE: Obliquely toward the vertebral body for 0.7 to 1 cun.

ZHIYANG [至阳]

JING: Governing Vessel 9 (GV 9) or Dumai 9 (Du 9).

LOCALIZATION: Between the spinous processes of the seventh and the eighth thoracic vertebrae. This point is located at the intersection between the dorsal midline and the infrascapular line (which connects the inferior angles of the scapulae) (Fig. 10.16).

ANATOMY: In the supraspinous and interspinous ligaments. The medial branch of the posterior primary division of the seventh intercostal nerve. The dorsal branch of the seventh posterior intercostal artery and subcutaneous interspinous venous plexus.

PRINCIPAL INDICATIONS: Intercostal neuralgia. Low back pain. Bronchial asthma. Cholecystitis. Gastralgia.

CONJOINT USES:

1. With Yanglinquan (G 34), and Zhigou (T 6) to treat psoriasis.

TECHNIQUE: Insert the needle obliquely for 0.7 to 1 cun.

GESHU [膈俞]

JING: Urinary Bladder 17 (B 17 or UB 17).

LOCALIZATION: 1.5 cun lateral to the spine of the 7th thoracic vertebra.

ANATOMY: In the lower trapezius, latissimus dorsi and longissimus muscles. The medial branch of posterior primary division of the seventh thoracic nerve and, in its deeper layer its lateral branch. The dorsal branch of the seventh posterior intercostal vessels.

PRINCIPAL INDICATIONS: Hiccups. Urticaria. Esophago-stenosis.

CONJOINT USES:

1. With Tiantu (CV 22), Shanzhong (CV 17), Jujue (CV 14) and Zusanli (S 36) to treat hiccups.

TECHNIQUE:

1. Perpendicularly but slightly toward the vertebral body for 0.5 to 1 cun.
2. Horizontally downwards along muscle layers for 1 to 2 cun.

GANSHU [肝俞]

JING: Urinary Bladder 18 (B 18 or UB 18).

LOCALIZATION: 1.5 cun lateral to the spinous process of the 9th thoracic vertebra.

ANATOMY: Between the latissimus dorsi, longissimus and iliocostal muscles. The medial branch of the posterior primary division of the ninth thoracic nerve and, in the deeper layer, its lateral branch. The medial branch of the posterior ramus of the ninth intercostal artery and vein.

PRINCIPAL INDICATIONS: Low back pain. Intercostal neuralgia. Irregular menstruation. Chronic fatigue syndrome. Liver diseases.

CONJOINT USES:

1. With Qihai (CV 6), and Sanyinjiao (Sp 6) to treat amenorrhea.

TECHNIQUE:

1. Perpendicularly but slightly toward vertebral body for 0.5 to 1 cun.
2. Horizontally downwards along the muscle layers for 1 to 2 cun.

DANSHU [胆俞]

JING: Urinary Bladder 19 (B 19 or UB 19).

LOCALIZATION: Lateral to the spinous process of the tenth thoracic vertebrae by 1.5 cun (Fig. 10.16).

ANATOMY: Between the latissimus dorsi, longissimus, and iliocostal muscles. The medial branch of the posterior primary division of the tenth thoracic nerve and, in the deeper layer, its lateral branch. The dorsal branch of the tenth posterior intercostal artery and vein.

PRINCIPAL INDICATIONS: Chest and axillary pain. Sciatica. Diseases of gall bladder.

TECHNIQUE:

1. Perpendicularly but slightly toward the vertebra for 0.5 to 1 cun.
2. Horizontally downwards along the muscle layers for 1 to 2 cun.

D. THE UPPER LIMB

JIANYU [肩禺]

JING: Large Intestine 15 (LI 15).

LOCALIZATION: At the mid-point of the upper part of the deltoid between the acromion and the greater tuberosity of the humerus. This Acupoint is located at the depression of the shoulder when it is abducted at 90° (Fig. 10.17).

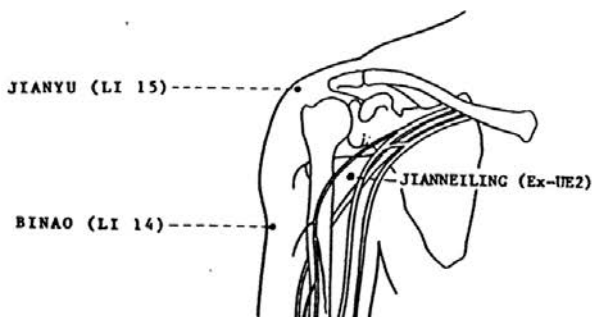


Figure 10.17

ANATOMY: The motor point of the middle deltoid muscle. The supraclavicular nerve (C 3, 4) and the axillary nerve. The posterior humeral circumflex artery and vein.

PRINCIPAL INDICATIONS: Arthralgia, capsulitis, or partial tear of the rotator cuff of the shoulder. Frozen shoulder.

CONJOINT USES:

1. With Jianneiling (Ex-UE 12), Jianliao (T 14), and Quchi (LI 11) to treat diseases of the shoulder joint.
2. With Jianliao (T 14) and Yanglingquan (G 34) to treat subacromial bursitis.

TECHNIQUE:

1. Perpendicular insertion. With the shoulder abducted at 90°,

- insert the needle toward Jiquan (H 1), for a depth of 2 to 3 cun.
2. **Oblique insertion.** To treat peri-arthritis of the shoulder, insert the needle in the direction of Jianneiling (Ex-UE 12), Jianliao (T 14) and the deltoid muscle for a depth of 2 to 3 cun each. The patient may feel soreness and/or a tingling sensation radiating all over the shoulder and/or toward the arm.
 3. **Horizontal insertion.**
 - a. To treat frozen shoulder (with painful and limited abduction) insert the needle toward the deltoid muscle for a depth of 2 to 3 cun. The patient may feel soreness of the arm.
 - b. For the treatment of tenosynovitis of the supraspinatus, with the patient's arm adducted, insert the needle between acromion and greater tuberosity of the humerus horizontally for a depth of 0.7 to 1 cun. The patient may feel local soreness with occasional radiation toward the arm.

JIANNEILING [肩内陵]

JING: Extra Meridian Odd Point (Ex-UE 12).

LOCALIZATION: Midway between anterior axillary fold and Jianyu Acupoint (LI 15), below the tip of the coracoid process (Fig. 10.17).

ANATOMY: The motor point of the anterior deltoid. The posterior branch of the supraclavicular nerve (C 3, 4). In the deeper part, the axillary nerve and branches of the anterior and posterior circumflex brachial artery and vein.

PRINCIPAL INDICATIONS: Same as Jingyu Point (LI 15).

CONJOINT USES:

1. With Jianyu (LI 15), Jianliao (T 14) and Ouch Acupoints to treat arthralgia and peri-arthritis of shoulder.

2. With Tianzong (SI 11) and Quyuan (SI 13) to treat frozen shoulder.

TECHNIQUE:

1. Insert the needle upwards and backwards for a depth of 1 to 1.5 cun. Puncture the tip of the coracoid process. The patient may feel local soreness or a tingling sensation of the upper limb radiating toward the finger tips.
2. For treating tenosynovitis of the long head of biceps, insert the needle obliquely downward for a depth of 2 to 3 cun. The patient may feel local soreness.

JIANLIAO [肩髃]

JING: Triple Warmer 14 (T 14), Sanjiao (SJ 14), or Triple Energizer 14 (TE 14).

LOCALIZATION: At the depression posterior to the acromion (Fig. 10.18).

ANATOMY: Motor point of posterior deltoid. Muscular branch of axillary nerve (C 5). Muscular branch of the posterior brachial circumflex artery.

PRINCIPAL INDICATIONS: Same as Jianyu Point (LI 15).

CONJOINT USES:

1. Insert needle at Jianliao (T 14) towards Jiquan (H 1) and at Tiaokou (S 38) towards Chengshan (B 57) to treat capsulitis of the shoulder.

TECHNIQUE:

1. With the affected arm abducted, insert the needle perpendicularly between the acromion and the greater tuberosity of the humerus, pointing towards Jiquan (H 1) for 1.5 to 2 cun to treat capsulitis of the shoulder or frozen shoulder.

2. Obliquely downwards for 2 to 3 cun to treat capsulitis of the shoulder.

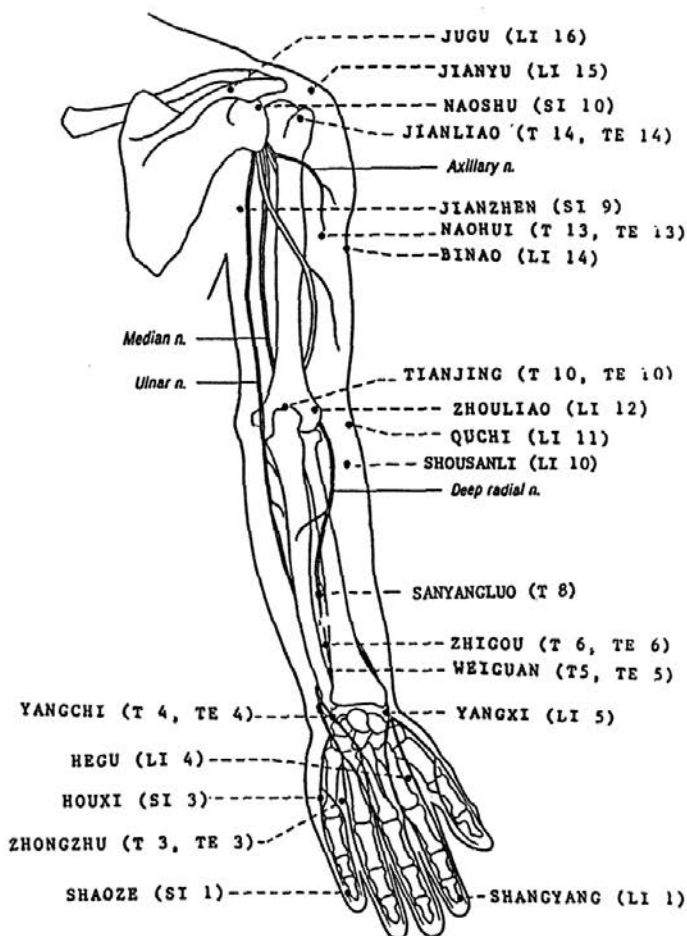


Figure 10.18

JUGU [巨骨]

JING: Large Intestine 16 (LI 16).

LOCALIZATION: In the depression between the acromial end

of the clavicle and the spinous process of the scapula (Fig. 10.18).

ANATOMY: The upper trapezius and the supraspinatus muscles. Branches of the supraclavicular (C 3, 4) and the accessory nerves. In the deeper layer, the suprascapular artery and vein.

PRINCIPAL INDICATIONS: Diseases of the shoulder joint and its adjacent soft tissues.

CONJOINT USES:

1. With Jianliao (T 14) toward Jiquan (H 1) and Yanglingquan (G 34) to treat capsulitis of the shoulder.

TECHNIQUE: Perpendicularly but slightly obliquely for 1 to 1.5 cun.

JIANZHEN [肩贞]

JING: Small Intestine 9 (SI 9).

LOCALIZATION: With the shoulder fully adducted, the point is located 1 cun above the posterior axillary crease (Fig. 10.18).

ANATOMY: Motor point of the teres minor muscle. Below the glenoid of the shoulder joint, along the lateral border of the scapula. Below the inferior edge of the posterior deltoid. Teres major muscle lying in the deeper layer. Branches of axillary nerve (C 5) and, in the deeper layer, radial nerve. Circumflex scapular artery and vein.

PRINCIPAL INDICATIONS: Diseases of the shoulder joint and its soft tissues. Pain and lameness of the upper limb.

CONJOINT USES:

1. With Jianyu (LI 15) and Jianliao (LI 14) to treat arthritis of the shoulder.
2. With Quchi (LI 11) and Jingbei (Extra Acupoint) to treat pain and lameness of the upper limb.

TECHNIQUE: Perpendicularly for 1.5 to 2 cun.

ZHOULIAO [肘髎]

JING: Large Intestine (LI 12)

LOCALIZATION: At the lateral epicondyle of the humerus (Fig. 10.18).

ANATOMY: The origin of the forearm extensor muscles. Lateral to the insertion of the triceps muscle. The radial recurrent artery. The lateral cutaneous nerve of the forearm. The radial nerve.

PRINCIPAL INDICATIONS: Lateral epicondylitis (tennis elbow). Pain and lameness of the arm and forearm.

CONJOINT USES:

1. With Quchi (LI 11) and Shousanli (LI 10) to treat tennis elbow.

TECHNIQUE: Along the anterior border of the epicondyle for 1 to 1.5 cun.

QUCHI [曲池]

JING: Large Intestine 11 (LI 11)

LOCALIZATION: With the elbow flexed at 90°, this acupoint is located at the lateral end of the transverse cubital crease (1, 15, 129). In the *Anatomical Atlas of Acupoints* (321) and in the *Acupuncture and Moxibustion* (323) this acupoint is listed as at the mid point between the lateral end of the transverse cubital crease and the lateral epicondyle of the humerus (Fig. 10.18).

ANATOMY: On the radial portion of the radiohumeral joint. The origin of the extensor carpi radialis longus muscle. The radial portion of the brachioradialis muscle. The dorsal antebrachial cutaneous nerve (C 8, T 1) and, in the deeper layer, the trunk of the radial nerve. Branches of the radial recurrent artery.

PRINCIPAL INDICATIONS: Arthralgia of the elbow. Lameness of the upper limb. Skin diseases. Allergy. Hypertension.

CONJOINT USES:

1. With Zusanli (S 36), Xuehai (Sp 10) and local acupoints to enhance immunity and to treat skin diseases.
2. With Zusanli (S 36) and Renyin (S 9) to treat hypertension.
3. With Dazhui (GV 14), Taichong (Liv 3), Zusanli (S 36) and Hegu (LI 4) to treat primary thrombocytopenic purpura.

TECHNIQUE:

1. Perpendicularly through to Shaohai (H 3) for 2 to 2.5 cun.
2. Slightly obliquely and distally for 1.5 to 2.5 cun.
3. With the elbow flexed, insert the needle slightly obliquely toward antecubital area for 0.5 to 1 cun to treat lameness of the upper limb.

SHOUSANLI [手三里]

JING: Large Intestine 10 (LI 10).

LOCALIZATION: 2 cun distal to Quchi (LI 11) (Fig. 10.18).

ANATOMY: The motor point of the extensor carpi radialis longus muscle. On the radial side of the radial bone. The extensor carpi radialis longus and brevis muscles and, in deeper layer, the supinator muscle. The dorsal antebrachial cutaneous nerve (C 8, T 1). Branches of the radial recurrent artery.

PRINCIPAL INDICATIONS: Shoulder girdle pain. Lameness of the upper limb.

TECHNIQUE: Perpendicularly for 1 to 2 cun.

YANGXI [阳溪]

JING: Large Intestine 5 (LI 5).

LOCALIZATION: With the thumb fully extended, this acupoint is the depression between the tendons of the extensor pollicis longus and brevis (Fig. 10.18).

ANATOMY: On the radial side of the wrist. Between the tendons of the extensors pollicis longus and brevis. The superficial branch of the radial nerve. The dorsal carpal branch of the radial artery.

PRINCIPAL INDICATIONS: Diseases of the wrist joint and its adjacent soft tissues. Frozen shoulder. Headache. Toothache. Tinnitus.

CONJOINT USES:

1. With Lieque (L 7) to treat tenosynovitis of the wrist region.

TECHNIQUE: Perpendicularly for 0.3 to 0.5 cun.

HEGU [合谷]

JING: Large Intestine 4 (LI 4).

LOCALIZATION: With the thumb and the index finger opened widely, it is located almost at the midpoint, but slightly toward the index finger, between the first and the second metacarpi (Fig. 10.19 on the next page). Or alternatively, with the thumb and the index finger adducted, it may be located at the highest point of the prominence (Fig. 10.20). Figure 10.21 is a radiologic film of an acupuncture needle at this acupoint with the shadows of the adductor pollicis and first interosseus muscles

ANATOMY: The motor point of the first dorsal interosseus muscle. The horizontal head of the adductor pollicis lying in the deeper layer. The dorsal venous plexus of the hand, i.e., the origin of the cephalic vein. The dorsal phalangeal nerve of the superficial

branch of the radial nerve (C 6). The proper palmar digital branch of the median nerve (C 7, 8 and T 1) lying in its deeper layer. The dorsal interosseous branch of the ulnar nerve (C 8 and T 1). Nearby the radial artery traversing from the dorsum of the hand into the palm.

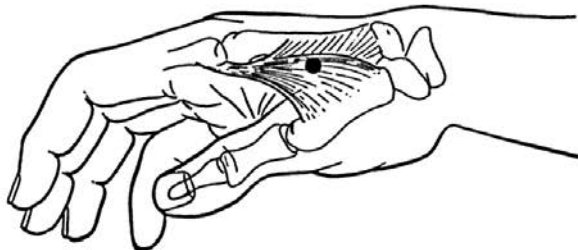


Figure 10.19

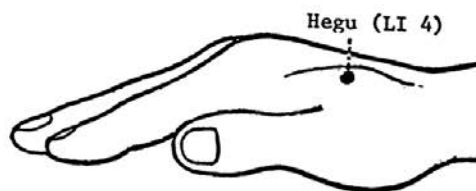


Figure 10.20

PRINCIPAL INDICATIONS: Diseases of eye, ear, nose, throat, and mouth. Toothache. Headache. Induction of labor. Abortion. Surgical analgesia for oropharyngeal, head and neck surgery, such as tonsillectomy, thyroidectomy, and tooth extraction. Bell's palsy. Chronic fatigue syndrome.

CONJOINT USES:

1. With Lieque (L 7), Touwie (ST 8), Fengchi (G 20), and Yongquan (K 1) to treat headaches.
2. With Sanyinjiao (Sp 6), or with Sanyinjiao (Sp 6), and Zusanli (S 36) for induction of labor.



Figure 10.21

3. With Quchi (LI 11), and Jianyu (LI 15) to treat shoulder pain and/or lameness, or paralysis of the shoulder.
4. With Quchi (LI 11) to treat abdominal pain or diarrhea.

TECHNIQUE: Perpendicularly for 0.5 to 1 cun.

PRECAUTION: Prohibited in pregnant women, especially with a history of habitual abortion.

SANYANGLUO [三阳络]

JING: Triple Warmer 8 (T 8), Sanjiao 8 (SJ 8), or Triple Energizer 8 (TE 8).

LOCALIZATION: One cun above Zhigou Acupoint (T 6) between the two forearm bones (Fig. 10.18).

ANATOMY: Between the radius and ulna bones. Between the extensor digitorum communis muscle and the origin of the abductor pollicis longus muscle. The dorsal cutaneous (from the radial nerve, C 6, 7) and the medial cutaneous nerves (from the medial

cord, C 8 and T 1) of the forearm. The dorsal interosseous (from the radial nerve, C 7, 8) and the palmar interosseous nerves (from the median nerve, C 6, 7) of the forearm. The dorsal interosseous artery and vein of the forearm.

PRINCIPAL INDICATIONS: Analgesia for thoracotomy. Pain of the post-thoracotomy surgical scar. Intercostal neuralgia. Frozen shoulder.

CONJOINT USES:

1. Obliquely toward Ximen (P 4) acupoint for thoracotomy analgesia.
2. With Fengchi (G 20) for headache.

TECHNIQUE:

1. Perpendicularly for 1 to 1.5 cun.
2. Obliquely toward Ximen (P 4) for 2 to 3 cun.

ZHIGOU [支沟]

JING: Triple Warmer 6 (T 6) or Triple Energizer 6 (TE 6).

LOCALIZATION: Three cun above dorsal carpal crease (Fig. 10.18).

ANATOMY: The motor point of extensor pollices longus muscle. Between the ulna and the radius. The extensor pollices longus muscle. The dorsal antebrachial cutaneous nerve (from the radial nerve, C 6, 7) and, in the deeper layer, the posterior interosseous nerve (from the radial nerve, C 6, 7, 8). The posterior interosseous artery and vein.

PRINCIPAL INDICATIONS: Pain of shoulder girdle. Angina pectoris. Intercostal neuralgia. Habitual constipation.

CONJOINT USES:

1. With Yanglinquan (G 34) to treat intercostal neuralgia.

2. With Daheng (Sp 15) toward Tianshu (S 25), and Zusanli (S 36) to treat habitual constipation.

TECHNIQUE: Perpendicularly 1 to 1.5 cun.

WAIGUAN [外关]

JING: Triple Warmer 5 (T 5), Sanjiao 5 (SJ 5), or Triple Energizer 5 (TE 5).

LOCALIZATION: 2 cun or 3 finger-breadths proximal to the dorsal carpal crease, between the two bones (Fig. 10.18).

ANATOMY: Same as Zhigou (T 6) .

PRINCIPAL INDICATIONS: Cervical spondylosis. Migraine headaches. Arthralgia of upper limb. Lameness of the upper limb. Hypertension. Tinnitus. Incontinence of urine. Fever .

CONJOINT USES:

1. Towards Neiguan (P 6) and Yanglao (SI 6) to treat arthralgia of the wrist.
2. With Neiguan (P 6) to treat carpal tunnel syndrome.
3. In both cases, electric stimulation may be quite effective.

TECHNIQUE: Perpendicularly for 1 to 1.5 cun.

YANGCHI [阳池]

JING: Triple Warmer 4 (T 4), San Jiao 4 (SJ 4), or Triple Energizer (TE 4).

LOCALIZATION: On the dorsal aspect of the wrist. In the depression of the transverse carpal crease between the third and the fourth metacarpal (Fig. 10.18).

ANATOMY: On the dorsum of the wrist. At the ulnocarpal joint. Between the tendons of the extensor digitorum communis and extensor digiti quinti propius muscles. The dorsal cutaneous

branch (C 8) of the ulnar nerve. The terminal branches of the dorsal cutaneous nerve (C 6, 7) of the forearm. Dorsal carpal venous plexus. The dorsal carpal artery.

PRINCIPAL INDICATIONS: Diseases of the wrist joint and its adjacent soft tissues.

CONJOINT USES:

1. With Daling (P 7), Baxie (Ex-UE 9) to treat arthritis of the wrist and fingers.

TECHNIQUE:

1. Perpendicularly for 0.3 to 0.5 cun.
2. Obliquely for 0.5 to 1 cun for diseases of the wrist joint.

ZHONGZHU [中 诸]

JING: Triple Warmer 3 (T 3), San Jiao 3 (SJ 3), or Triple Energizer (TE 3).

LOCALIZATION: On the dorsum of the hand between the 4th and the 5th metacarpi, but proximal to metacarpophalangeal joint (Fig. 10.18).

ANATOMY: The fourth dorsal interosseus muscle. The dorsal venous plexus of the hand. The dorsal cutaneous branch (C 8) of the ulnar nerve. The 4th metacarpal artery.

PRINCIPAL INDICATIONS: Pain of the shoulder girdle. Intercostal neuralgia. Headaches. Tinnitus.

CONJOINT USES:

1. With Ermen (T 21) and Yifeng (T 17) to treat tinnitus.

TECHNIQUE: Perpendicularly or obliquely to the wrist, for 0.5 to 1.5 cun.

YANGLAO [养老]

JING: Small Intestine 6 (SI 6).

LOCALIZATION: With the elbow flexed and the palm on the chest, this point is at the cleft on the radial aspect of the ulnar styloid process (Fig. 10.22).

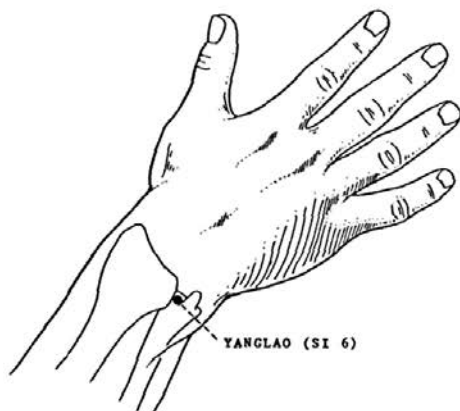


Figure 10.22

ANATOMY: Between the tendons of the extensor carpi ulnaris and extensor digiti quinti proprius muscles. Communicating branches of the dorsal antebrachial cutaneous nerve (from radial nerve, C 6, 7) and the dorsal cutaneous branch (C 8) of the ulnar nerve. Terminal branches of the dorsal interosseus artery. The dorsal venous plexus of the wrist.

PRINCIPAL INDICATIONS: Cervical spondylosis. Arthralgia of upper limbs. Pain of shoulder girdle. Low back pain syndrome.

CONJOINT USES:

1. With Bizhong (Extra Point) to treat wrist drop.
2. With Neiguan (P 6) to treat hiccups.

3. From Yanglao (SI 6) toward Neiguan (P 6), and from Jianzhen (SI 9) toward Jiquan (H 1) to treat capsulitis of the shoulder.

TECHNIQUE: Obliquely toward Neiguan (P 6) for 1 to 1.5 cun.

HOUXI [后溪]

JING: Small Intestine 3 (SI 3).

LOCALIZATION: Making a fist, the point is at the end of transverse crease of the 5th metacarpophalangeal joint (Fig. 10.18).

ANATOMY: The motor point of flexor digit minimi brevis. On the lateral aspect of the abductor digit quinti muscle. The dorsal cutaneous branch (C 8) of the ulnar nerve. The dorsal digital artery and vein. The dorsal venous plexus of hand.

PRINCIPAL INDICATIONS: Intercostal neuralgia. Cervical spondylosis. Low back pain syndrome. Mental diseases.

CONJOINT USES:

1. With Renzhong (GV 26), Tiaokou (S 38) toward Chengshan (B 57), and Dazhui (GV 14) to treat pain of the lower back.
2. With Yinmen (B 52), Ashi acupoints, and paraspinal points to treat acute sprain or chronic debility of lower back.

TECHNIQUE: Perpendicularly for 0.5 cun.

SHAOZE [少泽]

JING: Small Intestine 1 (SI 1).

LOCALIZATION: Ulnar aspect of the little finger, 0.1 cun lateral from the base of the finger nail (Fig. 10.18).

ANATOMY: The proper palmar digital and dorsal digital branches of the radial nerve (C 6, 7, 8). The arterial plexus, formed by the proper palmar digital and dorsal digital arteries.

PRINCIPAL INDICATIONS: Headaches.

CONJOINT USES:

1. With Rugen (S 18) and Tanzhong (CV 17) to treat deficient lactation.

TECHNIQUE: Obliquely slightly upwards for 0.1 cun.

CHIZE [尺泽]

JING: Lung 5 (L 5 or LU 5).

LOCALIZATION: With elbow slightly flexed and forearm supinated, this acupoint is at the cubital crease, lateral to bicipital tendon (Fig. 10.23).

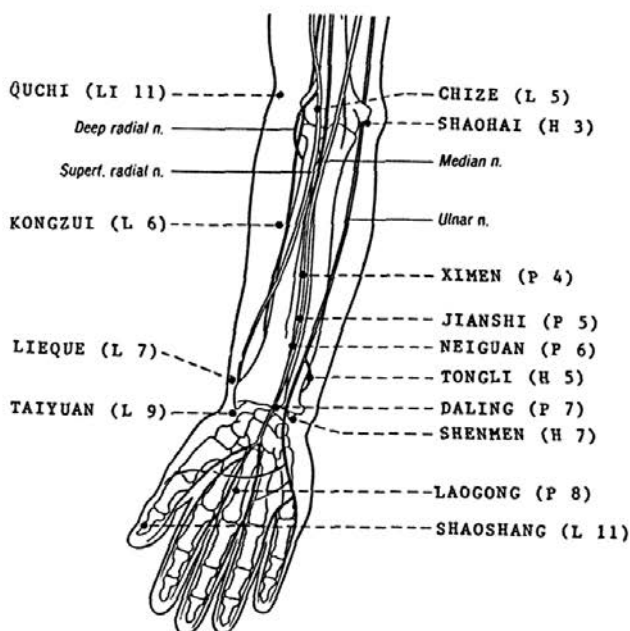


Figure 10.23

ANATOMY: Lateral to the bicipital tendon and at the origin of the brachioradialis muscle. The lateral cutaneous nerve of the forearm (from the lateral cord, C 6, 7). The radial nerve in the deeper layer. Branches of the radial recurrent artery and vein.

PRINCIPAL INDICATIONS: Pain and swelling of elbow and arm. Asthma. Dyspnea. Cough. Feeling of fullness of the chest.

TECHNIQUE: Perpendicularly for 0.5 to 1 cun.

LIEQUE [列缺]

JING: Lung 7 (L 7 or LU 7).

LOCALIZATION: On the radial styloid process, 0.5 cun proximal to the transverse carpal crease. Crossing the index finger and thumb of both hands, this point is at the tip of the index finger on the radial styloid (Figs. 10.23 and 10.24).

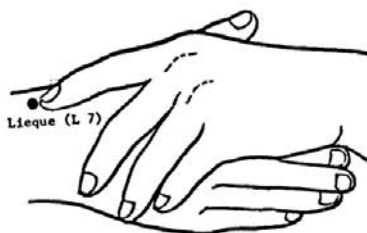


Figure 10.24

ANATOMY: Between the tendons of the brachioradialis and the abductor pollicis longus muscles. Branches of the lateral cutaneous nerve of the forearm (from the lateral cord, C 6, 7). The superficial branch (C 6, 7) of the radial nerve. Medial to the extensor carpi radialis longus tendon. Branches of the cephalic vein. Branches of the radial artery and vein.

PRINCIPAL INDICATIONS: Headaches. Pain and stiff neck. Periarticular soft tissue diseases of wrist. Cough. Asthma. Urticaria. Facial palsy.

CONJOINT USES:

1. With Yangxi (LI 5) and Ouch Acupoints to treat DeQuavaine's disease (i.e., constrictive tenosynovitis).

TECHNIQUE:

1. Obliquely towards elbow for 0.5 to 1 cun.
2. Pointing distally for 0.5 to 1 cun for constrictive tenosynovitis.

TAIYUAN [太渊]

JING: Lung 9 (L 9 or LU 9)

LOCALIZATION: With the forearm supinated, this acupoint is in the depression at the radial end of the volar transverse carpal crease (Fig. 10.23).

ANATOMY: Lateral to the flexor carpi radialis tendon. Medial to the abductor pollicis longus tendon. The lateral cutaneous nerve of the forearm (from the lateral cord, C 6, 7). The superficial branch (C 6, 7) of the radial nerve. The radial artery and vein.

PRINCIPAL INDICATIONS: Diseases of the radial carpal joint and the adjacent soft tissues. Pain and lameness of the wrist. Headaches. Toothache. Asthma.

TECHNIQUE: Perpendicular insertion for 0.3 to 0.5 cun.

SHAOSHANG [少商]

JING: Lung 11 (L 11 or LU 11).

LOCALIZATION: On the radial side of the base of the finger nail of the thumb (Fig. 10.23).

ANATOMY: The proper palmar digital artery and vein. The lateral cutaneous nerve of the forearm (from the lateral cord, C 6, 7). The superficial branch of the radial nerve (C 6, 7). The proper palmar digital branch (C 6, 7) of the median nerve.

PRINCIPAL INDICATIONS: Syncope.

TECHNIQUE:

1. Obliquely upwards for 0.1 cun.
2. Punctuating to draw small amounts of blood.

NEIGUAN [内关]

JING: Pericardium 6 (P 6).

LOCALIZATION: With the forearm supinated, 2 cun proximal to the mid point of the volar transverse carpal crease, between the flexor carpi radialis muscle and the palmaris longus tendon (Fig. 10.23).

ANATOMY: The flexor digitorum superficialis and profundus muscles. The trunk of the median nerve. In the deeper layer, the palmar interosseous nerve of the forearm (C 6, 7). The median artery and vein. Palmar interosseous artery and vein of the forearm. The medial and lateral cutaneous nerves of the forearm.

PRINCIPAL INDICATIONS: Carpal tunnel syndrome. Migraine headaches. Asthma. Pleurodynia. Diaphragmatic spasms (hiccups). Angina pectoris. Palpitation of the heart. Cardiac arrhythmia. Vomiting. Gastralgia. Abdominal pain. Post-surgical pain and swelling of pharynx and larynx. Insomnia. Shock. Motion sickness.

CONJOINT USES:

1. With Jianshi (P 5) and Zusanli (S 36) to treat angina pectoris.
2. With Suliao (GV 25) to treat hypotension.
3. With Yongquan (K 1) and Zusanli (S 36) to treat toxic shock.

TECHNIQUE:

1. Perpendicularly 0.5 to 1.5 cun, toward Waiguan (T 5).
2. For numbness of fingers, perpendicularly but slightly toward radial side for 0.3 to 0.5 cun.
3. Obliquely upwards for 1 to 2 cun for diseases of the torso.

DALING [大陵]

JING: Pericardium 7 (P 7).

LOCALIZATION: At the midpoint of the volar transverse carpal crease. Between the flexor carpi radialis the and palmaris longus tendons (Fig. 10.23).

ANATOMY: The flexor pollicis longus and flexor digitorum profundus tendons. The median nerve trunk. The medial cutaneous nerve of the forearm (from the medial cord, C 8, T 1). The palmar cutaneous branch of median nerve. Palmar arterial and venus plexus of the wrist.

PRINCIPAL INDICATIONS: Carpal tunnel syndrome. Diseases of the wrist and its adjacent soft tissues. Intercostal neuralgia. Insomnia. Tightness of the chest.

CONJOINT USES:

1. With Baihui (GV 20), Yintang (Ex-NH 3), and Taixi (K 3) to treat insomnia.

TECHNIQUE:

1. Perpendicularly for 0.3 to 0.5 cun.
2. Obliquely into the carpal tunnel for carpal tunnel syndrome.

SHAOHAI [少海]

JING: Heart 3 (H 3).

LOCALIZATION: With the elbow flexed, the depression between the ulnar end of the cubital crease and the medial humoral epicondyle (Fig. 10.23).

ANATOMY: The motor point of pronator teres muscle. The brachialis muscle. The medial cutaneous nerve of the forearm (from the medial cord, C 8, T 1). Inferior ulnar collateral artery. The ulnar recurrent artery. The basilic vein.

PRINCIPAL INDICATIONS: Golfer's elbow. Peri-articular soft tissue lesions of the elbow. Ulnar neuralgia. Numbness of the forearm. Intercostal neuralgia. Chronic fatigue syndrome.

CONJOINT USES:

1. With Anmian (New Point) and Sanyinjiao (Sp 9) to treat chronic fatigue syndrome.
2. With Shenmen (H 7) to treat chest pains and angina pectoris

TECHNIQUE: Perpendicularly 0.5 to 1.5 cun.

LUOZHEN [落枕]

JING: Extra-Meridian Odd-Acupoints.

LOCALIZATION: Between the second and the third metacarpi, 0.5 cun proximal to the metacarpophalangeal joints (Fig. 10.25 on the next page).

ANATOMY: The second dorsal interosseus muscle. The dorsal digital branches (C 6, 7) of the radial nerve. The dorsal digital artery and vein.

PRINCIPAL INDICATIONS: Cervical spondylosis. Migraine headache. Pain of the shoulder and arm.

TECHNIQUE: Perpendicularly or obliquely for 0.3 to 0.5 cun.

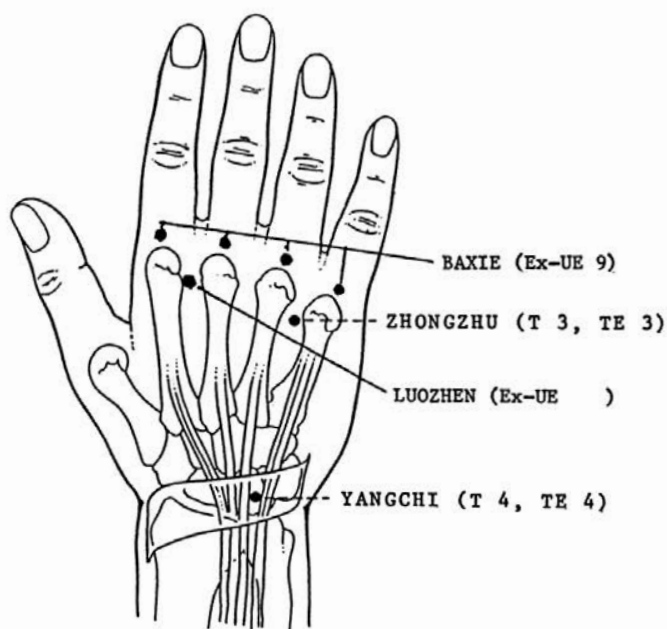


Figure 10.25

E. THE CHEST

TIANTU [天突]

JING: Conception Vessel 22 (CV 22) or Renmai 22 (Ren 22).

LOCALIZATION: 0.5 cun above the jugular notch of the sternum (Fig. 10.26).

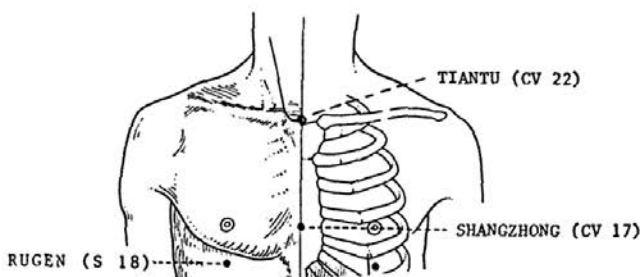


Figure 10.26

ANATOMY: Above the jugular notch of the sternum, between the left and the right sternocleidomastoid muscles. In the deep layer, the sterno-hyoid and sterno-thyroid muscles. Anterior branches (C 3, 4) of the supraclavicular nerve. Subcutaneously, the jugular vein and branches of the inferior thyroid artery. The trachea in the deeper layer. Behind the manubrium sternum, innominate vein and the aortic arch.

PRINCIPAL INDICATIONS: Hiccups. Bronchial asthma.

CONJOINT USES:

1. With Neiguan (P 6) and Zhongwan (CV 12) to treat hiccups.
2. With Dingchuan (Ex-B 1), Shanzhong (CV 17) and Fenglong (S 40) to treat bronchial asthma.
3. With Quchi (LI 11), Dingchuan (Ex-B 1) and Hegu (LI 4) to treat chronic bronchitis.

TECHNIQUE:

1. After inserting the needle for 0.2 to 0.3 cun, point the needle downwards along the posterior aspect of manubrium sternum, in front of the trachea for about 1 to 1.5 cun.
2. Insert the needle perpendicularly for 0.3 to 0.5 cun.

PRECAUTION:

1. Obviously one should be extremely careful when employing this acupoint, particularly by inexperienced practitioner.
2. When inserting the needle posterior to the manubrium sternum it should not be too deeply in order to avoid injury to the aorta or innominate vein.
3. When inserting the needle perpendicularly, it should not be too deeply in order to avoid injury to the trachea.
4. The needle should not be inserted deeply either to the left or to the right, especially in emphysematous patients, in order to avoid injury to the apex of the lungs and the infraclavicular artery and vein.

SHANZHONG [膻中]

JING: Conception Vessel 17 (CV 17) or Renmai (Ren 17).

LOCALIZATION: On the sternum, midway between the two nipples. In the female, it should be at the level of the fifth sternocostal joint (Fig. 10.26).

ANATOMY: The medial branch of the anterior cutaneous branch of the fourth intercostal nerve. Perforating (cutaneous) branches of the internal thoracic (mammary) artery and vein.

PRINCIPAL INDICATIONS: Bronchial asthma. Intercostal neuralgia.

CONJOINT USES:

1. With Dingchuan (Ex-B 1), Tiantu (CV 22) and Neiguan (P 6) to treat bronchial asthma.
2. With Rugen (S 18) to treat the deficiency of lactation.

TECHNIQUE: Pointing the needle subcutaneously upward or toward the breasts for 0.5 to 1.5 cun.

F. ABDOMINAL AND PELVIC REGIONS

JUQUE [巨阙]

JING: Conception Vessel 14 (CV 14) or Renmai (Ren 14).

LOCALIZATION: One cun below the tip of the xiphoid process or 6 cun above the umbilicus (Fig. 10.27).

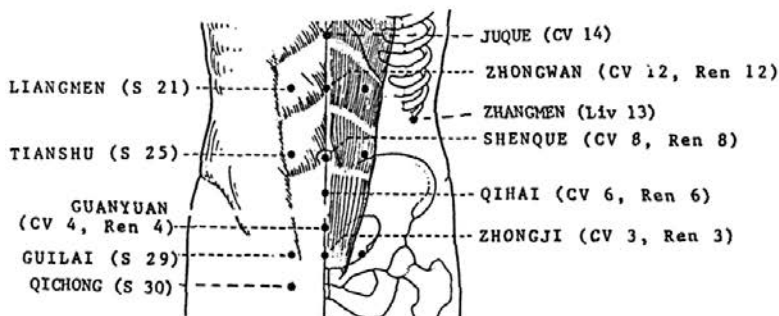


Figure 10.27

ANATOMY: The medial branch of the anterior cutaneous branch of the seventh intercostal nerve. In the linea alba. Branches of the superior epigastric artery and vein.

PRINCIPAL INDICATIONS: Hiccups. Angina pectoris. Gastralgia. Vomiting.

CONJOINT USES:

1. With Xinshu (B 15), Ximen (P 4) and Tungli (H 5) to treat angina pectoris.

TECHNIQUE: Insert the needle perpendicularly for 1.5 to 2 cun.

PRECAUTION: In the patients with enlarged left lobe of the liver or enlargement of the heart, the needles should not be inserted too deeply or pointing upwards.

ZHONGWAN [中脘]

JING: Conception Vessel 12 (CV 112) or Renmai 12 (Ren 12).

LOCALIZATION: Along the abdominal midline, four cun above the umbilicus; i.e., midway between the umbilicus and xyphostylus joint (Fig. 10.27).

ANATOMY: In the linea alba. The medial branch of the anterior cutaneous branch of the seventh intercostal nerve. The superior epigastric artery and vein. Corresponding to the pylorus of the stomach.

PRINCIPAL INDICATIONS: Acute intestinal obstruction. Vomiting. Abdominal distention. Diarrhea. Constipation. Indigestion. Hypertension. Chronic fatigue syndrome.

CONJOINT USES:

1. With Liangmen (S 21), Tianshu (S 25), Neiguan (P 6) and Zusanli (S 36) and Qihai (CV 6) to treat acute intestinal obstruction.

TECHNIQUE: Insert the needle perpendicularly one to two cun. May also direct the needle obliquely outward.

PRECAUTIONS:

1. The stomach, pancreas and abdominal aorta lie deeply underneath this acupoint. Vertical insertion of the needle should not be too deep, especially in geriatric and debilitated patients.
2. In patients with hepatomegaly or splenomegaly, the needle should not be inserted toward the left or the right upper quadrant.

ZHANGMEN [章门]

JING: Liver 13 (Liv 13)

LOCALIZATION: In the mid-axillary line, at the tip of the eleventh rib. With the elbow flexed and the arm adducted, this acupoint is on the chest wall at the level of the tip of the olecranon (Fig. 10.27).

ANATOMY: The external and internal oblique muscles. The transverse abdominis muscle. The tenth intercostal nerve lies slightly below. The tenth intercostal artery and vein.

PRINCIPAL INDICATIONS: Intercostal neuralgia.

TECHNIQUE: Vertical or oblique insertions for 0.8 to 1 cun.

TIANSHU [天枢]

JING: Stomach 25 (S 25 or St 25).

LOCALIZATION: Two cun lateral to the umbilicus (Fig. 10.27).

ANATOMY: Rectus abdominis muscle and its sheath. Branches of the tenth intercostal nerve. The ninth intercostal artery and vein and branches of the inferior epigastric vessels. Small intestines in the abdominal cavity.

PRINCIPAL INDICATIONS: Low back pain. Paralytic ileus. Endometritis. Constipation.

CONJOINT USES:

1. With Qihai (CV 6) Dachangshu (B 25) and Shangliao (B 31) to treat paralytic ileus.
2. With Yingjiao (CV 7) and Guangyuan (CV 4) to treat dysmenorrhea.

TECHNIQUE: To insert the needle perpendicularly for 1.5 to 2.5 cun.

QIHAI [气海]

JING: Conception Vessel 6 (CV 6) or Renmai 6 (Ren 6).

LOCALIZATION: On the Abdominal Central Line 1.5 cun below the umbilicus (Fig. 10.27).

ANATOMY: In linea alba. The medial branch of the anterior cutaneous nerve of the eleventh intercostal nerve. The superficial epigastric artery and vein. The inferior epigastric artery and vein. Small intestine underneath in the abdominal cavity.

PRINCIPAL INDICATIONS: Chronic fatigue syndrome. Abdominal distension. Abdominal pain. Irregular menstruation. Dysmenorrhea. Paralytic ileus. Frequency of urination. Urinary retention. Impotence.

CONJOINT USES:

1. With Zhongji (CV 3) and Sanyinjiao (SP 6) to treat dysmenorrhea.
2. With Zhigou (T 6), Zusanli (S 36), Dachangshu (B 25) to treat paralytic ileus.
3. With Mingmen (GV 4) and Yaoshu (GV 2) to treat diabetes insipidus.

TECHNIQUE: Insert the needle obliquely downwards for 2 to 3 cun.

PRECAUTION: This acupoint should not be used in pregnant women. If the bladder is full the needle should not be inserted too deeply.

GUANYUAN [关元]

JING: Conception Vessel 4 (CV 4) or Renmai 4 (REN 4).

LOCALIZATION: On the abdominal midline, 3 cun below the umbilicus, intersecting the line joining anterior superior iliac spines (Fig. 10.27).

ANATOMY: In Linea alba. The medial ramus of the anterior cutaneous branch of the twelfth intercostal nerve. The superficial epigastric and inferior epigastric arteries and veins.

PRINCIPAL INDICATIONS: Abdominal pain. Functional uterine hemorrhage. Irregular menstruation. Dysmenorrhea. Leucorrhoea. Chronic pelvic inflammation. Impotence. Enuresis.

CONJOINT USES:

1. With Yinbai (Sp 1), Xuehai (Sp 10) and Zusanli (S 36) to treat functional uterine hemorrhage.
2. Toward Qugu (CV 2), with Zusanli (S 36) and Sanyinjiao (S 6) to treat urinary infection.
3. With Weiyang (B 53) to treat urinary retention.

TECHNIQUE: Obliquely downwards for 1.5 to 2 cun.

ZHONGJI [中极]

JING: Conception Vessel 3 (CV 3) or Renmai 3 (REN 3).

LOCALIZATION: Along the abdominal midline, 4 cun below the Umbilicus (Fig. 10.27).

ANATOMY: In linea alba. Branches of the ilio-hypogastric nerve (L 1). Branches of the superficial epigastric artery and vein. Branches of the inferior epigastric artery and vein. The sigmoid colon underneath in the abdominal cavity.

PRINCIPAL INDICATIONS: Sciatic neuritis. Impotence. Menstrual irregularity. Amenorrhoea. Infertility. Infections of urethra. Chronic pelvic inflammation. Incontinence or retention of urine.

CONJOINT USES:

1. With Henggu (K 11) and Yinlingquan (Sp 9) to treat impotence.

2. With Yinlingquan (Sp 9) and Sanyinjiao (Sp 6) to treat irregular menstruation.

TECHNIQUE: Insert perpendicularly for 1 to 2 cun.

GUILAI [归来]

JING: Stomach 29 (S 29 or St 29).

LOCALIZATION: Four cun below the umbilicus and 2 cun lateral to Zhongji Acupoint (CV 3) (Fig. 10.27).

ANATOMY: At the outer border of rectus abdominis muscle. Internal oblique muscles. The transverse abdominis muscle. Branches of the iliohypogastric nerve (L 1). The inferior epigastric artery and vein lying lateral to it.

PRINCIPAL INDICATIONS: Irregular menstruation. Adnexitis. Endometritis. Orchitis.

CONJOINT USES:

1. With Qihai (CV 6), Xuehai (Sp 10) and Sanyinjiao(sp 6) to treat endometritis.
2. With Zhongji (CV 3), Qugu (CV 2) and Sanyinjiao (Sp 6) to treat irregular menstruation.
3. With Taixi (K 3) , Qihai (CV 6) and Fuliu (K 7) to treat trichomonas vaginitis.
4. With Shuidao (S 28) to treat retention of urine, or pelvic inflammatory diseases.

TECHNIQUE: Insert the needle perpendicularly or toward symphysis pubis for 1.5 to 2 cun.

QICHONG [气冲]

JING: Stomach 30 (S 30 or St 30).

LOCALIZATION: Superior and lateral to pubic tubercle, just above the inguinal groove. Medial to the femoral artery (Fig. 10.27).

ANATOMY: The aponeurosis of the external oblique abdominis muscle. In the lower part of the internal oblique and transverse abdominis muscles. Branches of the ilioinguinal nerve (L 1). The inferior epigastric artery lying lateral to it. Branches of the superficial epigastric artery and vein.

PRINCIPAL INDICATIONS: Diseases of male and female genital organs.

CONJOINT USES :

1. With Guanyuan (CV 4) toward Zongji (CV 3) and Sanyinjiao (Sp 6) to treat infections of the urinary tract.

TECHNIQUE:

1. Perpendicular for 0.5 to 1 cun.
2. Obliquely toward external genitalia for 1 to 2 cun.

PRECAUTION: Do not insert the needles too deeply because the spermatic cord and round ligament of the uterus lie right underneath this point.

G. THE LUMBOSACRAL REGION

MINGMEN [命 门]

JING: Governing Vessel 4 (GV 4) or Dumai 4 (Du 4)

LOCALIZATION: Between the spinous process of the second and third lumbar vertebrae (Fig. 10.28).

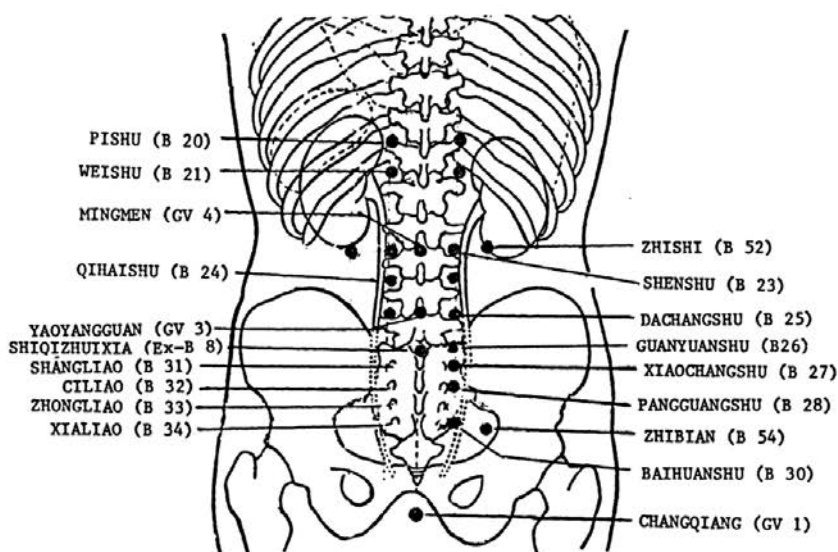


Figure 10.28

ANATOMY: The lumbar fascia. The supra- and inter-spinous ligaments. The medial branch of the posterior ramus of the first lumbar nerve. The posterior branch of the lumbar artery. The subcutaneous interspinous venus plexus.

PRINCIPAL INDICATIONS: Low back pain. Sciatica. Lumbar sprain and strain. Spondylitis. Dysuresis. Impotence. Leukorrhea. Endometritis. Chronic pelvic inflammation.

CONJOINT USES:

1. With Dazhui (GV 14), Geshu (B 17), Quchi (LI 11), and Zusanli (S 36) to treat anemia, secondary to iron deficiency.
2. With Baihui (GV 20), Guanyuan (CV 4), Sanyinjiao (Sp 6) and Zhongliao (B 33) to treat enuresis.

TECHNIQUE: Perpendicularly but slightly upwards for 1 to 1.5 cun.

SHENSHU [肾俞]

JING: Urinary Bladder 23 (B 23 or UB 23).

LOCALIZATION: Lateral to the spinous process of the second lumbar vertebra by 1.5 cun (Fig. 10.28).

ANATOMY: The lumbar fascia. Between the longissimus and iliocostal muscles. The medial branch of the posterior ramus of the first lumbar nerve, and in the deeper layer, its lateral branch. The medial branch of the posterior ramus of the second lumbar artery and vein.

PRINCIPAL INDICATIONS: Low back pain. Soft tissue injuries of the lumbar region. Genital diseases. Enuresis. Impotence. Irregular menstruation. Bronchial asthma. Tinnitus.

CONJOINT USES:

1. With Weizhong (B 40) to treat low back pain syndrome.

TECHNIQUE: Perpendicularly but slightly toward the vertebral body for 1.5 to 2 cun.

PRECAUTION: Do not insert the needle outward too deeply in order to avoid injury to the kidneys.

ZHISHI [志室]

JING: Urinary Bladder 52 (B 52 or UB 52). [B 47 in Mann's book]

LOCALIZATION: Lateral to the spinous process of the second lumbar vertebra by 3 cun (Fig. 10.28).

ANATOMY: The latissimus dorsi and iliocostal muscles. The lateral branch of the posterior primary division of the twelfth thoracic nerve. The lateral branch of the first lumbar nerve. The dorsal branch of the second lumbar artery and vein.

PRINCIPAL INDICATIONS: Low back pain syndrome. Lameness of the lower limbs. Impotence. Prostatitis.

CONJOINT USES:

1. With Guanyuanshu (B 26) and Yinmen (B 37) to treat soft tissue injuries of the lumbar region.
2. With Shenshu (B 23) to treat renal colic.

TECHNIQUE:

1. Perpendicularly for 1.5 to 2 cun.
2. Horizontally toward the direction of Shenshu (B 23) to treat soft tissue injuries of the lumbar region, for 2 to 3 cun.

PRECAUTION: The needle should not be inserted too deeply because the lower pole of the kidney is underneath this point in the abdominal cavity.

QIHAISHU [气海俞]

JING: Urinary Bladder 24 (B 24 or UB 24).

LOCALIZATION: 1.5 cun lateral to the spinous process of the third lumbar vertebra (Fig. 10.28).

ANATOMY: The lumbar fascia. The longissimus and iliocostal muscles. The medial branch of the posterior ramus of the second

lumbar nerve. In the deeper layer, the lateral branch of the posterior ramus of the first lumbar nerve. The posterior branches of the third lumbar artery and vein.

PRINCIPAL INDICATIONS: Low back pain. Lameness of the lower limbs. Irregular menstruation.

CONJOINT USES:

1. With Shiqizhuxia (New Point) and Sanyinjiao (Sp 6) to treat functional uterine bleeding.

TECHNIQUE: Same as with Shenshu (B 23).

YAOYANGGUAN [腰阳关]

JING: Governing Vessel 3 (GV 3) or Dumai 3 (DU 3).

LOCALIZATION: Between the spinous processes of the fourth and the fifth lumbar vertebrae (Fig. 10.28).

ANATOMY: The lumbar fascia. The supra- and inter-spinous ligaments. The medial branch of the posterior ramus of the second lumbar nerve. The posterior branches of the lumbar artery and vein. The interspinous subcutaneous venous plexus.

PRINCIPAL INDICATIONS: Pain of the lumbosacral region. Low back pain. Pain of the knee. Lameness and numbness of the lower limbs. Irregular menstruation. Impotence.

CONJOINT USES:

1. With Mingmen (GV 4) and Xuanshu (GV 5) to treat polyneuritis.

TECHNIQUE: Same as with Mingmen (GV 4).

DACHANGSHU [大肠俞]

JING: Urinary Bladder 25 (B 25 or UB 25).

LOCALIZATION: Lateral to the spinous process of the fourth lumbar vertebra by 1.5 cun (Fig. 10.28).

ANATOMY: The lumbar fascia. Between the longissimus and iliocostal muscles. The posterior branch of the third lumbar nerve. The posterior branch of the fourth lumbar artery and vein.

PRINCIPAL INDICATIONS: Low back and leg pains. Sprain and strain of the lumbar region. Sacroiliac arthralgia.

CONJOINT USES:

1. With Baihuanshu (B 30), Tiaokou (S 38) towards Chengshan (B 57), Mingmen (GV 4), and Yanglingquan (G 24) towards Yanglingquan (Sp 9) to treat migratory myalgia or progressive muscular atrophy.

TECHNIQUE:

1. Perpendicularly for 1 to 2 cun.
2. Obliquely, slightly outward for 2 to 3 cun to treat sciatica.
3. Horizontally downwards toward Xiaochangshu (B 27) to treat sacroiliac arthralgia.

YAOYAN [腰眼]

JING: Extra Point (Ex-B 7).

LOCALIZATION: In the depression, 3 to 4 cun lateral to the spinous process of the third lumbar vertebra.

ANATOMY: Above the iliac crest, at the lateral border of the sacrospinous muscle. The supragluteal cutaneous nerve. The latissimus dorsi muscle. In the deeper layer, the lateral border of the quadratus lumborum muscle. The lumbar plexus. Branches of the lumbar artery and vein.

PRINCIPAL INDICATIONS: Soft tissue injuries of the lumbar region.

CONJOINT USES:

1. With Shenshu (B 23) and Weizhong (B 40) to treat low back pain.

TECHNIQUE: Vertical or horizontal insertion for 1.5 to 2.5 cun,

SHIQIZHUIXIA [十七椎下]

JING: Extra point (Ex-B 8). [The Chinese name of this acupoint means "below the seventeenth vertebra."]

LOCALIZATION: In the depression below the spinous process of the fifth lumbar vertebra (Fig. 10.28).

ANATOMY: The supra- and inter-spinous ligaments. The medial branch of the posterior ramus of the fifth lumbar nerve and its accompanying artery and vein. In the deeper layer, the ligamenta flava, the dura mater, the arachnoid mater, and the cauda equina.

PRINCIPAL INDICATIONS: Lumbosacral pain. Low back pain. Sciatica. Menorrhagia.

CONJOINT USES:

1. With Lumbar Paravertebral Acupoints to treat lameness of the lower limbs.
2. With Zhibian (B 54) and Guanyuanshu (B 26) to treat lumbosacral pain.
3. With Zhonji (CV 3), Sanyinjiao (Sp 6), and Taixi (K 3) to treat menorrhagia.

TECHNIQUE: Vertical insertion for 1.5 to 2 cun.

GUANYUANSHU [关元俞]

JING: Urinary Bladder 26 (B 26 or UB 26).

LOCALIZATION: 1.5 cun lateral to the spinous process of the fifth lumbar vertebra (Fig 10.28).

ANATOMY: The sacrospinous muscle. The posterior ramus of the fifth lumbar nerve. The fifth lumbar artery and vein.

PRINCIPAL INDICATIONS: Low back pain. Pain of the knee. Chronic enteritis.

CONJOINT USES:

1. With Ganshu (B 18) and Pishu (B 20) to treat menorrhagia.
2. With Pishu (B 20) and Shenshu (B 23) to treat chronic enteritis or Crohn's disease.

TECHNIQUE: Vertical insertion for 1.5 to 2 cun.

XIAOCHANGSHU [小肠俞]

JING: Urinary Bladder 27 (B 27 or UB 27).

LOCALIZATION: At the level of the first sacral foramen, 1.5 cun lateral to the dorsal midline (Fig. 10.28).

ANATOMY: Between the origin of the sacroiliac muscle and that of the gluteus maximus muscle. The lateral branch of the posterior ramus of the first sacral nerve. The posterior ramus of the fifth lumbar nerve. The lateral branch of the posterior division of the lateral sacral artery and vein.

PRINCIPAL INDICATIONS: Low back pain. Pain of the lumbosacral region. Arthritis of the sacroiliac joint. Pelvic inflammatory diseases.

CONJOINT USES:

1. With Dazhui (GV 14), Pishu (B 20), Shenshu (B 23) and the corresponding Paravertebral Acupoints to treat ankylosing spondylitis.

TECHNIQUE:

1. Vertical insertion for 1 to 1.5 cun.
2. Oblique insertion for 2 to 3 cun to treat sacroiliac arthritis or pelvic inflammatory diseases.

PANGGUANGSHU [膀胱俞]

JING: Urinary Bladder 28 (B 28 or UB 28).

LOCALIZATION: At the level of the second sacral foramen, 1.5 cun lateral to the dorsal midline (Fig. 10.28).

ANATOMY: Between the origin of the sacroiliac muscle and the origin of the gluteus maximus muscle. The lateral branches of the posterior rami of the first and second sacral nerves and their communication branch.

PRINCIPAL INDICATIONS: Lumbosacral pain. Sciatica. Low back pain. Swelling and pain of the genitalia.

CONJOINT USES:

1. With Shenshu (B 23), Yinlingquan (G 34), and Sanyinjiao (Sp 6) to treat urinary infection.
2. With Shenshu (B 23), Qugu (CV 2), and Sanyinjiao (Sp 6) to treat prostatitis.

TECHNIQUE: Vertical insertion for 1 to 1.5 cun.

BAIHUANSHU [白环俞]

JING: Urinary Bladder 30 (B 30 or UB 30).

LOCALIZATION: At the level of the fourth sacral foramen, 1.5 cun lateral to the dorsal midline (Fig. 10.28).

ANATOMY: The gluteus maximus muscle. The posteroinferior border of the sacrotuberous ligament. The infragluteal artery and vein. In the deeper layer, the genital nerves and the internal genital artery and vein.

PRINCIPAL INDICATIONS: Sciatica. Strain and sprain of the gluteal muscles. Acute low back pain. Lameness of the knees and feet. Endometriosis.

CONJOINT USES:

1. With Uterus Point (New Point), Xuehai (Sp 10), and Sanyinjiao (Sp 6) to treat pelvic inflammatory diseases.

TECHNIQUE: Vertical insertion for 1 to 2 cun.

ZHIBIAN [秩边]

JING: Urinary Bladder 54 (B 54 or UB 54).

LOCALIZATION: Lateral to the spinous process of the fourth sacral vertebra by 3 cun, at the level of the fourth sacral foramen (Fig. 10.28).

ANATOMY: It is the motor point of the gluteus maximus muscle. At the lower border of the piriformis muscle. The inferior gluteal nerve. The posterior femoral cutaneous nerve. The sciatic nerve lying lateral to it. The inferior gluteal artery and vein.

PRINCIPAL INDICATIONS: Sciatica. Strain and sprain of the gluteal muscles. Numbness and lameness of the lower limbs. Diseases of the anus and genitalia.

CONJOINT USES:

1. With Yinmen (B 37) and Yanglinquan (G 34) to treat low back and leg pain.

TECHNIQUE:

1. Perpendicular insertion for 2 to 3 cun to treat sciatica.
2. Toward Huantiao (G 30) to treat strain of the gluteal muscles.
3. Oblique insertion medially at an angle of 45 degrees for 2 to 3 cun to treat diseases of genitalia.
4. Obliquely downwards and medially at an angle of 45 degrees for 2 to 3 cun to treat diseases of the anus.

CHANGQIANG [长强]

JING: Governing Vessel 1 (GV 1) or Dumai 1 (Du 1).

LOCALIZATION: Between the tip of the coccyx and the anus (Fig. 10.28).

ANATOMY: In the anococcygeal diaphragm The anal (inferior hemorrhoidal) nerve and the coccygeal nerve. The anal (inferior hemorrhoidal) artery and vein. Extension of the interspinous venous plexus.

PRINCIPAL INDICATIONS: Induction of labor. Impotence. Eczema of the scrotum.

CONJOINT USES:

1. With Yinlingquan (Sp 9), Hegu (LI 4), and Sanyinjiao (Sp 6) for the induction of labor.

TECHNIQUE: Vertical insertion between the coccyx and rectum, for 0.5 to 1 cun.

BALIAO [八 髎]

JING: Urinary Bladder 31, 32, 33 and 34 (B 31, 32, 33, and 34 or UB 31, 32, 33, and 34).

LOCALIZATION: These four pairs of acupoints are usually grouped together and called Baliao, or Eight-Liao. The uppermost, Shangliao (B 31), coincides with the first sacral foramen; the second pair Ciliao (B 32), the second sacral foramen; the third pair, Zhongliao (B 33), the third sacral foramen; and the fourth pair, Xialiao (B 34), the fourth sacral foramen (Fig. 10.28 and 10.29).

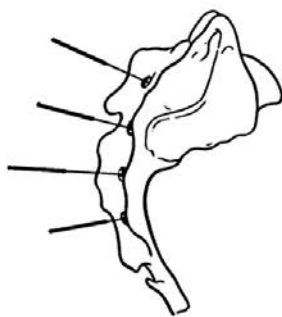


Figure 10.29

ANATOMY: The sacrospinalis muscle and the origin of the gluteus maximus muscle. The posterior branches of the first through fourth sacral nerves and their accompanying arteries and veins.

PRINCIPAL INDICATIONS: Diseases of the lumbosacral joint. Sciatica. Lameness of the lower limbs. Irregular menstruation. Induction of labor. Oxytocic effect. Leukorrhea. Chronic pelvic inflammation. Orchitis. Chronic fatigue syndrome.

CONJOINT USES:

1. With Guanyuan (CV 4) towards Zhongji (CV 3), and Sanyinjiao (Sp 6) to treat dysmenorrhea.
2. With Zusanli (S 36), Sanyinjiao (Sp 6), Xuehai (Sp 10), Uterus Point (Extra point), Qihai (CV 6), Guanyuan (CV 4) to treat functional uterine hemorrhage.
3. With Shangliao (B 31), Ciliao (B 32), Hegu (LI 4), Sanyinjiao (Sp 6) for oxytocic effects.

TECHNIQUE: Perpendicularly for 1 to 2 cun. The needle must be inserted into the sacral foramina.

PARAVERTEBRAL ACUPOINTS

(HUATUO JIAJI OR JIAJI) [华陀夹脊]

JING: Extra-Meridian Odd Acupoints.

LOCALIZATION: At the level of the spinous processes from the first cervical through the fifth lumbar vertebrae, 0.5 to 1 cun lateral to the midline (Fig. 10.30 on the next page). Some of the old acupuncture texts include only the acupoints at the first thoracic through the fifth lumbar spinous processes. The sacral portion is represented by the Baliao Acupoints.

ANATOMY: The muscles between the spinous and transverse processes of the vertebrae. The branches of the posterior rami of the C 1 through L 5 spinal nerves.

PRINCIPAL INDICATIONS: The acupoints are selected according to the distribution of the spinal nerves and the dermatome involved. The presence of trigger points or referred pain also assists in the selection.

TECHNIQUE:

1. Vertically but slightly medially for 1.5 cun in the cervical and thoracic regions, and 2.5 cun in the lumbar region.

2. Obliquely toward the interspinous ligament for 1 to 1.5 cun, or horizontally downwards for 2 to 3 cun, to treat arthritis of the spine.

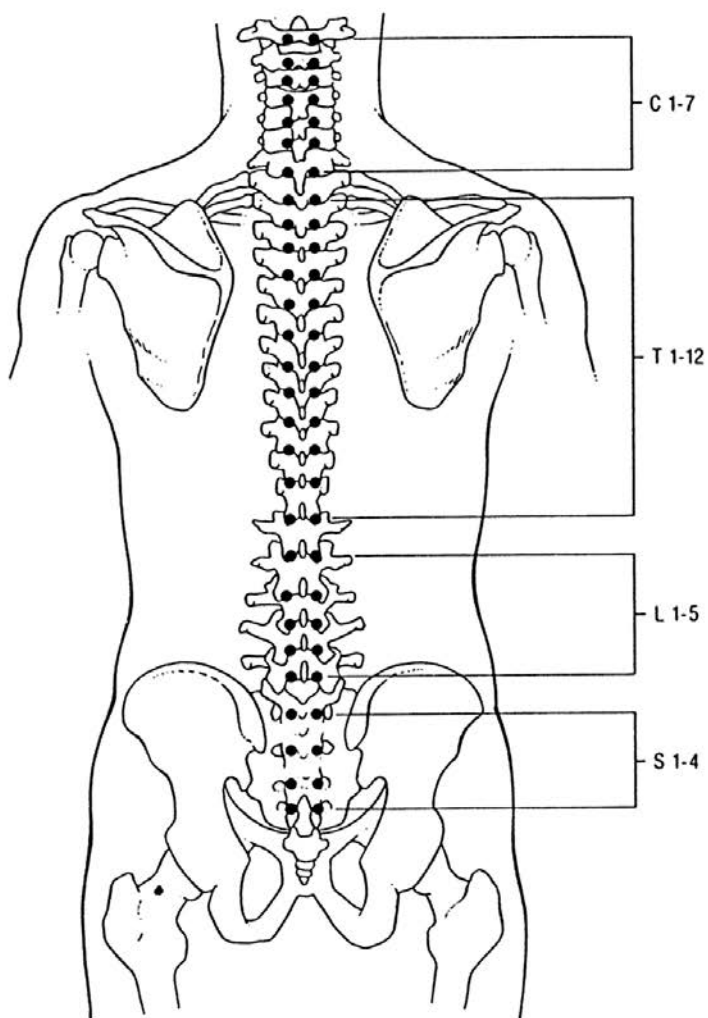


Figure 10.30

H. THE LOWER LIMBS**JULIAO [居髎]**

JING: Gall Bladder 29 (G 29 or GB 29).

LOCALIZATION: In lateral recumbent position, the mid-point between the anterior superior iliac spine and the highest point of the great trochanter (Fig. 10.31).

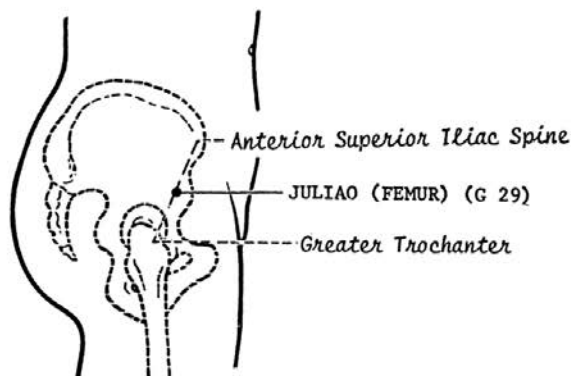


Figure 10.31

ANATOMY: It is the motor point of the tensor fasciae latae. The gluteus minimis and medius muscles in the deeper layer. The ascending branches of the lateral circumflex femoral artery and vein. The lateral femoral cutaneous nerve. The superficial circumflex iliac artery and vein.

PRINCIPAL INDICATIONS: Diseases of the hip joint and its surrounding soft tissues. Lower back and leg pain. Lower abdominal pain. Endometriosis. Cystitis.

CONJOINT USES:

1. With Geshu (B 17), Ganshu (B 18) and Pishu (B 20) to treat peptic ulcer.

TECHNIQUE: Obliquely toward the hip joint for 2 to 3 cun.

HUANTIAO [环跳]

JING: Gall Bladder 30 (G 30 or GB 30).

LOCALIZATION: At the junction of the outer 1/3 and the medial 2/3 of the line joining the highest point of the great trochanter and the sacral hiatus (Fig. 10.32).

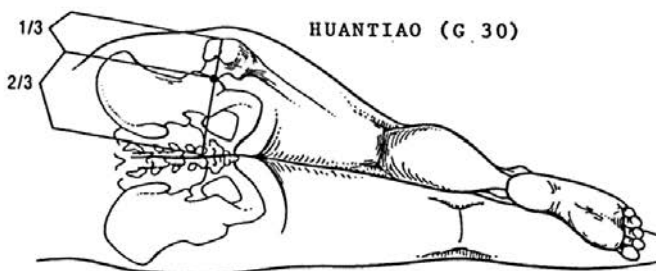


Figure 10.32

ANATOMY: It is the motor point of the piriformis muscle. The gluteus maximus and piriformis muscles. The inferior gluteal cutaneous nerve. The inferior gluteal nerve. The sciatic nerve in the deeper layer. The inferior gluteal artery and vein on its medial aspect.

PRINCIPAL INDICATIONS: Sciatica. Lower back and leg pain. Lameness and numbness of the lower limb. Diseases of the hip joint and its surrounding soft tissues.

CONJOINT USES:

1. With Yanglinquan (G 34) and Xuanzhong (G 39) to treat lameness of the lower limb.
2. With Fengshi (G 31) to treat sciatica, arthralgia and lameness of the knee.

TECHNIQUE:

1. Perpendicularly toward the external genitalia for 2 to 3.5 cun for sciatica.
2. Perpendicularly or obliquely toward different directions for 2 to 3 cun for diseases of the hip joint and its surrounding soft tissues.

FENGSHI [风市]

JING: Gall Bladder 31 (G 31 or GB 31).

LOCALIZATION: In standing position, this point is on the lateral aspect of the thigh where the tip of the middle finger touches the thigh (Fig. 10.33).

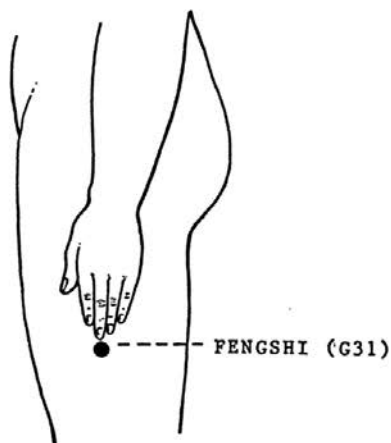


Figure 10.33

ANATOMY: Beneath the iliotibial tract between the vastus lateralis and biceps femoris muscles. The lateral femoral cutaneous nerve. The muscular branch of the femoral nerve. Muscular branches of the lateral circumflex artery and vein of the thigh.

PRINCIPAL INDICATIONS: Sciatica. Lameness of the lower limbs. Lower back and leg pain. Generalized itchiness. Neurodermatitis of the lateral aspect of thigh.

CONJOINT USES:

1. With Yinshi (S 33) and Yanglingquan (G 34) to treat arthritis of the knee and lameness of the lower limbs.

TECHNIQUE: Perpendicularly for 1.5 to 2.5 cun.

BIGUAN [髀关]

JING: Stomach 31 (S 31 or St 31).

LOCALIZATION: Directly below the anterior superior iliac spine at the level of the lower border of the symphysis pubis (Fig. 10.34).

ANATOMY: It is the motor point of the rectus femoris muscle. Between the sartorius and the tensor fasciae latae muscles. The lateral femoral cutaneous nerve. The neck of the femur in the deeper layer. Branches of the lateral femoral circumflex artery and vein in the deeper layer.

PRINCIPAL INDICATIONS: Lumbago. Numbness and lameness of the lower limbs. Arthritis of the knee.

CONJOINT USES:

1. With Weizhong (B 54) and Chengfu (B 50) to treat arthritis of the hip.

TECHNIQUE: Perpendicularly or obliquely for 1.5 to 3 cun.

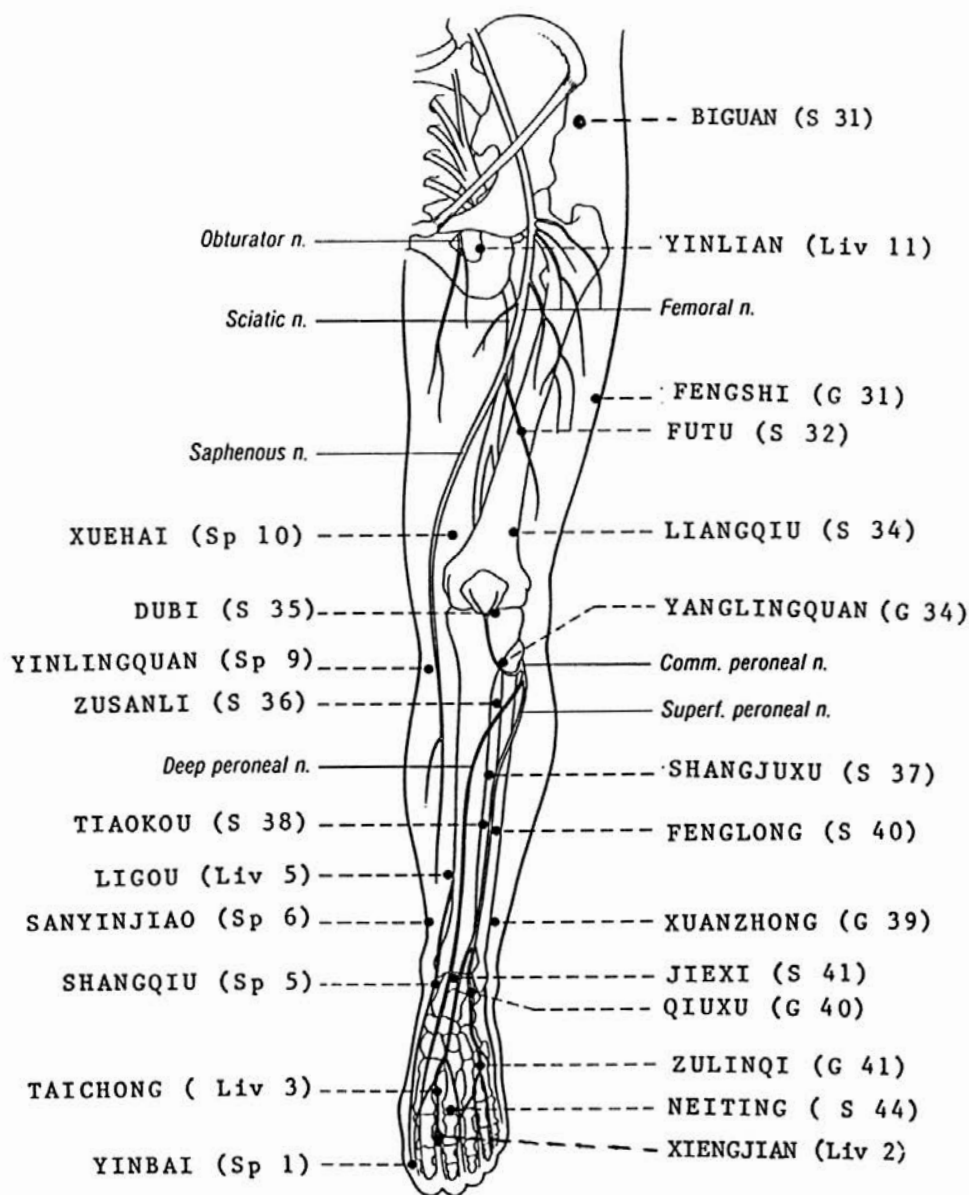


Figure 10.34

FUTU (THIGH) [伏兔]

JING: Stomach 32 (S 32 or St 32).

LOCALIZATION: Six cun proximal to the upper border of the patella (Fig. 10.34). Or, rest the heel of the hand just above the patella, this point is the place where the tip of the middle finger touches the thigh (Fig. 10.35).

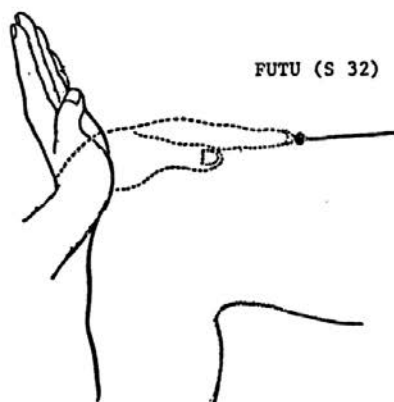


Figure 10.35

ANATOMY: It is the motor point of the rectus femoris muscle. Anterolateral to the femur. The anterior femoral cutaneous nerve. The rectus femoris muscle. Branches of the lateral circumflex artery and vein.

PRINCIPAL INDICATIONS: Numbness and lameness of the lower limbs. Arthritis of the knee. Urticaria.

CONJOINT USES:

1. With Fengshi (G 31) to treat numbness and lameness of the lower limbs.

TECHNIQUE: Perpendicularly for 1.5 to 2.5 cun.

ZUSANLI [足三里]

JING: Stomach 36 (S 36 or St 36).

LOCALIZATION: Four finger-breadths below the lower border of the patella, or one finger-breadth below the tibial tubercle. It is easily located, by placing the doctor's thumb pointing laterally, just below the tibial tubercle, with its interphalangeal crease on the tibial crest. This point is located at the place where the tip of the thumb touches the anterolateral aspect of the leg (Figs. 10.34 and 10.36).

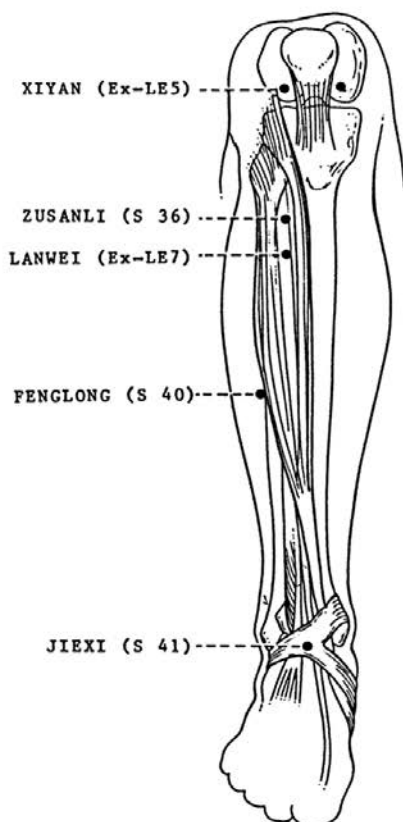


Figure 10.36

ANATOMY: It is the motor point of the tibialis anterior muscle. Laterally extensor digitorum longus muscle. The lateral sural cutaneous nerve and the cutaneous branch of the saphenous nerve. The deep peroneal nerve in the deeper layer. The anterior tibial artery and vein

PRINCIPAL INDICATIONS: For general tonification purposes. Chronic fatigue syndrome. Debility. Shock. Hypertension. Allergic diseases. Asthma. Anemia. Constipation or diarrhea.

CONJOINT USES:

1. With Xuehai (Sp 10) and Quchi (LI 11) to possibly booster immunity.
2. With Xuehai (Sp 10), Quchi (LI 11) and local points, it is very effective in treating skin diseases, such as psoriasis, herpes, or cystic acne (181, 182).
3. With Hegu (LI 4), Tianshu (S 25) and Guanyuan (CV 4) to treat indigestion.
4. With Xiajuxu (S 39), Yanglinquan (G 34) and Neiguan (P 6) to treat pancreatitis.
5. With Hegu (LI 4), Neiguan (P 6), Zhongwan (CV 12), Tianshu (S 25), Dachangshu (B 25) and Ciliao (B 32) to treat acute intestinal obstruction.
6. With Tianshu (S 25), Shangjuxu (S 37), and Xiajuxu (S 39) to treat abdominal pain, abdominal distension, or appendicitis.
7. With Tianshu (S 25) to treat deficient lactation.

TECHNIQUE:

1. Perpendicularly and slightly toward tibia for 1 to 2 cun.
2. Obliquely downwards for 2 to 3 cun.

SHANGJUXU [上巨虛]

JING: Stomach 37 (S 37 or St 37).

LOCALIZATION: Three cun below Zusanli (S 36) (Fig. 10.34).

ANATOMY: It is the motor point of the extensor hallucis longus muscle. The tibialis anterior muscle. The lateral sural cutaneous nerve. The cutaneous branch of the saphenous nerve. The deep peroneal nerve in the deeper layer. The anterior tibial artery and vein.

PRINCIPAL INDICATIONS: Abdominal pain. Abdominal distention. Diarrhea. Appendicitis. Enteritis. Gastritis.

CONJOINT USES:

1. With Tianshu (S 25) to treat gastritis.

TECHNIQUE: Same as with Zusanli (S 36).

FENGLONG [丰隆]

JING: Stomach 40 (S 40 or St 40).

LOCALIZATION: The midpoint between the inferior border of the patella and the anterior transverse crease of the ankle and two cun lateral to the tibial crest (Fig. 10.34).

ANATOMY: It is the motor point of the extensor digitorum longus muscle. The superficial peroneal nerve. The anterior tibial artery.

PRINCIPAL INDICATIONS: Numbness and lameness of the lower limbs. Headaches. Dizziness and vertigo. Amenorrhea. Productive cough.

TECHNIQUE: Perpendicularly but slightly medially for 1.5 to 3 cun.

JIEXI [解 谿]

JING: Stomach 41 (S 41 or St 41).

LOCALIZATION: The midpoint of the anterior transverse crease of the ankle between the two tendons, at the level of the lateral malleolus (Figs. 10.34 and 10.36).

ANATOMY: Between the tendons of the extensor hallucis longus and the extensor digitorum longus. The superficial peroneal nerve in the superficial layer and deep peroneal nerve in the deep layer. The anterior tibial artery and vein.

PRINCIPAL INDICATIONS: Headaches. Diseases of ankle and its surrounding soft tissues. Foot-drop.

TECHNIQUE: Perpendicularly toward the joint cavity to 0.3 to 0.5 cun and then sideways for 1 to 1.5 cun.

NEITING [内 庭]

JING: Stomach 44 (S 44 or St 44).

LOCALIZATION: At the interdigital web between the second and the third toes, 0.5 cun proximal to the margin of the web (Figs. 10.34 and 10.37).

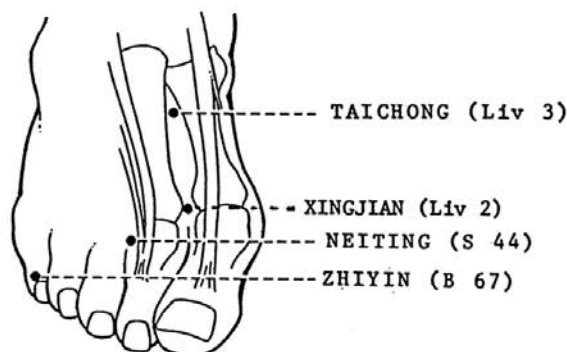


Figure 10.37

ANATOMY: Between the 2nd and 3rd metatarsophalangeal joints. The medial dorsal pedal nerve and the 2nd branch of the dorsal pedal digital nerve. The dorsal pedal venous plexus.

PRINCIPAL INDICATIONS: Toothache. Trigeminal neuralgia.

CONJOINT USES:

1. With Hegu (LI 4) to treat toothache.

TECHNIQUE: Obliquely upwards for 0.3 to 0.8 cun.

XINGJIAN [行间]

JING: Liver 2 (Liv 2).

LOCALIZATION: At the interdigital web between the first and the second toes (Figs. 10.34 and 10.37).

ANATOMY: The division of the dorsal metatarsal nerve of the deep peroneal nerve into the dorsal digital nerves. The dorsal pedal venous plexus. The first metatarsal artery.

PRINCIPAL INDICATIONS: Headaches. Dizziness. Inter-costal neuralgia. Orchitis. Hernial pain. Menorrhagia.

TECHNIQUE: Obliquely for 0.5 to 1 cun.

TAICHONG [太冲]

JING: Liver 3 (Liv 3).

LOCALIZATION: 1.5 to 2 cun above the interdigital cleft between the first and second toes (Figs. 10.34 and 10.37).

ANATOMY: It is the motor point of the first dorsal interosseus muscle. At the proximal end of the first interdigital space between the first and second metatarsi and the outer border of extensor hallucis longus tendon. The dorsal metatarsal nerve of deep peroneal nerve. The dorsal pedal venous plexus. The first dorsal metatarsal artery.

PRINCIPAL INDICATIONS: Low back pain. Headaches. Arthralgia of the limbs. Dizziness. Insomnia. Irregular menstruation. Hypertension. Postpartum hyperhidrosis. Thrombocytopenia.

CONJOINT USES:

1. With Quchi (LI 11), Hegu (LI 4) and Zusanli (S 36) to treat aching of the limbs.

TECHNIQUE: Obliquely toward Yongquan (K 1) for 1 to 1.5 cun.

YANGLINGQUAN [阳陵泉]

JING: Gall Bladder 34 (G 34 or GB 34).

LOCALIZATION: The depression anteroinferior to the fibular head (Fig. 10.34).

ANATOMY: Below the tibio-fibular junction. Between the peroneus longus and the extensor digitorum longus muscles. Near the division of the common peroneal nerve into the superficial and the deep peroneal nerves. The inferior lateral genicular artery and vein.

PRINCIPAL INDICATIONS: Intercostal neuralgia. Periarthritis of the shoulder. Arthralgia of the knee. Numbness and lameness of the lower limbs. Hypertension. Habitual constipation. Diseases of the gall bladder.

CONJOINT USES:

1. With the Gall Bladder Acupoint (New Acupoint), Neiguan (P 6) and Paravertebral D 8 and 9 Acupoints (Extra) to treat cholecystitis.

TECHNIQUE: Perpendicularly but slightly toward posterior border of the tibia for 1 to 3 cun.

GUANGMING [光明]

JING: Gall Bladder 37 (G 37 or GB 37).

LOCALIZATION: Five cun above the tip of the lateral malleolus, and anterior to the fibula (Fig. 10.38).

ANATOMY: It is the motor point of the peroneus brevis muscle. The superficial peroneal nerve. Branches of the anterior tibial artery and vein.

PRINCIPAL INDICATIONS: Migraine headaches. Pain of lateral aspect of the leg. Diseases of the eye.

TECHNIQUE: Perpendicularly 1 to 1.5 cun.

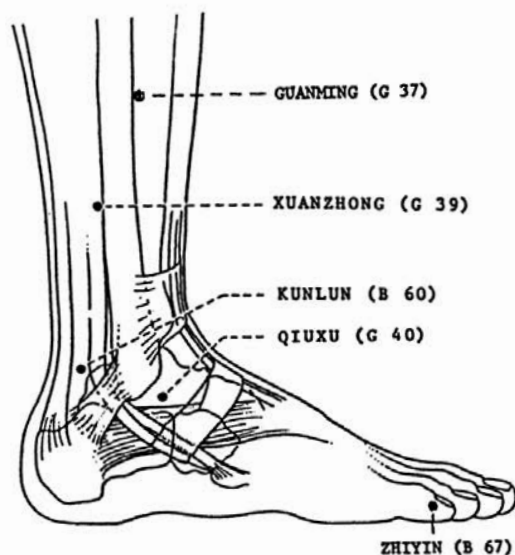


Figure 10.38

XUANZHONG [悬钟]

JING: Gall Bladder 39 (G 39 or GB 39).

LOCALIZATION: Four finger-breadths (or three cun) above the lateral malleolus, between the posterior border of the fibula and the peroneus longus tendon (Figs. 10.34 and 10.38).

ANATOMY: It is the motor point of the peroneus brevis muscle. The superficial peroneal nerve. Branches of the peroneal artery and vein.

PRINCIPAL INDICATIONS: Migraine headaches. Cervical spondylosis. Low back pain syndrome. Sciatica. Diseases of knee and ankle and their surrounding soft tissues. Angina pectoris.

CONJOINT USES:

1. With Xiaxi (G 43) and Fengchi (G 20) to treat migraine headaches.

TECHNIQUE: Perpendicularly toward Sanyinjiao (Sp 6) for 1 to 2 cun.

QIUXU [丘墟]

JING: Gall Bladder 40 (G 40 or GB 40).

LOCALIZATION: In the depression anteroinferior to the lateral malleolus (Fig. 10.34 and 10.38).

ANATOMY: Lateral to the extensor digitorum longus tendon. The origin of the extensor digitorum brevis muscle. Branches of the superficial peroneal nerve. Branches of the anterior lateral malleolar artery.

PRINCIPAL INDICATIONS: Sciatica. Diseases of the ankle and its surrounding soft tissues. Thoracic pain. Cholecystitis.

CONJOINT USES:

1. With Sanyangluo (T 8) to treat intercostal neuralgia.

TECHNIQUE: Perpendicularly toward the lower border of the medial malleolus for 1 to 1.5 cun.

YINMEN [殷门]

JING: Urinary Bladder 51 (B 51 or UB 51).

LOCALIZATION: In prone position, the mid point of the line joining the middle of the gluteal transverse crease and that of the transverse popliteal crease (Fig. 10.39).

ANATOMY: It is the motor point of the biceps femoris muscle. The semimembranosus muscle. The posterior femoral cutaneous nerve. The sciatic nerve in the deeper layer. The third perforating branch of deep femoral artery and vein on its lateral aspect.

PRINCIPAL INDICATIONS: Occipital headache. Lumbago. Ruptured and/or protruding lumbar intervertebral disc. Numbness and lameness of the lower limbs.

CONJOINT USES:

1. With the Paravertebral Acupoints (New) at the L 4, 5 levels to treat protruding lumbar intervertebral discs.

TECHNIQUE: Perpendicularly for 2 to 3 cun.

WEIZHONG [委中]

JING: Urinary Bladder 40 (B 40 or UB 40). [B 54 in Mann's book]

LOCALIZATION: At the mid point of the popliteal transverse crease (Figs. 10.39 and 10.40).

ANATOMY: The popliteal fascia. The posterior cutaneous nerves of the thigh. The sciatic nerve underneath. The femoropopliteal vein underneath the skin. In the deeper layer, the popliteal vein. In the deepest layer, the popliteal artery.

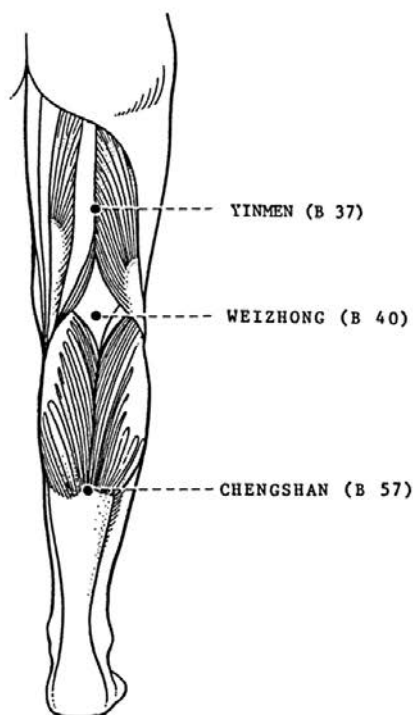


Figure 10.39

PRINCIPAL INDICATIONS: Lumbago. Sciatica. Lameness of the lower limbs. Spasm of gastrocnemius. Sun stroke. Acute gastroenteritis.

CONJOINT USES:

1. With Shixuan (Extra) and Renzhong (GV 26) to treat sun stroke.
2. With Yinjiao (GV 28) and Ouch Acupoints to treat acute low back sprain.

TECHNIQUE:

1. Perpendicularly for 0.5 to 1 cun.

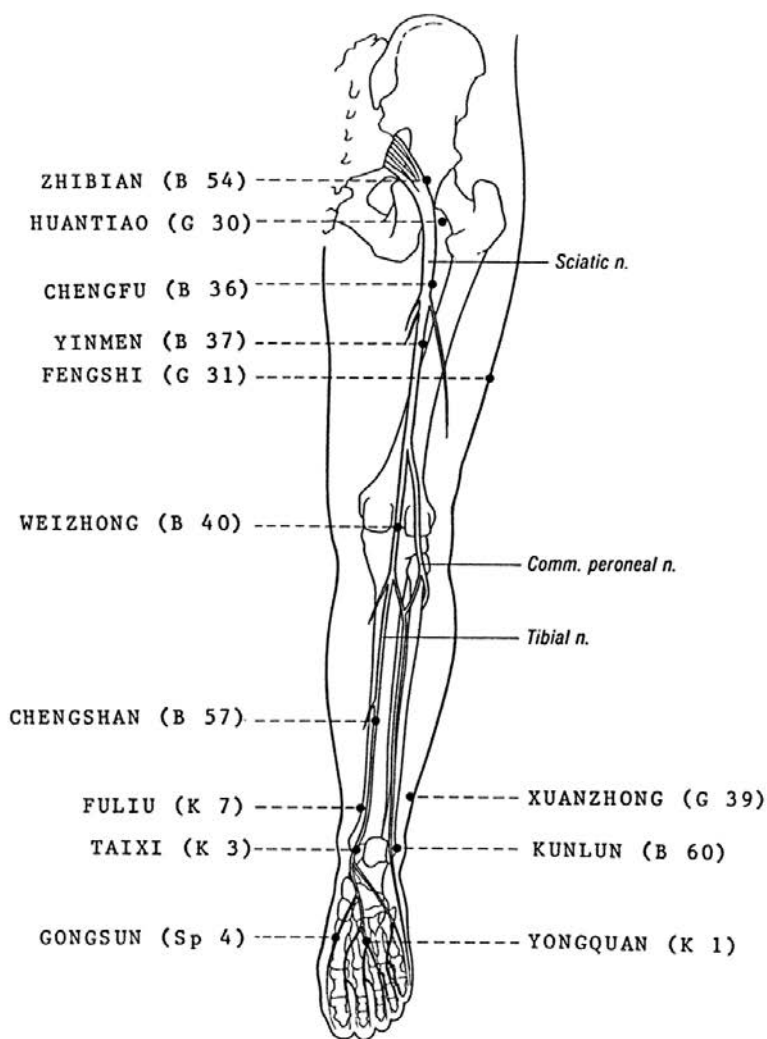


Figure 10.40

CHENGSHAN [承山]

JING: Urinary Bladder 57 (B 57 or UB 57).

LOCALIZATION: In prone position, plantar-flexing the foot against resistance, this point is at the inverted V depression, distal to the junction of the two bellies of gastrocnemius (Figs. 10.39 and 10.40).

ANATOMY: At the junction of the gastrocnemius and soleus muscles. The medial sural cutaneous nerve. In the deeper layer, the tibial nerve. The small saphenous vein. In the deeper layer, the posterior tibial artery and vein.

PRINCIPAL INDICATIONS: Lower back and leg pains. Lumbago. Sciatica. Spasm of the gastrocnemius muscle. Lameness of the lower limbs. Diseases of the anus.

CONJOINT USES:

- 1 With Taixi (K 3) to treat constipation.

TECHNIQUE: Perpendicularly for 1 to 2.5 cun.

KUNLUN [昆仑]

JING: Urinary Bladder 60 (B 60 or UB 60).

LOCALIZATION: Midway between the tip of the lateral malleolus and the tendo Achilles (Figs. 10.38 and 10.40).

ANATOMY: The peroneus brevis muscle. The sural nerve. The small saphenous vein and posterior lateral malleolar artery and vein.

PRINCIPAL INDICATIONS: Headaches. Cervical spondylosis. Lumbago. Sciatica. Lameness of the lower limbs. Diseases of the ankle and its surrounding soft tissues. Pain and stiffness of the neck.

CONJOINT USES:

1. With Xuanzhong (G 39) and Qiuxu (G 40) to treat pain of the calcaneus.

TECHNIQUE: Perpendicularly through to Taixi (K 3) or slightly toward the lateral malleolus, for 0.5 to 1 cun.

ZHIYIN [至阴]

JING: Urinary Bladder 67 (B 67 or UB 67).

LOCALIZATION: The lateral aspect of the little toe, 0.1 cun from the vellum unguis (Figs. 10.37 and 10.38).

ANATOMY: The proper metatarso-digital nerve. The dorsal digital arterial plexus. The dorsal lateral cutaneous nerve of the foot.

PRINCIPAL INDICATIONS: Headaches. Dystocia. Breech. Malposition of the fetus. Retention of the placenta.

CONJOINT USES:

1. With Fengchi (G 20) and Taiyang (Ex-HN 5) to treat headache and neck pain.

TECHNIQUE: Obliquely upward for 0.1 to 0.2 cun or punctate to draw small amounts of blood.

XUEHAI [血海]

JING: Spleen 10 (Sp 10).

LOCALIZATION: With the right palm on the patient's left patella (or left palm on the patient's right patella), fingers pointing proximally, this point is located where the tip of the thumb touches the medial aspect of the patient's thigh (Figs. 10.34 and 10.41).

ANATOMY: It is the motor point of the vastus medialis muscle. At the upper border of the medial tibial epicondyle and

the middle of the bulge of the vastus medialis muscle. The anterior femoral cutaneous nerve. The muscular branch of the femoral nerve. The muscular branch of femoral artery and vein.

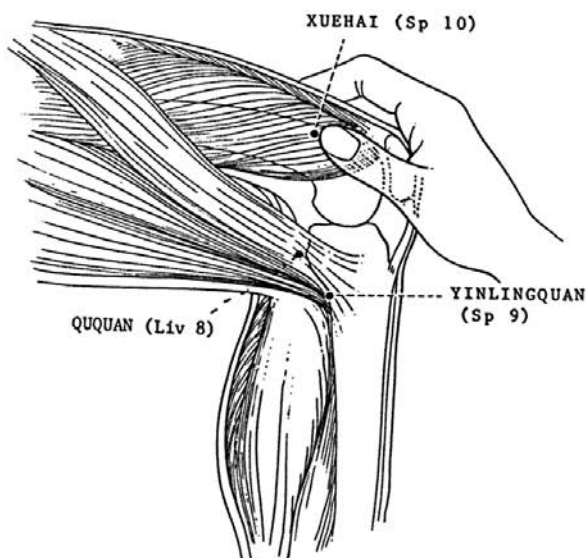


Figure 10.41

PRINCIPAL INDICATIONS: Irregular menstruation. Functional uterine bleeding. Urticaria. Itchiness of the skin. Neurodermatitis. Anemia.

CONJOINT USES:

1. With Quchi (LI 11), Lieque (L 7), Zusanli (S 36) and Sanyinjiao (Sp 6) to treat urticaria.
2. See also the Zusanli Acupoint (S 36).
3. With Yinlingquan (Sp 9) and Sanyinjiao (Sp 6) to treat dysmenorrhea.

TECHNIQUE: Perpendicularly for 1 to 2 cun.

YINLINGQUAN [阴陵泉]

JING: Spleen 9 (Sp 9).

LOCALIZATION: With the knee flexed, this Acupoint is located below the medial tibial condylar flare. That is, below the semimembranosus and the semitendinosus tendons, and between the posterior border of the tibia and the medial head of gastrocnemius but above the tibial origin of the soleus muscle (Figs. 10.34 and 10.41).

ANATOMY: The posterior branch of medial femoral cutaneous nerve. The saphenous nerve. The tibial nerve in the deepest layer. The inferior medial genicular artery and vein. The greater saphenous vein in the anterior aspect. The posterior tibial artery and vein in the deeper layer.

PRINCIPAL INDICATIONS: Arthralgia of the knee. Irregularities of menstruation. Retention of urine. Impotence. Enteritis. Abdominal distention. Enuresis.

CONJOINT USES:

1. With Guanyuan (CV 4), Shuifen (CV 9), Zusanli (S 36), and Sanyinjiao (Sp 6) to treat retention of urine.

TECHNIQUE: Perpendicularly along the posterior border of the tibia for 1 to 3 cun.

QUQUAN [曲泉]

JING: Liver 8 (Liv 8).

LOCALIZATION: With the knee flexed, at the end of the medial genicular crease (Fig. 10.41).

ANATOMY: Between the medial femoral condyle and the medial tibial plateau. The anterior border of the insertions of the semimembranosus and the semitendinosus muscles and posterior to

the sartorius muscle. The saphenous nerve. The greater saphenous vein in the anterior aspect. The superior genicular artery.

PRINCIPAL INDICATIONS: Diseases of knee and its surrounding soft tissues. Impotence.

CONJOINT USES:

1. With Jimai (Liv 12) and Sanyinjiao (Sp 6) to treat hernial pain.

TECHNIQUE: Perpendicularly for 1 to 1.5 cun.

SANYINJIAO [三阴交]

JING: Spleen 6 (Sp 6).

LOCALIZATION: Three cun directly above the medial malleolus and posterior to the tibia (Figs. 10.34 and 10.42).

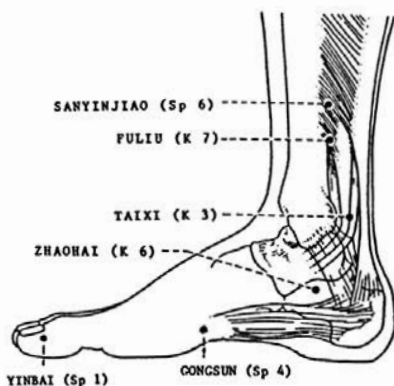


Figure 10.42

ANATOMY: Between the posterior border of tibia and the soleus muscle. The flexor digitorum longus muscle in the deeper layer. The medial sural cutaneous nerve. The tibial nerve in the

deeper layer posteriorly. The greater saphenous vein. The posterior tibial artery and vein.

PRINCIPAL INDICATIONS: Neurodermatitis. Eczema. Urticaria. Diseases of the urogenital system (e.g., irregular menstruation, dysmenorrhea, leukorrhea, menorrhagia, nocturnal emission, impotence, premature ejaculation, orchitis, enuresis, urinary retention, frequency of micturition). Dystocia. Infertility. Abdominal distention. Borborygmus. Lower abdominal pain. Diarrhea. Chronic fatigue syndrome.

CONJOINT USES:

1. With Zhongwan (CV 12), Neiguan (P 6) and Zusanli (S 36) to treat thrombophlebitis.
2. With Yinlingquan (Sp 9) and Gongsun (Sp 4) to treat diarrhea.

TECHNIQUE:

1. Perpendicularly through to Xuanzhong (G 39) for 1.5 to 2 cun.
2. Perpendicularly but slightly backwards for 1 to 1.5 cun to treat diseases of the foot.
3. Obliquely slightly upwards for 1.5 to 2.5 cun to treat diseases of the torso.

GONGSUN [公孙]

JING: Spleen 4 (Sp 4).

LOCALIZATION: On the medial aspect of the foot, at the anteroinferior border of the base of the first metatarsus and one cun proximal to the first metatarsophalangeal joint (Figs. 10.40 and 10.42).

ANATOMY: It is the motor point of the abductor hallucis muscle. The communicating branches of the saphenous nerve and the superficial peroneal nerve. The medial tarsal artery. The dorsal pedal venous plexus.

PRINCIPAL INDICATIONS: Pain of the ankle and foot. Menorrhagia. Irregular menstruation. Endometriosis. Gastralgia. Acute and chronic enteritis. Vomiting. Diarrhea.

CONJOINT USES:

1. With Zusanli (S 36), Neiguan (P 6) and Neiting (S 44) to treat hemorrhage of the upper digestive tract.
2. With Neiguan (P 6) and "Umbilical 4 Sides" (Extra) to treat acute and chronic gastroenteritis.

TECHNIQUE: Perpendicularly through to Yongquan (K 1) for 1.5 to 2 cun.

YINBAI [隱 白]

JING: Spleen 1 (Sp 1).

LOCALIZATION: The medial aspect of the big toe, 0.1 cun from vellum unguis (Fig. 10.42).

ANATOMY: The dorsal digital branches of the superficial peroneal nerve. The proper metatarsophalangeal nerve. The dorsal digital artery.

PRINCIPAL INDICATIONS: Menorrhagia. Gastrointestinal bleeding. Abdominal pain. Abdominal distention. Insomnia. Dream-disturbed sleep.

CONJOINT USES:

1. With Qihai (CV 6), Xuehai (Sp 10) and Sanyinjiao (Sp 6) to treat menorrhagia.
2. With Yinlingquan (Sp 9) and Daheng (Sp 15) to treat abdominal distension.

TECHNIQUE: Obliquely upward 0.1 to 0.2 cun or punctate to draw a few drops of blood.

FULIU [复溜]

JING: Kidney 7 (K 7).

LOCALIZATION: Two cun directly above Taixi (K 3) (Figs. 10.36 and 10.42).

ANATOMY: It is the motor point of the flexor digitorum longus muscle. Posterior to the tibia, the lower end of the soleus muscle and medial to tendo Achilles. The branches of saphenous nerve. The medial sural cutaneous nerve. In the deeper layer the tibial nerve. In the deeper layer anteriorly, the posterior tibial artery and vein.

PRINCIPAL INDICATIONS: Lumbago. Functional uterine bleeding. Leukorrhea.

TECHNIQUE: Perpendicularly for 1 to 1.5 cun.

TAIXI [太溪]

JING: Kidney 3 (K 3).

LOCALIZATION: The mid point between the tip of the medial malleolus and the tendo Achilles (Figs. 10.40 and 10.42).

ANATOMY: The posterior tibial artery and vein in the front. The medial sural cutaneous nerve. The tibial nerve. The medial and lateral plantar nerve.

PRINCIPAL INDICATIONS: Toothache. Lumbago. Pain of the sole of the foot. Tinnitus. Irregular menstruation. Impotence. Enuresis. Chronic fatigue syndrome. Frequency of urination.

CONJOINT USES:

1. With Anmian (New) and Taichong (Liv 3) to treat dizziness due to ear diseases.

TECHNIQUE:

1. Perpendicularly through to Kunlun (B 60) for 0.5 to 1 cun.
2. Perpendicularly but slightly toward the medial malleolus for 0.5 to 1 cun to treat pain of the sole of the foot.

ZHAOHAI [照海]

JING: Kidney 6 (K 6).

LOCALIZATION: One cun below the tip of medial malleolus (Fig. 10.42).

ANATOMY: Tendons of the posterior tibialis and the flexor digitorum longus muscles. The medial sural cutaneous nerve. The trunk of the tibial nerve in the deeper layer. The posterior tibial artery and vein in the posteroinferior aspect.

PRINCIPAL INDICATIONS: Irregular menstruation. Chronic fatigue syndrome. Laryngopharyngitis. Tonsillitis.

TECHNIQUE: Perpendicularly for 0.5 to 1 cun.

YONGQUAN [涌泉]

JING: Kidney 1 (K 1).

LOCALIZATION: At the junction between the anterior 1/3 and the posterior 2/3 of the sole of the foot (Fig. 10.40 and 10.43).

ANATOMY: On the sole between the second and third metatarsi. The plantar digital nerves. The plantar arch formed by lateral plantar artery and anterior tibial artery.

PRINCIPAL INDICATIONS: When a newborn does not cry immediately after birth. Vertical headache. Lameness of the lower limbs. Shock. Sun stroke. Insomnia. Hypertension. Infantile convulsion.

CONJOINT USES:

1. With Zusanli (S 36) to treat toxic shock.
2. With Renzhong (GV 26), Laogong (P 8) and Xingfen (New) to treat catatonic stupor.
3. With Taixi (K 3) to treat sore throat.

TECHNIQUE: Perpendicularly for 0.5 to 1 cun.



Figure 10.43

I. AURICULAR ACUPUNCTURE

In recent years, auricular acupuncture has been added to the repertoire. Human fetus is supposedly represented on the auricle upside down like in the uterus. Figure 10.44 is adapted from a Chinese text. The surface anatomy of the ear is shown in Figure 10.45 for reference.

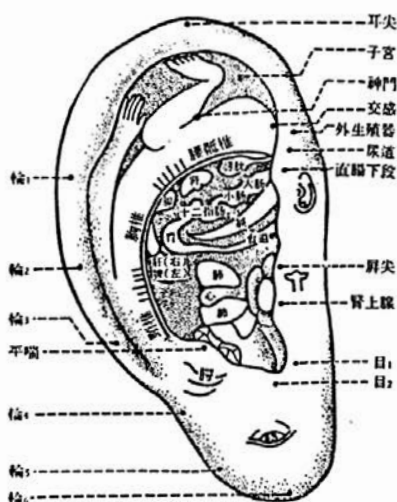


Figure 10.44



Figure 10.45

Various organs and parts of the body are designated by acupoints on the ear. Figure 10.46 is adapted from *An Outline of Chinese Acupuncture* (1). Nogier of France is a proponent for its therapeutic usages (263).

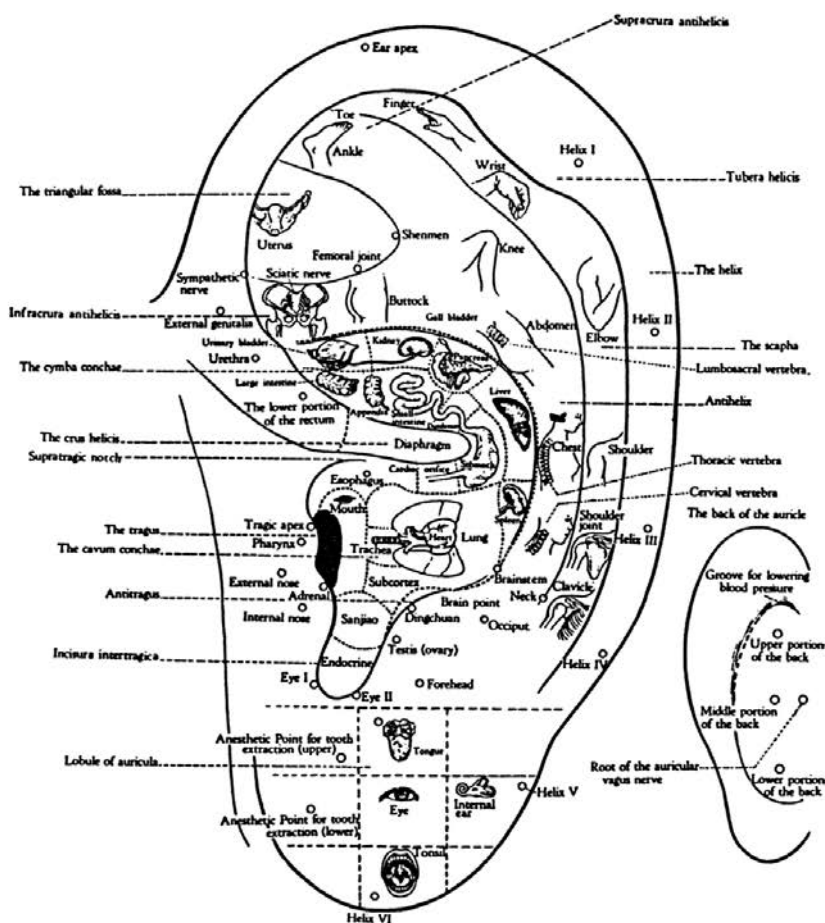


Figure 10.46

During the 1960s the Chinese used this procedure for surgical analgesia (280). It accidentally led Wen and his associates (373) to discover its use for eliminating drug addiction. One of us (LKYN) pioneered its use in this country for treating addicted rats and humans experimentally in the 1970s (260). Electroacupuncture at SHENMEN and LUNG acupoints also seems quite effective in treating substance abuse. We adapted the procedure to treat nicotine addiction (or cigarette smoking) quite effectively (Please see Chapter 12). These two acupoints seem to have a good sedative effect. In Chapter 12, we also mentioned DRUNKEN acupoint for hangover. Our limited experience indicates that auricular acupuncture is effective therapeutically and may be complementary or supplementary to the classical acupuncture. Some practitioners found that auricular acupuncture is so effective that they use it almost exclusively.

Erythema of the ear around the sites of needle insertion is often observed. It may be very extensive, particularly when several needles are applied on the auricle. We commented on this phenomenon regarding its implication on the selection of "sham" acupoint on the ear for clinical investigation, in Chapter 7.

We do not know who originated the concept of such an upside-down fetal representation on the external ear. There has been no systematic research concerning the basic mechanisms to explain the effectiveness of auricular acupuncture. One of the possibilities is the direct involvement of the brain stem from the afferent stimuli on the external ear via the auriculotemporal nerve of the mandibular division of the trigeminal nerve (V), the facial nerve (VII, to the extrinsic muscles and external meatus by branches from tympanic plexus), the auricular branch of the vagus nerve (X), the greater auricular nerve (C 2, mostly to the middle and lower parts of the auricle) and the lesser occipital nerve (C 2, mostly to the upper part of the auricle) supplying the skin. At this point in time, auricular acupuncture is essentially empirical. It is beyond the scope of this book to offer a detailed description of this procedure

and a discussion of its mechanisms. Nevertheless, it seems to be a fruitful area for basic and clinical research.

J. SCALP ACUPUNCTURE

The Chinese devised a scheme to stimulate the scalp, mainly over the cortical designations. For example, to treat hemiplegia, the needle is inserted at the area of the scalp over the motor cortex of the brain. Its efficacy needs further investigation, particularly for such self-limiting diseases as cerebral vascular accidents. We have attempted it but have no extensive experience to report. The following three schematic drawings in Figure 10.47 are basically from Chinese textbooks, with English translations added by us.

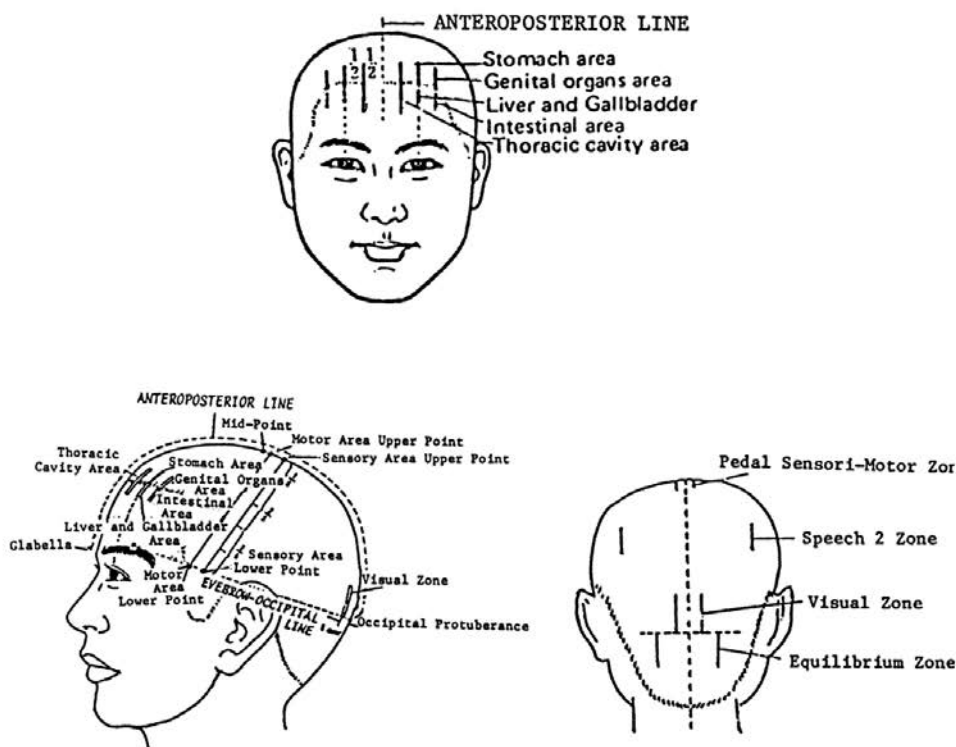


Figure 10.47

K. FACIAL ACUPUNCTURE

In the early 1970s the Chinese described a series of acupoints on the face. Figure 10.48 is an illustration of such facial acupoints. We have no experience in using them.

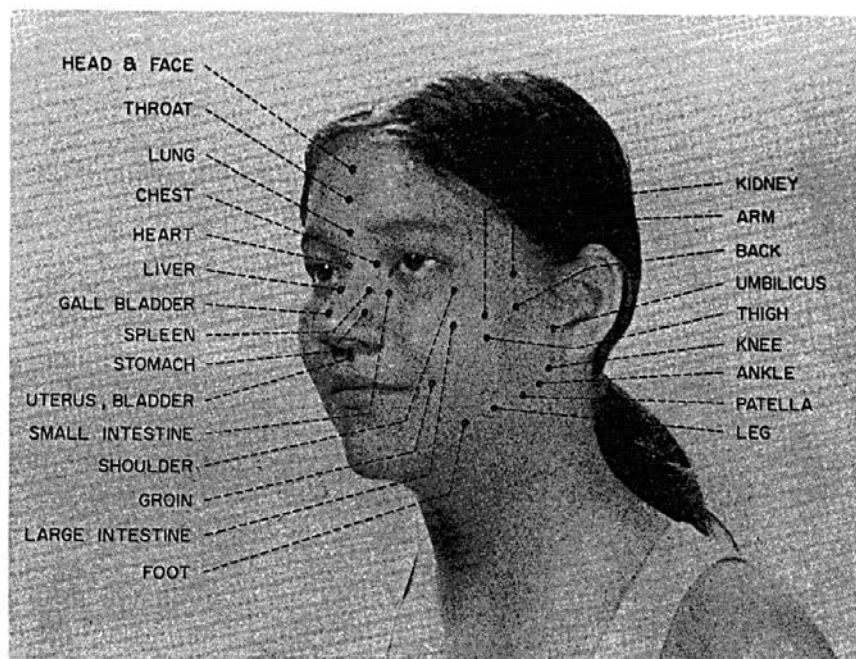


Figure 10.48

CHAPTER 11

ACUPUNCTURE FOR CHRONIC PAIN AND SURGICAL ANALGESIA

In Chapter 7, while discussing chronic pain as a disease, we mentioned that pain occupied three chapters each in *Neijing Suwen* and *Neijing Lingshu*. It seems that painful conditions were major problems even in ancient days. In the management of chronic diseases, it could not be better said than the concluding words in Chapter I, "On Nine Needles and Twelve Yuan (Source Acupoints)" of *Neijing Lingshu*.

"To say that a chronic disease is not treatable is not justified. ...
Those who say so must not have mastered the art (of medicine)."

In the National Institutes of Health Consensus Development Conference Statement 1986, "The Integrated Approach to The Management of Pain," it acknowledged, "Acupuncture and TENS are most commonly used for chronic musculoskeletal disorders." (249) Acupuncture does offer hope for many chronic pain patients. We would like to share our clinical experience, however anecdotal, with our colleagues and our readers.

A. LOW BACK PAIN SYNDROME

In the second century B.C., *Neijing Suwen* devoted its entire Chapter 41 to the acupuncture treatment of low back pain syndrome. It also described in great detail the various types of low back pain and their causative factors. We translated it into English (199). In our article, we mentioned that an affliction of the *Jie Mai* may implicate an involvement of the biliary system. Now, we would like to add the possibility of a pancreatic cancer, which often causes severe low back pain and abdominal pain. Injury to

the lower back due to lifting heavy objects was specifically singled out as a causative factor in that chapter. This disabling condition must have plagued the ancients as much as it does us now. It was variously estimated that, in recent years, 60% to 80% of the adult population in this country suffered from it at one time or another. According to the National Center for Health Statistics's 1986 report, the number of people disabled from back pain in this country increased by 168% from 1971 to 1986. That is fourteen times the rate of population growth. It is said to be the most costly condition for workers' compensation, with an estimated expenditure of \$14 billion to \$20 billion annually in this country. In spite of the tremendous strides made in the recent advancement of western medicine, we still do not know much at all about the cause of this disastrous disease. Various factors are blamed. Many therapeutic procedures and devices have been developed for its management. Since 1940, lumbar intervertebral discs have been considered the major culprit. Surgical procedures have been frequently performed. It is estimated that from 50% to 75% of the patients continue to have disabling pain after the operations (60). Conventional conservative treatments are not very effective either. In spite of the recent additions of such diagnostic procedures as CAT scan and MRI, lots more remains to be learned for its management. One hundred years ago, Osler wrote about the effectiveness of acupuncture in the treatment of lumbago and sciatica in his famous textbook (268). Since its reintroduction into this country around 1971, acupuncture is generally regarded as a very cost- and therapeutically-effective procedure.

We have been treating low back pain patients since 1972 with acupuncture. Collectively, we see 300 to 400 such cases a year. The vast majority of them had received conventional western medical and surgical management with unsatisfactory results. After acupuncture treatment, about 85% of our patients had relief from the disabling pain for the first time in many years. The remaining 15% consisted mainly of post-surgical cases. Though acupuncture did alleviate pain in the post-surgical cases, it was less effective

than in non-surgical cases. Relief of pain was usually long-lasting. Recurrence was usually caused by negligence of the patients (100, 189, 190). We discussed this in Chapter 9.

In traditional Chinese medicine, this common condition belongs to the "*Bi* (Pain and Lameness) Syndrome." [痹症] It is said to be caused by the "wind-cold" or "wind-humid" pathogens with an invasion into the *Jing-Luo* (meridian) System. The *Qi* in the *Jing* becomes stagnant and cannot flow freely. It, thus, results in pain. In the above-mentioned Chapter 41 in *Suwen* (199), the etiologic factors of afflictions of fourteen *Mai* (i.e., meridians) and their treatments with acupuncture were discussed. The treatment of an additional thirteen varieties of low back pain was also described.

Our selection of acupoints is accomplished by a complete orthopedic and neurological examination. We find the following prescriptions quite effective.

1. For patients with pain, muscle spasm, and stiffness of the lower back only: RENZHONG (Du 26 or GV 26), WEIZHONG (B 40), DACHANGSHU (B 25), MINGMEN (GV 4), YAOSHU (GV 2), and AHSHI ACUPOINTS (i.e., trigger points).
2. For patients with difficulty walking in addition: add FULIU (K 7) and TAICHONG (Liv 3).
3. For patients with lumbosacral sprain and strain: add YANGLINGQUAN (G 34), KUNLUN (B 60), CHENGSAO (B 57) or FEIYANG (B 58), CHIZE (Lu 5), and HOUXI (SI 3).
4. For patients with signs of protruding or herniated lumbar intervertebral discs: add YANGFU (G 38).
5. For sciatica: DACHANGSHU (B 25), XIAOCHANGSHU (B 27) or PANGGUANSHU (B 28), ZHIBIAN (B 54), JULIAO (G 29), HUANTIAO (G 30), FENGSHI (G 31), CHENGFU (B 50), YINGMEN (B 37), WEIYANG (B 39), YANGLINGQUAN (G 34), CHENGSAO (B 57), XUANZHONG (G 39), and KUNLUN (B 60).

6. For patients complicated with foot-drop: add electroacupuncture
 - a. at YANGLINGQUAN (G 34) or ZUSANLI (S 36) with TIAOKOU (S 38) or TAICHONG (Liv 3), and
 - b. at HUANTIAO (G 30) or ZHIBIAN (B 54) with YINGMEN (B 37).
7. For post-surgical cases: add electroacupuncture bilaterally at DACHANGSHU (B 25) with contralateral PANGGUANSHU (B 28).
8. AURICULOACUPUNCTURE: at SHENMEN, LUNG, LUMBAR-SPINE, LOW-BACK-PAIN, LEG, and FOOT acupoints, as indicated.

Anecdotally, we treated two physicians who had foot-drop from ruptured intervertebral discs. One was 67 years old and had a prior severe myocardial infarction and was regarded a poor surgical risk. In 1972, the patient's surgeon referred him to us for acupuncture treatment. He was completely relieved of the pain and foot-drop. He had no recurrence at all. About fifteen years later he died suddenly of another myocardial infarction. The second physician was 41 years old, who five years previously had chymopapain injection into the affected intervertebral disc. He ran a high fever and had an increase of pain in the lower back and both lower limbs, with bilateral foot-drop. When we first saw him in 1973, the active dorsiflexion of the right foot lacked about 10° from the neutral position. It could not sustain any resistance. The active dorsiflexion of the left foot was about 20° beyond the neutral position. It could only sustain mild resistance. After acupuncture treatment, his pain was completely abolished, and dorsiflexion of the right foot improved to about 75% of normal while that of the left foot became completely normal. His wife witnessed the entire procedure. After three sessions of acupuncture treatment, he was free of pain. The active dorsiflexion of his feet become essentially normal. So far as we know, he has had no recurrence. We cite these two unusual cases only to illustrate the potential of the

treatment. Nevertheless, we routinely refer those patients with neurological deficit for surgical intervention. It is exceedingly unwise to treat such patients without a prior surgical consultation.

B. PAIN OF THE NECK

Traditional Chinese medicine calls it generically *Luozhen* [落枕] or "falling-off-the-pillow." They attribute it to an improper sleeping posture in combination with an invasion of the *Jing-Mai* (i.e., meridians) by wind- and cold-pathogens. In western medicine, we have whiplash injury (or flexion-extension injury) resulting from automobile accidents, arthritis of the cervical spine, cervical spondylosis, myofibrositis, ruptured cervical intervertebral disc, irritation or compression of the cervical spinal nerves, and the like. In most cases, radiography does not reveal any significant changes until the condition is fairly advanced. Sports injury of the neck in childhood often leads to a predisposition to an early onset of degenerative arthritis with chronic pain of the cervical spine in middle age.

Collectively, we saw about 250 to 300 patients a year for their cervical pain problems. The majority of them had cervical arthritis and cervical spondylosis (about 51%). Cervical radiculopathy accounted for about 32%, while cervical sprain and strain and flexion-extension injuries for about 17%. Their average age was about 54 years. There was a tendency of more females than males, with a ratio of about 3:2. About 46% of our patients had marked relief of pain, about 38% partial relief, and 16% no relief. The average number of sessions of acupuncture treatment was five with a range of one to fifteen. Most of the patients (about 40%) required less than five sessions (191).

The acupuncture prescriptions are:

1. For patients with markedly limited motion of the neck: The tip of the fifth cervical transverse process is usually very tender to palpation. Use a 0.5-inch needle and gently puncture the tip of

this bony process. The patient will feel soreness locally, with or without a tingling sensation radiating to the face, the occiput, or the shoulder. This procedure will usually give immediate improvement of the movement of the neck and relief of pain. It is extremely important that you must *not* deviate from the tip of this bony process.

2. FENGCHI (G 20), JIANJING (G 21), JIANZHONGSHU (SI 15), QUYUAN (SI 13), HOUXI (SI 3), LUOZHEN (Ex-UE), and XUANZHONG (G 39).
3. AURICULOACUPUNCTURE: SHENMEN, LUNG, and CERVICAL SPINE Acupoints.

C. HEADACHES

In the vast majority of patients, the cause of their headaches, particularly the migrainous type, is obscure. So far there is no comprehensive scientific explanation. 5-hydroxytryptamine (serotonin or 5-HT) has been implicated. Its depletion leads to vasodilatation, resulting in migraine headaches. From the symptoms and signs, we classify the cases as tension headache, vascular headache, etc. Traditional Chinese medicine attributes their cause to an invasion by the Wind pathogen or the Phlegm-Humidity pathogen, an accumulation of the Heat-pathogen, an excess of liver *yang*, and weak constitution, etc. The Wind-pathogen is *yang*, ascends to the head, and clashes with the primordial *Qi*. Thus, it results in headaches. An excess of liver *yang* makes the liver- and gall bladder-fire soar up to the head, causing counter currents, with jamming of the *Jings*. This explains the efficacious utilization of the acupoints along the Gall Bladder Meridians behind the head, and the Liver Meridian as far away from the head as on the foot.

Collectively, we treated about 200 to 250 such patients a year. Generally they required five to fifteen sessions of the treatment. About 60% of them had marked relief of the pains, about 35% had

moderate relief, and less than 5% had no relief. Often, many patients did not experience any significant improvement until they received several sessions of the treatment. The relief was usually long-lasting. Stress was the common exacerbating factor. Of course, it is necessary to rule out any organic pathology before acupuncture treatment is rendered.

1. Basically: FENGCHI (G 20), HEGU (LI 4) and TAICHONG (Liv 3) are prescribed.
2. For vertical pain: add BAIHUI GV 20).
3. For frontal pain: add YANGBAI (G 14) and ZANZHU (B 2).
4. For occipital pain: add: TIANZHU (B 10), and HOUXI (SI 3)
5. For pain in the temporal region: add TAIYANG (Ex-HN 5), SHUAIGU (G 8), and ZHONGZHU (T 3).
6. For those patient having dizziness or giddiness in addition, (in some cases, possibly due to hypertension): add TIANYOU (T 16), FENGMEN (B 12), KUNLUN (B 60), GUANCHONG (T 1), and GUANYUAN (CV 4).

D. FACIAL PAIN

Facial pain due to TRIGEMINAL NEURALGIA is often unmanageable and very disabling. When conventional medical management fails to alleviate it, acupuncture may offer about 70% chance of relief, judging from our personal observations. The major difficulty in managing such patients is their very low tolerance of emotional and environmental stress factors.

Facial pain due to TEMPOROMANDIBULAR DYSFUNCTION is another quite disabling condition. Acupuncture is an effective treatment especially in cases with neuromuscular disorders, but only offers temporary alleviation in cases with marked occlusive disturbances or arthritic changes.

Traditional Chinese medicine attributes the causation to an invasion of Wind-heat pathogen. It leads to a stagnation and an impairment of circulation of *Qi* and blood in the *Jing-Luo* (meridians). Traditional Chinese medicine also regards a rise of the heat of the liver and stomach as an etiologic factor. Anecdotally, some patients would sustain recurrences after exposure to a draft while others from an emotional stress.

The general acupoints for patients with trigeminal neuralgia or temporomandibular dysfunction: FENGCHI (G 20), HEGU (LI 4), WAIGUAN (T 5), NEIGUAN (P 6), ZUSANLI (St 36), TAIXI (K 3), and TAICHONG (Liv 3).

1. For those with an involvement of the ophthalmic division of the trigeminal nerve: add TAIYANG (Ex-HN 5), ZANZHU (B 2), SHANGGUAN (G 3), and YANGBAI (G 14).
2. For those with an involvement of the maxillary division of the trigeminal nerve: add SIBAI (St 2), TONGZILIAO (G 1), XIAGUAN (St 7), QUANLIAO (St 18) and JULIAO (St 3).
3. For those with an involvement of the mandibular division of the trigeminal nerve: add XIAGUAN (St 7), JIACHE (St 6), DAYING (St 5), and TINGHUI (G 2).
4. For those with temporomandibular dysfunction: add TAIYANG (Ex-HN 5), SHANGGUAN (G 3), XIAGUAN (St 7), TINGHUI (G 2), and JIACHE (St 6).

E. PAINFUL SHOULDER

It is a rather common condition. We do not know what the real trigger mechanism is. Many cases may persist for years but nearly all of them are abatable by acupuncture treatments. Once cured, it rarely recurs. We treated collectively about 40 to 50 cases a year. The patient is usually middle-aged. About 60% of them are aged 50 years or older. Thus, the traditional Chinese medicine calls this condition "Fifty (-Year-Old's) Shoulder [五十肩]." The symptoms

by themselves do not usually point to a specific pathology since the pain is always in the shoulder and the arm but not well localized. It is important to inquire among other things whether there is any involvement of other joints, such as pain and stiffness of the neck; whether there is any trauma; whether the pain goes down and/or distal to the elbow; whether the arm aches all the time; and whether the patient can or cannot sleep on the affected side. These symptoms help to make a differential diagnosis, in addition to a careful examination of the involved parts of the body, together with radiographic and other laboratory studies.

If the pain is confined to the top of the shoulder only, it may be due to a lesion of the acromioclavicular joint or referred from the diaphragm or the liver. If the pain is referred or radiates to elsewhere in the arm, it may be from any of the muscles of the shoulder girdle or from the bursae and/or the capsule of the shoulder joint. Combined lesions of the shoulder are not uncommon.

A detailed physical examination of the shoulder and entire upper limb is important to determine which of the structures are involved. Palpation helps to localize the tender loci. Painful passive movements of a joint indicate an involvement of the bursa. Active movements may reveal a painful arc. Painful or weakened resisted moments indict the muscles. Limitations of the passive or active movements of a joint should also be noted. This is the general principle applicable to all the joints of the body, big or small.

If the patient complains of pain at the tip of the shoulder, the examination demonstrates local tenderness on palpation, a painful arc upon active abduction of the shoulder, and resisted abduction causing no pain, the diagnosis is usually subdeltoid bursitis. If resisted abduction does cause pain, it is usually supraspinatus tenosynovitis. The main acupoint for either of these two conditions is JIANYU (LI 15). Add JUGU (LI 16) for supraspinatus tenosynovitis.

If the patient complains of pain in the anterior aspect of the shoulder, and passive external rotation and resisted internal rotation of the shoulder cause pain, it is usually subscapularis tenosynovitis. In this case, palpation will demonstrate tenderness in the anterior aspect of the shoulder, at the insertion of that muscle. The main acupoint for this condition is JIANNEILING (Ex-UE).

If the patient complains of pain in the posterior aspect of the shoulder, and its passive internal rotation and resisted external rotation cause pain, it is usually an involvement of the infraspinatus and other external rotators. The main acupoints are JIANLIAO (T 14, TE 14, or SJ 14) and JIANZHEN (SI 9).

If the patient has more or less generalized painful and limited movements of the shoulder, and an examination demonstrates the involvement of the rotator cuff muscles, the main acupoints are JIANNEILING, (Ex-UE), JIANYU (LI 15), JIANLIAO (T 14, TE 14, or SJ 14), JIANZHEN (SI 9), and QUYUAN (SI 13). In severe cases, puncturing the tip of the coracoid process in addition may provide quick and lasting relief. With this procedure, the patient may experience tingling and numbness locally and tingling in the extensor forearm, receding out of the tips of the fingers.

In acromioclavicular arthralgia, the pain is at the top of the shoulder joint. Puncture of the affected joint area is quite effective in alleviating the pain.

If the patient complains of pain of the shoulder, and movements of the shoulder joint are essentially normal, and passive extension and resisted flexion of the elbow (while the shoulder is adducted to the side of the chest) reveal pain, it is usually tenosynovitis of the long head of the biceps. With the shoulder abducted at 90° and the forearm supinated, if resisted abduction causes pain it usually indicates an involvement of the short head of the biceps. The main acupoints are JIANNEILING (Ex-UE) and JIANYU (LI 15). Tenosynovitis of the long head of the biceps used to be a popular diagnosis for pain of the shoulder before the 1960s. In those days,

surgical scraping of the tendon of the long head of the biceps was the standard treatment. Sometimes it may result in rupture of that tendon and contracture of the muscle belly, forming a small baseball shaped deformity therein. We saw such a patient who had surgery about six years previously and requested acupuncture treatment to alleviate the pain. Figure 11.1 shows the deformity of the biceps muscle after surgical scraping with rupture of its long head. Of course, no amount of acupuncture could help such a condition.

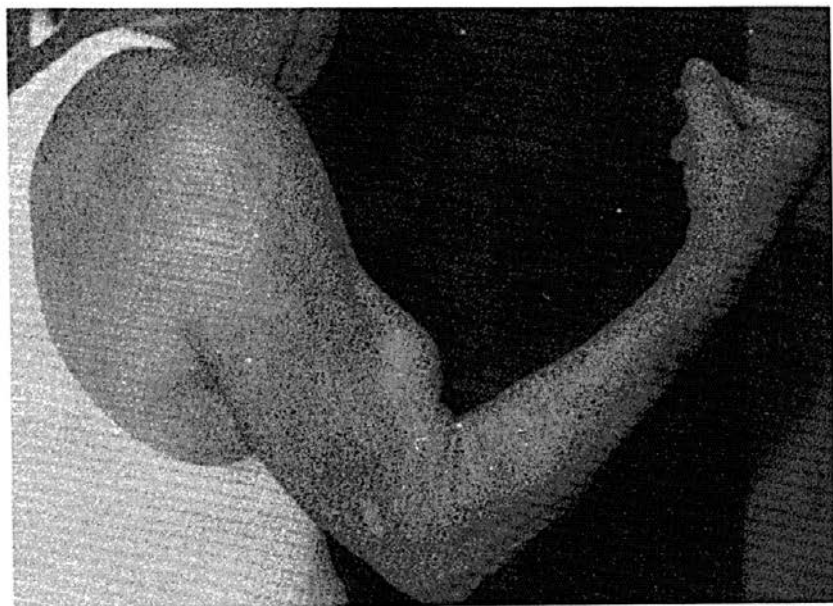


Figure 11.1

Our experience indicates that tenosynovitis of the long head of the biceps is a rather uncommon painful condition of the shoulder. We saw only two patients with this condition as the result of lifting excessive weights to strengthen the biceps muscle. In those days, another popular diagnosis of the shoulder pain was subdeltoid

bursitis. Our experience suggests that it is as rare as the affliction of the long head of biceps.

Sometimes calcific deposits are demonstrated in the painful shoulder with radiographic examination (Fig. 11.2), thus, calcific tendinitis. Such deposits are often attributed as the cause of the pain. We have treated such patients with complete alleviation of pain and no recurrence, even though the calcific deposits persisted.



Figure 11.2

Some of these same patients returned to see us for pain of the other shoulder. The radiographic examination of the newly painful shoulder did not show any calcific deposits while that of the contralateral painless shoulder demonstrated persistence of the old calcific deposits. It leads us to believe that such deposits are not the cause of pain but the result of the inflammation of the tendon sheath or the bursa.

Occasionally, severe cases of carpal tunnel syndrome may have pain of the shoulder. The shoulder pain in this instance is usually rather vague. An examination of the shoulder is negative. This pain disappears after the relief of the carpal tunnel syndrome.

F. PAIN OF THE ELBOW

Historically, Renton in 1830 (308) was probably the first to report treating pain of the elbow and the extensor forearm with needling. Gunilla Brattberg in 1983 (27) reported acupuncture as an excellent alternative to steroid injections. Her patients with painful elbows included both lateral epicondylitis and medial epicondylitis. Thirty-four patients received acupuncture and 26 patients steroid injections. She demonstrated statistically significant better results with acupuncture than with steroid injections.

We would like to divide such elbow pain into two categories, viz.,

1. **Lateral Epicondylitis (or Tennis Elbow).** The pathognomonic signs are an aggravation of pain around the lateral epicondyle of the humerus, with or without pain of the extensor forearm, upon resisted extension of the homolateral wrist and fingers, and also by passive flexion of said wrist and fingers. Any circumstance which would cause excessive strain of the extensors of the wrist and/or fingers resulting in microscopic tears and hemorrhages of their common origin at the lateral epicondyle would cause lateral epicondylitis.
2. **Medial Epicondylitis (or Golfer's Elbow).** The pathognomonic signs are an aggravation of pain around the medial epicondyle of the humerus, with or without pain of the flexor forearm, upon resisted flexion of the homolateral wrist and fingers, and also by passive extension of said wrist and fingers. Any circumstance which would cause excessive strain of the flexors of the wrist and/or fingers resulting in microscopic tears and

hemorrhages of their common origin at the medial epicondyle would cause medial epicondylitis.

The ratio of our patients with tennis elbow to those with golfer's elbow was about 15:2.

We reviewed 158 consecutive patients with lateral epicondylitis. Eighty-four of them were female and 64 male. Of this same group of patients, 132 involved the left elbow, 24 the right elbow and 2 both elbows. Playing tennis was the only etiology in about 51% of the 158 consecutive patients with "tennis elbow."

Similarly, "golfer's elbow" is not always the result of playing golf. During the same period of time when we treated the tennis elbow cases, we also had 21 cases of medial epicondylitis. Of this group, 16 were golfers (including five professionals). There were only five non-golfing patients with medial epicondylitis due to such strenuous activities as trimming the hedges.

Our series of cases of elbow pain due to playing tennis had almost exclusively lateral epicondylitis from improper backhand strokes. We had only one patient who suffered from medial epicondylitis alone due to improper serving strokes in playing tennis. Three sessions of acupuncture treatment in October 1987 abolished his pain completely. This same patient had been treated by us for lateral epicondylitis of the same elbow as a result of playing tennis about twenty-three months previously (in November 1985). Two sessions of acupuncture treatment at that time completely relieved his pain. There was no recurrence at all of his lateral epicondylitis during the interim when he continued to play tennis regularly.

The commonly used acupoints are:

1. For lateral epicondylitis: ZHOULIAO (LI 12) SHOUSANLI (LI 10), and ASHI ACUPOINTS in the extensor forearm, and
2. For medial epicondylitis: SHAOHAI (H 3) and ASHI ACUPOINTS in the flexor forearm.

About 85% of our patients were satisfactorily alleviated of their elbow pains with an average of five to ten sessions of acupuncture treatments. Recurrence was rather rare.

G. CARPAL TUNNEL SYNDROME

It is one of the most common occupational diseases, involving meat-packers, seamstresses, typists, knitting hobbyists, and recently computer users. Typically, the patient experiences numbness and tingling of the thumb, index, and middle fingers, and the radial half of the ring finger. The symptoms are usually more prominent during the night. Driving a car or knitting tends to aggravate the symptoms. The affected fingers may feel dry. The thumb may be weak. In severe cases the thumb muscles may show atrophy. Nerve conduction tests usually demonstrate a reduction of both the motor and sensory conduction velocities of the electric impulses along the median nerve across the wrist. Thermography shows lower temperature (or rather infrared radiation) gradients of the thumb, the index, the middle, and the radial half of the ring fingers, and the adjacent parts of the hand. More often than not, the thermographic changes of the dorsum of the hand were more obvious than those of the palm.

Electroacupuncture is quite effective in eliminating this condition. The acupoints NEIGUAN (P 6) and YANGCHI (T 4) should be connected as one pair while WAIGUAN (T 5) and DALING (P 7) as another pair. The eddy current, thus generated, provides efficacious therapeutic results.

H. OTHER COMMON PAINFUL CONDITIONS OF THE WRIST

1. DeQuervain's Disease. Also known as stenosing tenosynovitis of the extensors of the thumb: Typically, there is pain in the radial aspect of the wrist. There is local tenderness. Finkelstein's sign is

positive (i.e., passive ulnar deviation of the wrist causes pain). Resisted extension of the thumb aggravates the pain. It is the result of the inflammation and narrowing of the tendon sheath of the extensors of the thumb. Acupuncture is effective in reducing the pain and inflammation. The commonly used acupoints are LIEQUE (L 7), YANGXI (LI 5), and ASHI ACUPOINTS.

2. Arthritis, Particularly of the Thumb. Usually has pain at the wrist. It commonly involves the first carpometacarpal joint. It happens fairly often with dress makers, knitting hobbyists, and those whose activities require straining of the thumb. The analgesic effect of acupuncture in chronic cases with advanced pathology of the involved joints may not be long lasting. Electroacupuncture at YANGXI (LI 5) and TAIYUAN (L 9) is quite effective.

I. INTERCOSTAL NEURALGIA

There are three varieties of intercostal neuralgias.

- 1. Post-Herpetic Neuralgia.** The most common variety.
- 2. Metastatic Neoplasm.** From lung cancer into the thoracic vertebrae with compression fracture often compresses the adjacent intercostal nerve(s) and causes chest pain. (We will discuss our limited experience regarding this in the Section on Cancer Pain.)
- 3. The Idiopathic Type.** The least common variety.

In post-herpetic neuralgia (commonly also known as shingles), herpes zoster virus very commonly invades the ganglia of the 5th and 6th intercostal nerves. Less frequently, it involves lower intercostal nerves, the trigeminal nerve, or the upper lumbar spinal nerves. It is usually unilateral. This condition tends to affect the elderly and women. During the acute stage, there are clusters of blisters along the course of the nerves. These clusters are usually located discretely in the paraspinal region, the axillary region and

in the lower part of the breast. The lesions are very painful. After the blisters have dried up and healed, they often leave discolored scars with unbearable pain. Deep breathing, coughing, or sneezing tends to aggravate the pain. There is no real effective therapy with western medicine. Neurectomy of the affected nerves, even with removal of the adjacent soft tissues, cannot reduce the agonizing pain. However, it is basically amenable to acupuncture treatment. We must realize that psychosocial stresses play an important role in the exacerbation of this condition.

Traditional Chinese medicine treats acute cases while the patients still have the blisters. Since acute cases may be associated with viremia, puncturing them with a needle might conceivably spread the virus to other parts of the body. It is a factor that we should probably give some serious considerations in managing the acute cases.

The commonly-used acupoints include XIGOU (T 6), LIGOU (Liv 5), YANGLINGQIAN (G 34), the PARAVERTEBRAL acupoints at the involved segments and the ASHI acupoints. In addition, SANYANGLUO (T 8) may be tried, particularly for those patients with an affliction of the intercostal nerves. One must bear in mind the possible risk of puncture the lung when inserting needles in the thoracic area and the upper back.

J. ARTHRITIS

The Arthritis Foundation and the National Institute of Arthritis, Metabolism and Digestive Diseases cosponsored in the fall of 1973 a conference on "the Use of Acupuncture in the Rheumatic Diseases." No consensus was reached at that time. That was not surprising because at that time acupuncture was still quite new in this country and there were few physicians who had sufficient clinical experience with acupuncture.

One of us (MHML) and his associate (172) reviewed the use of acupuncture for arthritis. They recommended acupuncture as an

alternative therapy due to its analgesic and anti-inflammatory effects. Our experience also suggests that the extent of such therapeutic activities does not seem potent enough to stop the progression of their basic pathology. Generally, rheumatoid arthritis is much less amenable to acupuncture than degenerative arthritis or osteoarthritis.

The LOCAL ACUPOINTS around the affected joints are usually employed. In addition, QUCHI (LI 11) and ZUSANLI (ST 36) and the EAR ACUPOINTS (LUNG AND SHENMEN) may be tried for the general analgesic effects.

K. MUSCULOSKELETAL PAIN

In Chapter 7, we mentioned that traditional Chinese medicine groups rheumatism, myofibrositis, fibromyalgia, polymyalgia rheumatica, and other pains of the musculoskeletal system under the general heading of *Bi Syndrome*. The common symptoms of this syndrome are essentially pain, lameness, muscle spasms, and stiffness of the limb joints. Acupuncture is basically the treatment of choice. We have obtained gratifying results.

The basic acupoints for this group of painful conditions are QUCHI (LI 11), ZUSANLI (S 36), and ASHI acupoints. EAR acupoints (SHENMEN and LUNG) may be tried. According to *Neijing*, "Let the tender loci be the acupoints" for treating the *Bi Syndrome*. Indeed, the ASHI acupoints (i.e., the trigger points) form an essential part of the prescription.

L. PHANTOM LIMB PAIN

Phantom pain of the missing parts of a limb occurs quite frequently. It seems to happen especially often if the missing part had pain prior to the amputation. For example, patients with above- or below-the-knee amputations for painful, irreparable gangrene of the toes tend to experience phantom pain in the

missing toes. Its etiology is not well understood. Thermography demonstrates marked reduction of the infrared radiation gradients of the amputation stumps. However, we do not have enough of such studies of those amputees who do not have phantom pain. Thus, our observation may just be fortuitous. However, this is a promising area of thermographic research to determine whether there is a relationship between the phantom pain and reflex sympathetic dystrophy. Emotional stress contributes greatly to the aggravation of the pain.

Acupuncture at the amputation stump may aggravate the pain while that at the normal limb may be quite beneficial. Electroacupuncture seems to offer better results than needling alone. The commonly used acupoints are:

1. For an above-the-knee amputee with phantom pain of the *toes*: On the amputation stump, electroacupuncture at BIGUAN (S 31) and CHENGFU (B 50). On the contralateral side, electroacupuncture at TAIXI (K 3) and KUNLUN (B 60).
2. For an above-the-knee amputee with phantom pain of the *leg*: Electroacupuncture at the same two acupoints on the stump. On the contralateral side, electroacupuncture at YINLINGQUAN (Sp 9) and YANGLINGQUAN (G 34).
3. For a below-the-knee amputee with phantom pain of the *toes*: On the amputation stump, electroacupuncture at XUEHAI (Sp 10) and LIANGQIU (S 34). On the contralateral side, electroacupuncture at TAIXI (K 3) and KUNLUN (B 60).
4. For a below-the-knee amputee with phantom pain of the *end of the stump*: On the amputation stump, electroacupuncture at BIGUAN (S 31) and CHENGFU (B 50) or XUEHAI (Sp 10) and LIANGQIU (S 34). On the contralateral side, electroacupuncture at YINLINGQUAN (SP 9) and YANGLINGQUAN (G 34).
5. For an above-the-elbow amputee with phantom pain of the fingers and/or the forearm: On the amputation stump,

electroacupuncture at JIANZHEN (SI 9) and JIANNEILING (Ex-UE). On the contralateral side, electroacupuncture at QUCHI (LI 11) and SHAOHAI (H 3).

6. For a below-the-elbow amputee with phantom pain of the fingers: On the amputation stump, electroacupuncture at QUCHI (LI 11) and SHAOHAI (H 3). On the contralateral side, electroacupuncture at NEIGUAN (P 6) and WAIGUAN (T 5).
7. For an above-the-elbow amputee with phantom pain at or around the end of the forearm stump: On the amputation stump, electroacupuncture at QUCHI (LI 11) and SHAOHAI (H 3) or JIANZHEN (SI 9) and JIANNEILING (Ex-UE). On the contralateral side, electroacupuncture at XIMEN (P 4) and SIDU (T 9).

Usually five to fifteen sessions of acupuncture treatment should alleviate the suffering. For instance, one patient had phantom pain of the traumatically amputated tip of the middle finger of the left hand for about two years. Three sessions of electroacupuncture eliminated his pains. He has had no recurrence since his last treatment in 1986. However, acupuncture does not always relieve phantom pain. For example, one patient had amputation of all the fingers and toes for gangrene, secondary to vasculitis as a complication of a certain medication for his cardiac condition. He had unrelenting pain of the missing digits for about five years. Ten sessions of acupuncture treatment in 1987 did not reduce his pains at all. Another patient was a right hind quarter amputee due to osteogenic sarcoma. Ten sessions of acupuncture treatment in 1979 did not reduce his pains at all. The above-the-knee and the below-the-knee amputees tended to respond to the acupuncture treatment quite favorably.

M. PAIN FROM HEALED MALLEOLAR FRACTURES OF THE ANKLE

The pain in this region tends to be hard to manage with

conventional western medical treatment. Our experience was limited to two patients with healed trimalleolar fractures and one with a healed tibial malleolar fracture. The first patient was a personal injury case as a result of an automobile accident. Fifteen sessions of acupuncture treatment in 1978 did not offer him any relief. The second case was a woman, who sustained the fracture as a result of a fall about five years previously. She had been experiencing unrelenting pain of the affected ankle in spite of the best conventional medical treatment. Eight sessions of acupuncture treatment in 1979 gave her complete relief. She has had no relapse at all. The third case was an 84 year-old lady. She slipped and fell on the ice about eighteen years previously. She sustained fractures essentially in the malleolar region of the tibia of the left foot. Internal fixation with four screws and one pin in the lower end of the tibia was performed. Apparently the fractures healed uneventfully. She had been experiencing intermittent low grade pain in the left ankle usually after excessive walking or gardening since. For no apparent reason the pain of the ankle became much worse about two weeks prior to her consultation with us. In addition, she started to experience pain in the lower part of soleus and a pulling sensation in the posterior aspect of the left lower limb up to the gluteal area. The left lower limb was generally smaller than the right. There were no signs to indicate local inflammation. There were no signs of thrombophlebitis or thrombophlebotosis. X-ray revealed slight osteoporosis of the lower end of the tibia and fibula. Five sessions of acupuncture alleviated her pain completely.

Electroacupuncture was employed in these cases basically at YINLINGQUAN (SP 9) and YANGLINGQUAN (G 34), and at TAIXI (K 3) and KUNLUN (B 60). Acupuncture at ASHI acupoints were also included.

N. PAINFUL FOREFOOT

1. *Morton's Neuroma or Morton's Neuralgia.* It was first

described in 1876 by Thomas G. Morton (1835-1903) (246). He attributed its cause to a neuroma of the third digital nerve of the foot. It should not be confused with the painful foot due to the following condition.

2. Morton's Toe or Morton's Metatarsalgia. This was first described in 1928 by Dudley J. Morton (245). He regarded, as its etiology, a short and hypermobile first metatarsus with frequent secondary thickening of the cortex of the second metatarsus. The second toe tends to be longer than the big toe. Incidentally, we observed that there is usually callus formation underneath the second metatarsal head with Morton's toe, but it is unusual with Morton's neuroma. Museum-goers may have noticed this with Venus de Milo or David in Louvre and elsewhere, and practically all the other ancient Grecian and Roman statues. In 1989, we commented on this difference the Morton's neuroma and Morton's toe (203). At that time, we reviewed a series of twenty-six patients with painful forefeet who were treated with acupuncture (203). Twenty of them had Morton's neuroma and six had Morton's toe. Seventeen of the twenty Morton's neuroma cases and four of the six Morton's toe cases had complete relief of pain for at least one year after acupuncture treatment. The patient with the longest duration of relief with no recurrence was a Morton's neuroma case who was treated by us in 1974. Anecdotally, one 14 year-old girl with Morton's toe had a resection of the distal third of her second metatarsus of the affected foot about three years before she came to see us. She continued to have severe pains of the foot. Five sessions of acupuncture treatment afforded her with no relief at all.

For Morton's neuroma we selected the following acupoints: NEITING (S 44), XIAXI (G 43), JIEXIE (S 41), KUNLUN (B 60), TAI XI (K 3), YANGLINGQUAN (G 34), one of the BAFENG (Ex-LE) acupoints between the third and fourth toes, and ASHI acupoints between the third and fourth metatarsi.

The acupoints for Morton's toe are TAICHONG (Liv 3), XIANGU (S 43), and FENGLONG (S 40).

O. PREMENSTRUAL SYNDROME

Reid and Yen (306) reported that beta-endorphins were increased during the luteal phase of the menstrual cycle. This group of neuropeptides seems to exert important influences on endocrine secretion, mood, and behavior. Helms (123) reported favorable results with acupuncture in treating this condition. We treated twenty-six such patients with acupuncture. It quite effectively alleviated their miseries. Usually one to two series of three to six sessions of acupuncture treatment completely eliminated the pain. After the pains were eliminated, our small group of patients reported no recurrences.

The commonly used acupoints are SANYINJIAO (Sp 6) and YINLINGQUAN (Sp 9) bilaterally. The treatment should be rendered when the patient has symptoms. Its effect may be instantaneous.

P. PAIN DUE TO RIB FRACTURE

Three such cases were treated with acupuncture. The first patient, seen in March 1972, was a case of severe rheumatoid arthritis. He had been on steroids for over ten years. After a bout of unrelenting cough, he experienced severe chest pain. Radiographic examination revealed hairline fractures of the right 9th and 10th ribs. One session of acupuncture treatment abolished his pain completely. He could breathe effortlessly. This was the third time that he had sustained such fractures as a result of coughing. For the previous two episodes, conventional western medical management was not effective. In July of that year, another bout of severe cough caused a fracture of the left eighth rib. Again, one session of acupuncture treatment alleviated the pain. The second patient was a 42-year old male, seen in 1975 because of severe chest pain and markedly diminished vital capacity. This happened after defibrillation for cardiac arrest. Radiologic examination revealed the fracture of right 5th and 6th

ribs. Large doses of morphine only minimally alleviated his pain but markedly depressed his vital capacity instead. He received one session of acupuncture treatment two days later. There was a gradual diminution of his chest pain and a restoration of the vital capacity by the 7th hour after the treatment. The chest pain was completely alleviated 24 hours after the treatment. This incident was his fourth cardiac arrest. About one year later he could not be revived after a massive myocardial infarction. The third patient was a healthy 53 year old male who fell down a flight of stairs in 1981. He immediately experienced severe chest pain with aggravation upon breathing. He was seen about two weeks after the incident. Radiologic examination revealed a fracture of the left 9th rib. His pain was completely alleviated after three sessions of acupuncture treatment.

Experimentally we found that the local acupoints were very effective in alleviating the pain. When using this procedure, one cannot be too careful. It is obvious that a slight deviation from the rib itself would cause pneumothorax or even hemothorax.

Q. PAIN IN MALIGNANCY

We treated four terminal cancer patients who suffered from persistent pain. The first patient had carcinoma of the right lung with metastasis to the D 6 vertebra (Fig. 11.3). It caused a compression fracture of that bone (Fig. 11.4). The intractable pain was of bilateral D 6 intercostal nerve distribution.

Chemotherapy and radiation therapy gave her no relief at all. She was bedridden for more than three months prior to consultation with us in 1978. Acupuncture treatment was given daily for a week. After the very first day of treatment she got out of the bed on her own accord for the first time in three months. Her pain completely subsided by the fifth day of treatment. Her family reported about two months later that she remained pain-free, enjoyed life, and expired peacefully "with dignity."



Figure 11.3



Figure 11.4

Our second terminal patient was seen in 1979. He had cancer of the left lung. The cancer metastasized into the D 6 vertebra with a compression fracture. His pain was mainly of the left D 6 and D 7 intercostal distribution. For relief of his pain, a rhizotomy of D 4 through D 8 spinal nerve roots was performed, together with a wedge-shaped excision of adjacent paraspinal soft tissues on the left. Nonetheless, he continued to have intolerable pain. After five daily sessions of acupuncture treatment his pain completely subsided. He remained free of pain until his death about four months afterwards.

The third terminal patient had an unbearable substernal pain secondary to carcinoma of the esophagus. We treated her in 1980. Ten sessions of the treatment offered her satisfactory partial alleviation of her pain before she expired about eight months later.

The fourth patient was a 58 year-old male with renal carcinoma. It metastasized to the right scapula, the left 8th and 9th ribs, and the D 12 and L 1 vertebrae with compression fractures. Harrington rods were inserted to support the thoracolumbar spine. He was on chemotherapy. His oncologist referred him to us in 1990. When we first saw him, he was generally debilitated, and had been bedridden for about seven weeks. He experienced severe low back pain. Examination revealed bilateral marked foot-drop, and limited range of motion of the right shoulder at about 50% of normal. He had acupuncture treatment twice a week for a total of five sessions. The treatment for the first two sessions was designed to reduce the low back pain. After the first session of the treatment, his low back pain was markedly reduced. The day after the second session, he felt so comfortable that he got up and walked with a walker for about 25 feet. He found that he could stand on tiptoe again. He sat up in a chair for about two hours. During the third session of the treatment, his wife told us about his marked loss of appetite and requested that we try to improve it. The relevant acupoints were added to the regime. The next day, he started to eat well. After the fifth session of the treatment, his family physician elected

to start "nerve blocks" for his already markedly improved low back pain. We decided in the patient's best interest to discontinue the acupuncture treatment. About three months later he died of renal failure.

We hasten to add here that for this group of patients acupuncture was employed not to treat the cancer *per se*. It was aimed at making the terminal patients' life less miserable, so that they could live their last days in dignity.

For the two patients with intercostal pain, we used the same acupoints as those for intercostal neuralgia. They are XIGOU (T 6), LIGOU (Liv 5), YANGLINGQUAN (G 34), SANYANGLUO (T 8), and the PARAVERTEBRAL ACUPOINTS at the involved segments.

For the patient with substernal pain, we used XIANJI (Ren 21 or CV 21), SHANZHONG (Ren 17 or CV 17), JIUWEI (Ren 15 or CV 15), NEIGUAN (P 6) and TAICHONG (Liv 3).

For the fourth patient, we used FUTU (thigh) (S 32) XUEHAI (Sp 10), YINLINGQUAN (Sp 9) and YANGLINGQUAN (G 34). To improve his appetite we used ZUSANLI (S 36). The treatment was given with the patient in the supine position because we were afraid of possible risks, such as causing additional fractures.

R. PAINFUL SURGICAL SCARS

Surgical scars may occasionally become intolerably painful and refractory to the western therapeutics. They may also evolve into keloids. We treated six such cases. Four of them had thoracotomy.

One of the thoracotomy patient terminated the treatment after three sessions because it gave him only partial relief of the pain and did not fulfill his expectation of an instant magic cure. In this case, the prior four year's continuous administration of narcotics had not reduced his pain at all either.

In the second thoracotomy patient, the surgical scar and the sternum became infected. The osteomyelitis was so severe that the bone with sequestra had to be removed (Fig. 11.5). The entire area was agonizingly painful. Breathing became paradoxical and aggravated the pain. Acupuncture treatment was discontinued after eight sessions because there was not the slightest reduction of the intolerable pain and we did not anticipate any possible improvement of his status in the foreseeable future.



Figure 11.5

The third thoracotomy patients had pain of the surgical scars of the donor sites in addition to those on the chest. Both scars formed keloids.

The fourth thoracotomy patient had keloid formation of the painful surgical scar on the chest (Fig. 11.6 on the next page).

These last two patients responded with complete relief of the pain of the scars. All the keloids disappeared in both cases.

The fifth patient had a hernia operation. The surgical site was infected. A large depression was formed at the scapus triangle area

with an intolerably painful surgical scar. He had complete abolition of the pain after two sessions of acupuncture treatment.

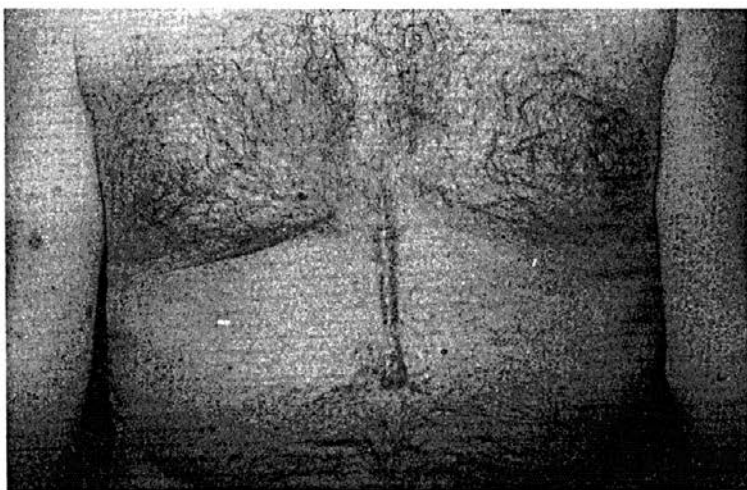


Figure 11.6

The sixth patient was an 18 year-old young woman. When she was 14 years old, she hurt the left hip area during a gymnastic competition. She was diagnosed to have panniculitis. A fatty tumor was removed surgically. Her pain continued and became unbearable. Additional surgery at two different sites in the upper anterolateral aspect of the left thigh did not alleviate her pain at all. The last surgical procedure was an excision of some soft tissues. That left her with a large depression there (Fig. 11.7).

The multiple surgical procedures rendered her left upper thigh obviously unsightly. Six sessions of acupuncture treatment completely abolished her pains. She resumed gymnastic exercises soon after (Fig. 11.8). Because of the unsightly scars, she had to give up a promising career as a gymnast.



Figure 11.7



Figure 11.8

For the thoracotomy patients, we selected SANYANGLUO (T 8, TE 8, or SJ 8) bilaterally for its surgical analgesic effect on the chest. Electroacupuncture was applied with needles at both ends of the painful surgical scar. For the fifth and sixth patients, electroacupuncture was applied with needles at both ends of the surgical scars.

S. MISCELLANEOUS PAINFUL CONDITIONS

1. *Paget's Disease.* We treated six such cases. The relief of pain was quite satisfactory in all of them. We employed QUCHI (LI 11), ZUSANLI (S 36), and the EAR acupoints (SHENMEN and LUNG) for their general analgesic effects, and the ASHI acupoints (i.e., the trigger points) for their local analgesic effects.

2. *Dercum's Disease.* Also known as Adiposis dolorosa, is a rare condition.

A 59 year-old male patient had a 15 year history of large, terribly painful masses prior to his consultation with us in November 1982. There were many such masses of fatty tissue, mostly on the upper parts of his back, chest, and arms. Pain was constant and intense. His medical management had been unsuccessful. Multiple surgical excisions of the painful masses did not reduce the pain at all (Fig. 11.9 on the next page).

We employed basically JIANYU (LI 15), QUCHI (LI 11), SANYANGLUO (T 8, TE 8, or SJ 8), ZUSANLI (S 36), TAICHONG (Liv 3), XUEHAI (Sp 10), and LOCAL acupoints around the painful masses. After nine sessions of acupuncture treatment, there was only slight improvement of his condition. The treatment was discontinued.

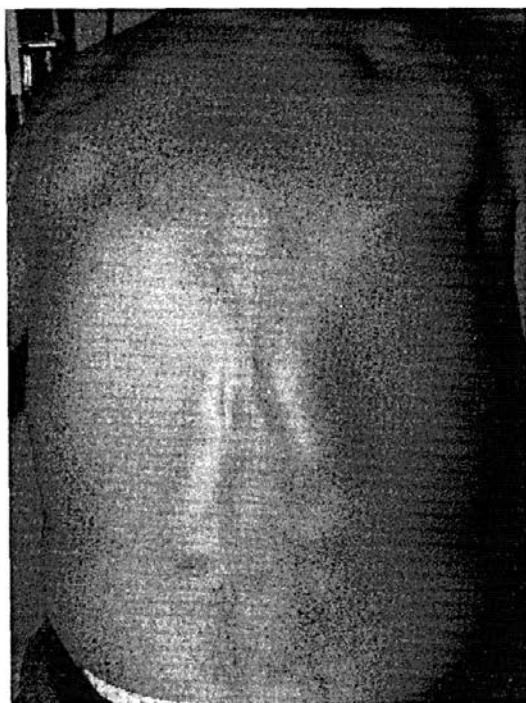


Figure 11.9

T. PAINLESS CHILD-BIRTH

Acupuncture may induce labor and provide excellent analgesia for birthing. However, an anesthesiologist's support should always be immediately available. There is the possibility that acupuncture analgesia may not be strong enough to suppress the birthing pain for a particular pregnant mother. As was reported several years ago, a medical group instituted a lawsuit against an acupuncturist for bodily assault when the woman, who requested acupuncture for her delivery, told a news reporter that she indeed experienced some mild and bearable pain while under acupuncture analgesia. In Chapter 13, we describe some possible risks in taking care of pregnant women.

For the induction of labor: GUANYUAN (Ren 4 or CV 4), or ZHONGJI (Ren 3, or CV 3) and, bilaterally, HEGU (LI 4), CILIAO (B 32), and ZHIYIN (B 67), and electroacupuncture SANYINJIAO (Sp 6) bilaterally.

For the birthing: Bilaterally, HEGU (LI 4), JIANJING (G 21), TAICHONG (Liv 3), KUNLUN (B 60), and ZHIYIN (B 67), and electroacupuncture at SANYINJIAO (Sp 6) bilaterally.

For malpositioning or breech of the fetus, ZHIYIN (B 67) is the primary acupoint to correct it. However, it is not unusual that breech corrects itself.

U. SURGICAL AND DENTAL ANALGESIA WITH ACUPUNCTURE

In the early 1970s, acupuncture analgesia was much publicized in China. The 1973 color movie, *Acupuncture Anesthesia* (278), included its use for pediatric surgeries. Figure 11.10 on the next page is a frame taken from that movie, showing acupuncture needles on a child's ear during surgery for intestinal intussusception. The most dramatic instances involved its use for removal of the lung in tuberculosis patients. Allegedly they selected and pretested their patients very carefully for this procedure. Several months before surgery, these patients had pneumothorax to collapse the lung and were given breathing exercises. Such preoperative preparations obviated the major ill effects of abrupt mediastinal deviation when the chest was opened.

The main acupoint for this procedure was found in the 1970s to be the SANYANGLUO (T 8, TE 8, or SJ 8), not the acupoints for treating the chest pain as listed in the old acupuncture literature, such as Jianyu (LI 15). We found the SANYANGLUO (T 8, TE 8, or SJ 8) acupoint also quite effective for post-herpetic and other intercostal neuralgias, and for painful surgical scars from thoracotomy. Acupuncture analgesia for major surgery is rarely utilized in China today. Acupuncture at the HEGU (LI 4) acupoint

generates quite a potent analgesia for HEAD AND NECK SURGERY. It was used in THYROIDECTOMY in China in the early 1970s for demonstrations for foreign visitors.



Figure 11.10

On December 12, 1972 we performed acupuncture analgesia for an uneventful and successful TONSILLECTOMY on a 21 year-old male. The late Henry Merriman, M.D. (an ENT specialist) and the Anesthesia Group of Waterbury, Connecticut requested the trial of acupuncture analgesia because the patient was allergic to many anesthetics. He had had multiple bouts of tonsillitis previously. The left tonsil had extensive adhesions and scarring while the right one had an abscess. Multiple dissections of the tonsils were required. In this case, we used electroacupuncture at the HEGU (LI 4) acupoints on both hands. The frequency of the electric stimulation was about 3 Hz and its intensity was low. The induction time was about twenty minutes. Electric stimulation was maintained during the entire surgical procedure which lasted for about one hour.

Figure 11.11 is a photo taken during the surgery. The patient's peaceful facial expression testifies to his claim that he experienced no real pain during the dissection of the tonsils. During the surgery he had much less bleeding than what was expected under conventional chemical anesthetics. Though he had no pain at all during surgery, his touch sensation remained unaltered. His gag reflex was also intact and had to be eliminated with a small amount of topical anesthetic spray. This is compatible with the observation that acupuncture is only an analgesic and not an anesthetic.



Figure 11.11

Figure 11.12 on the next page is a group picture taken after the completion of the surgery. The second person from the left was Dr. Merriman. The three gentlemen on the right are anesthesiologists. The next morning the patient could talk with no

appreciable pain. He had cereal for breakfast on the third postoperative day. He was discharged home on the fourth postoperative day. The analgesic effect of acupuncture was quite lasting. He had practically no pain during the convalescence. Thus, he took no narcotics at all. He would have if he had undergone the surgery with conventional chemical anesthetics.

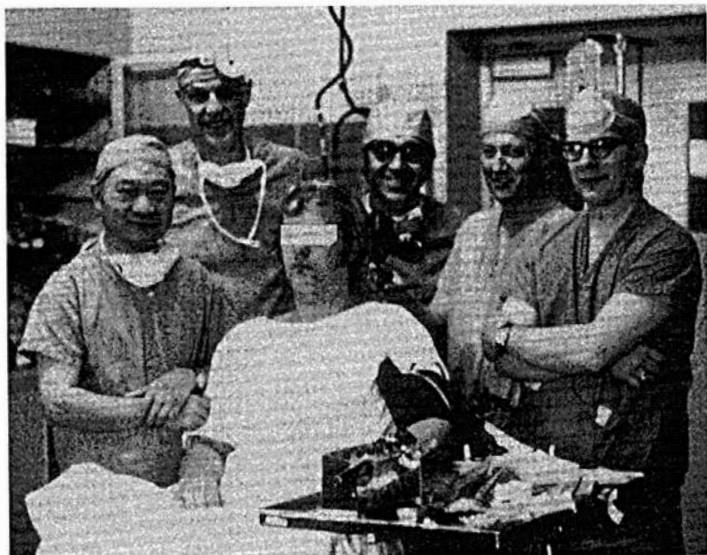


Figure 11.12

Acupuncture analgesia is not suitable for most major **ABDOMINAL SURGERY**. There are two reasons. One is that it does not relax the abdominal muscles. The other is that the serous membranes of the peritoneal cavity and the gastrointestinal tract remain very sensitive to touch and handling by the surgeon.

Acupuncture analgesia for **DENTAL SURGERY** is most gratifying. One of the major advantages is that the patient does not have the postsurgical residual numbness of the face and the mouth as from the conventional chemical anesthetics. It is highly

advisable particularly for those patients who are allergic to such reagents. For dental analgesia, we use electroacupuncture at the HEGU (LI 4) of both hands. The electric stimulation was maintained throughout the dental procedure. So far we have had no failures in cases involving dental extraction and root canal procedures.

It was not unusual that a patient would come to us and request acupuncture analgesia for surgical procedures or birthing. We would advise the patient to have the surgeon discuss the case with us first. We found there is still great reluctance by most of the surgeons and even some of the anesthesiologists. A temporary anesthesiology privilege at the hospital should be obtained prior to any surgical procedure. It is paramount that an anesthesiologist should be in attendance and anesthetics should not be spared if and when the patient experiences pain.

CHAPTER 12

ACUPUNCTURE FOR CONDITIONS OTHER THAN PAIN

Acupuncture has been developed and utilized as a general therapeutic modality in China, antedating the systematic use of medicinal herbs by at least a thousand years. Though in this country its use is mainly for the management of chronic pain, we have been cautiously trying it for conditions other than pain, usually upon the request of patients who have been helped by us. Under certain conditions, we found it more effective than conventional therapeutics. In this chapter, we will include those conditions for which we and our friends have found acupuncture to be effective, and those where it is either not effective or not even applicable though the news media claim it as a magic cure.

A. NARCOTICS ADDICTION

The following was accidentally discovered by Wen and Cheung in Hong Kong in November 1972 (145, 371) when they were experimenting with acupuncture as a surgical analgesic for brain surgery on a man addicted to narcotics.

"Four needles were inserted into the right hand, using the following acupuncture points: Hoku = LI-4, Houshi = SI-3, and in the arm at Hsimen = EH-4, Szuru = TB-9. Another two needles were inserted into the right ear at "brain stem" and "god's gate" points. Stimulation with an electrical stimulator, BY-701 (made in China) was carried out for ½ hour. At that time, our interest was in discovering whether the patient obtained analgesia in the scalp prior to surgery. During the stimulation, 15 to 30 minutes later, the patient voluntarily stated that his withdrawal symptoms had completely cleared up. We examined him and found that he was free of withdrawal symptoms. ... At 9:00 p.m. that night, ... the patient had another withdrawal syndrome. ...

After half an hour of acupuncture and electrical stimulation (AES), the withdrawal symptoms again disappeared. Encouraged by this, the next day we saw two other patients ... who were both opium abusers. ... Both responded well to the half hour of AES, and their withdrawal symptoms stopped."

In 1973, Wen and Cheung (371) reported their experience with 40 addicts. They used electric stimulation at the Lung acupoint on each ear. They added acupuncture at acupoints B-24, B-54, B-57, and B-60 for those patients with backache; and at acupoints LI-4, H-5 or H-6, or Shenmen on the ear for those with anxiety and insomnia. One of us (LKYN) and his associates (258) stimulated the analogous points in the ears of morphine-addicted rats, resulting in an attenuation of their withdrawal syndrome. Gomez and Mikhal (97) applied TENS bilaterally over the mastoids in methadone detoxification with a marked reduction of withdrawal symptoms. Smith and Khan (327) in 1988 reported the effectiveness of auricular acupuncture in the detoxification of opiate, cocaine, crack cocaine, alcohol, and tobacco addictions. At the same time, we realize that narcotics addiction is a psychosocial problem in addition to a medical one. In 1993 Margolin et al. (224) reported their preliminary study on cocaine dependents in a methadone maintenance program. Their results indicated a favorable abstinence rate of cocaine addiction with reduction of craving and depression.

The popular procedure is auricular acupuncture. The acupoints are SHENMEN, LUNG SYMPATHETIC, LIVER, and KIDNEY. The needles are usually inserted to a depth of 2 mm. and left *in situ* for 50 minutes. Our limited experience found that electroacupuncture at SHENMEN and LUNG acupoints for 15 minutes may suffice.

B. ALCOHOLISM

Alcoholism is quite amenable to acupuncture treatment. Smith and O'Neal in 1975 (329) applied TENS bilaterally over the

mastoids for the treatment of alcoholism. They observed that the treatment group improved significantly over controls as measured by a profile of a mood states test and a total mood disturbance score. Bullock et al. reported in 1989 (30) of their blind controlled trials of auricular acupuncture for treatment of severe recidivist alcoholism. Significant beneficial therapeutic effects were observed in a six-month follow-up study.

Our experience is limited to four patients. At the time of this writing, none of them has had a relapse for at least seven to eleven years. None feel the need to attend Alcoholics Anonymous meetings any more. The most interesting case was a 28 year-old female with a more than ten-year history of chronic alcoholism. Medication with Antibase®, attendance of Alcoholics Anonymous meetings, and psychotherapy had no consistent and permanent effect on her. When she was pregnant with her first child, she requested acupuncture treatment. Six sessions of the treatment abolished her addiction completely. She had a full-term healthy baby. She has abstained from alcohol since. So far as we know, the child is entirely normal. In these cases, we employed the YINTANG (Ex-HN3) and bilaterally the TAIYANG (Ex-HN5) as well as electroacupuncture on both ears at the SHENMEN and LUNG acupoints.

C. HANGOVER

Acupuncture is very effective at relieving this unpleasant situation after a bout of imbibition. At the center of the cymba conchae of the auricle lies the DRUNKEN acupoint. (Fig. 12.1 on the next page). One session of the treatment will completely relieve the unpleasantness.



Figure 12.1

D. NICOTINE ADDICTION

We regard cigarette smoking as an addiction to nicotine and have been treating it as such since 1975. We have treated 1,337 such patients. Of them, 904 individuals had a detailed demographic history.

There were 420 (46.46%) females and 484 (53.54%) males. Their ages were usually between 20 and 60 years (90.49%). The mean age of the entire group was 43.47 years, with that for males being 43.69 years and females 43.29 years. The youngest patient was a 15 year-old male. The oldest was a 76 year-old female.

Most of them (94.47%) smoked cigarettes for 10 to 46 years. The mean duration was 27.05 years, with that for males being 27.92 years and females 26.29 years.

At the time of consultation with us, 267 (29.54%) of the entire group (of 904 patients) smoked up to 1 pack of cigarettes a day, 487 (53.87%) from 1.5 to 2 packs a day, and 150 (16.59%) from 2.5 to 5 packs a day.

A review of these 904 patients revealed the importance of social customs and particularly peer pressure as the influencing factor that caused them to start smoking.

Almost 80% of them started smoking cigarettes between the ages of 12 to 18 years. The peak age was 16 years in the female and 15 years in the male (consisting of more than 20% of the entire group) which coincided more or less with the age that a youngster starts to learn to drive a car and is permitted to obtain his/her driver's license. One wonders whether cigarette smoking is a substitute for thumb-sucking, oral satisfaction, or a security blanket.

Many of the patients had withdrawal symptoms, such as light-headedness, giddiness, poor concentration, sweating, and listlessness.

About 90% of the group stopped smoking after two to three sessions of acupuncture treatments. The effects were usually quite lasting in the majority of cases. Stressful situations very easily trigger a resumption of smoking. Just like narcotics addiction, cigarette smoking is by and large also a psychosocial problem. Besides, it seems to be a sort of oral satisfaction and a substitute for sucking the thumb as a child. Appendix I is a copy of our SMOKING SURVEY.

We employed the YINTANG (Ex-HN3) and bilaterally the TAIYANG (Ex-HN5) acupoints as well as electroacupuncture on both ears at the SHENMEN and LUNG acupoints. The treatment lasted fifteen minutes each session. We found that these acupoints on the forehead exerted an additional strong tranquilizing effect. It was not unusual for patients to fall soundly asleep during the treatment. Incidentally, we tried to add YINGXIANG (LI 20) acupoint bilaterally. It did not seem to make any difference.

Many patients reported that cigarettes tasted very objectionable ("like garbage," "metallic") when they smoked after the acupuncture treatment. Many patients felt "energized." Even though they had no desire to smoke and possessed no cigarettes,

they tended to reach for it from time to time at the usual places where it had been kept, such as the breast pocket of the shirt in men and the pocketbook or purse in women. Before the treatment, certain patients smoked while drinking coffee or alcoholic beverages, answering the phone, or driving a car. Such habits were readily eliminated by the treatment. One of the most difficult situations is when one spouse came for the treatment but the other did not want to stop smoking.

E. OVERWEIGHT

We have treated about 250 patients who were excessively overweight. They all failed to reduce their excess body weight after trying various popular dieting regimes. For this purpose, we employed the YINTANG (Ex-HN3) and bilaterally TAIYANG (Ex-HN5) acupoints as well as electroacupuncture on both ears at the SHENMEN and STOMACH acupoints. Its immediate effect was a marked satiation in about 50% of our patients. Many patients would feel full and satisfied after eating about one-third to one-half of their usual amount of food. However, the results were usually not lasting. It is very much a problem of self-discipline. The ready access of food at home contributes to the difficulty. For sustaining results, the patient must be on a proper diet regime after the initial acupuncture treatment. Nevertheless, it offers a good induction. It does make their dieting efforts much easier. Incidentally, we observed one peculiar incidence of anorexia. This was a 31-year-old woman who weighed about 396 lb. and whose height was about five feet. She developed anorexia lasting for about four days after the first session of acupuncture treatment. She lost a fair amount of weight. By the fifth day she missed her eating so much that she started to devour large amounts of food. On the seventh day when she saw us for the second time, she weighed more than she had before she came to see us for the first time. She declared that our acupuncture treatment made her gain weight.

F. SKIN DISEASES

1. *Poison Ivy Contact Dermatitis*

We reported treating six patients with acupuncture (197). All of them had a rapid subsidence of the intense itch in a few hours and a resolution of the skin lesions within a few days. We speculated the possible involvement of a release of ACTH and cortisol by acupuncture in this condition. We suspected the possibility of enhancement of the immune system by acupuncture. In one case, there was a suggestion of preventing recurrence upon subsequent exposures.

2. *Psoriasis*

Acupuncture has been used to treat psoriasis in China for centuries. We treated sixty-one psoriatic patients with acupuncture after the conventional western therapeutic regimes, including PUMA, failed to provide satisfactory results (204). The average number of sessions of acupuncture treatment for this group of patients was about nine, with 41% receiving 5 sessions or less. In spite of the generally severe status of the patients' skin condition, the short-term acupuncture treatment afforded almost complete clearance of the lesions with few recurrences in about 72% of all the patients. Psoriasis seems to have a tendency to involve the areas over bony prominences, such as the elbow, the knee, and the interphalangeal joints of the hand.

Figure 12.2 on the next page shows a band of psoriatic lesions around the waist of a worker. He claimed that the lesion coincided with the site and the width of his heavy leather tool belt. Figure 12.3 shows the clearing of the skin lesions after four weekly sessions of acupuncture treatment.

Psoriatic lesions also tend to develop along scars, surgical or otherwise. Figure 12.4 on page 334 shows such a case with a surgical scar on the left lower quadrant of the abdomen.



Figure 12.2

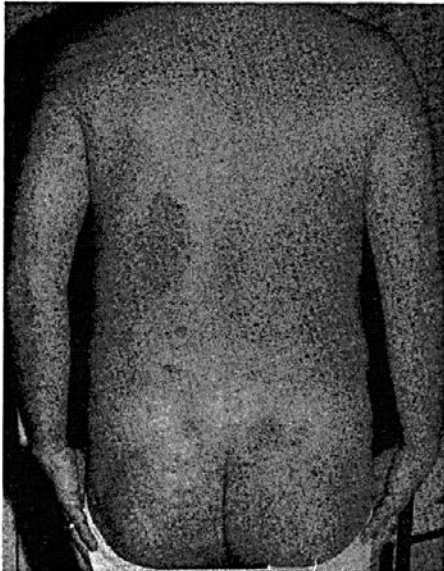


Figure 12.3



Figure 12.4

In cases with large patches of skin involvement, the center of the lesions tended to clear up first. Figure 12.5 shows a large patch of psoriasis on the lower back with the center having cleared up completely and its periphery remaining as a border in a patient after nine sessions of acupuncture treatment.

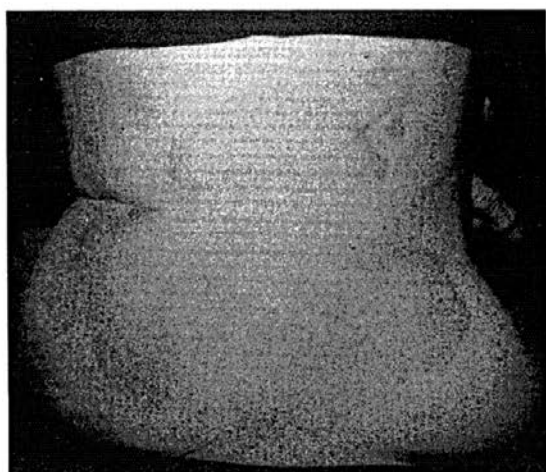


Figure 12.5

3. *Cystic Acne*

Nineteen such patients were treated by us with excellent results (203). The youngest patient was aged thirteen and the oldest 65 years. Almost 65% of them started to have acne before the age of 15. The oldest patient developed acne for the first time at the age of 64. The ratio between the female and male was about 2:1. The average number of sessions of treatment was about seven, with nine patients (or about 47%) receiving five sessions or less. Fifteen of the nineteen (or about 79%) had complete clearance of skin lesions. Two patients with moderately severe acne took only one session of treatment each and did not return.

4. *Herpes Simplex (Type 1 and Type 2)*

We reported five patients with herpes who had acupuncture treatment (205). The first one was a 21 year-old female treated between August 1975 and February 1976. She had herpetic lesions on the lower back and gluteal areas. Figure 12.6 shows the skin lesions essentially on the left sacral-gluteal region before treatment. Usually two to six sessions of acupuncture treatment would clear up her lesions, with remissions for two to five weeks. Figure 12.7

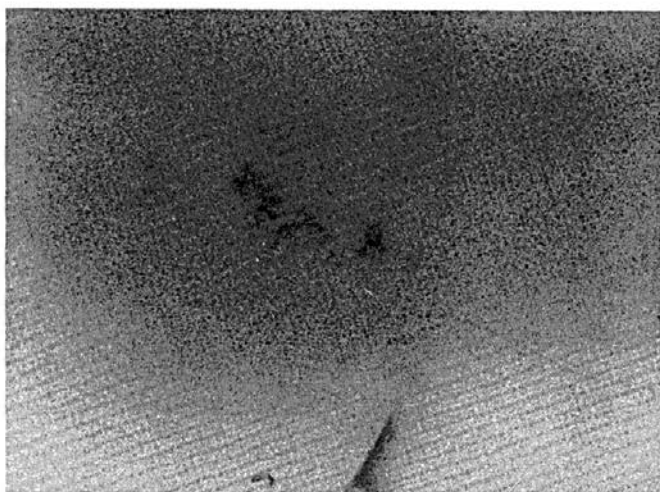


Figure 12.6

is a photo taken after two sessions of the treatment, showing definite improvement of the skin lesions. She claimed that her gynecologist could not find any genital lesions. Her boyfriend did have penile lesions. He refused to be treated.



Figure 12.7

The second case was a 52-year-old female who had a known history of genital herpes since her college days. She was treated irregularly with acupuncture by us on an "on demand" schedule from 1977 through 1985. Her skin lesions were mostly on the lower abdomen, the lower back, gluteals and thighs in addition to the genital area. Usually one to three sessions of treatment would completely clear up the lesions. Remissions gradually increased from six months to a year. During 1984 and most of 1985 while she was taking antiviral medication we did not see her. In October 1985 when she returned to see us, her skin lesions were far more extensive than those she had during the years when she was under acupuncture treatment. Her condition fairly rapidly improved with acupuncture treatment. She noticed that acupuncture enhanced the

effects of the antiviral medications.

The third patient was a 23-year-old female whose skin lesions were on the face and the torso. Figure 12.8 shows the skin lesions before acupuncture treatment. She denied having genital lesions. Two sessions of acupuncture treatment cleared up the lesions completely.

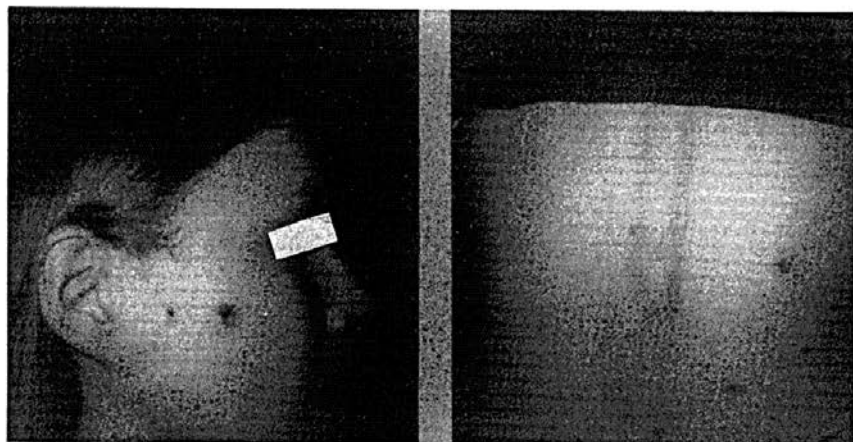


Figure 12.8

The fourth patient was a 61-year-old female who had a small cluster of herpetic lesions on the left cheek. Two sessions of acupuncture treatment in 1983 completely eliminated the lesions.

The fifth patient was a 21-year-old female, referred to us by her gynecologist in May 1991. She had genital lesions with intense itching and flu-like prodromata. Laboratory examination determined that the agent of her skin lesions was Type 2 herpes virus. Antiviral medication was only minimally successful. We first saw her about four months after the onset. Usually one or two sessions of acupuncture treatment would clear up her lesions completely. The remission was increased from less than ten day before the acupuncture treatment to about ten months in length at the time of this writing. Stress or overwork tended to precipitate

a recurrence. The recurrences have been very mild. Occasionally she had a few small clusters of macular skin lesions in the left pudendal area about five to ten cm. away from the vulva. They always cleared up together with the genital lesions.

5. *Eczema and Urticaria*

We treated only one case of each. The results were quite gratifying.

6. *Rhinophyma*

We saw only one case of rhinophyma (or strawberry nose). Chinese call this condition "malt nose." They attribute its causation to excessive imbibition of alcohol (Fig. 12.9). No treatment was rendered. We originally treated him for Paget's disease with complete abatement of his pains. The Chinese literature suggested YINGXIANG (LI 20), YINTANG (Ex-HN 3) and SULIAO (Du 25, GV 25)

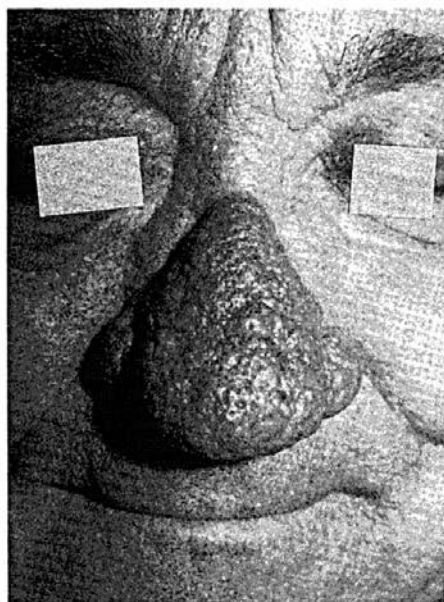


Figure 12.9

The basic acupoints for practically all the common skin conditions are QUCHI (LI 11), XUEHAI (Sp 10), and ZUSANLI (S 36) together with the LOCAL acupoints on the trunk and limbs as the case may be. Additional acupoints may selectively be used for the following list of skin conditions:

1. For pruritus: add FENGCHI (GB 20), DAZHUI (GV 14), FEISHU (B 13), QUCHI (LI 11), WEIZHONG (B 40), FENGMEN (B 12), CHENGSHAN (B 57), and XUEHAI (Sp 10).
2. For eczema: add DAZHUI (GV 14 or GV 14), SANYINJIAO (Sp 6), FENGCHI (G 20), FENGSHI (G 31) HEGU (LI 4), and SHENMEN (H 7).
3. For psoriasis: add HEGU (LI 4), and SANYINJIAO (Sp 6). (206)
4. For genital herpes: add SANYINJIAO (Sp 6) and YINLINGQUAN (Sp 9) bilaterally. (205)
5. For poison ivy contact dermatitis: The basic acupoints and the local acupoints. (199)
6. For urticaria: add NEITING (S 44) in particular, DAZHUI (GV 14 or gv 14), and bilaterally SANYINJIAO (Sp 6) and YINLINGQUAN (Sp 9).

G. TINNITUS

Tinnitus is often associated with some hearing impairment. In 1974 we attempted to treat tinnitus and hearing loss in ten consecutive patients. Audiograms were taken. All the patients had severe impairment in the high pitch ranges. Each of them had ten sessions of acupuncture treatment. One patient had marked improvement for about three months both subjectively and as measured by the audiogram. Figure 12.10 on the next page shows copies of the composite audiograms before and after acupuncture treatments. Two of them had subjective improvement for about

one month but no change of their audiograms. The remaining patients had no clinical and/or audiologic change at all.

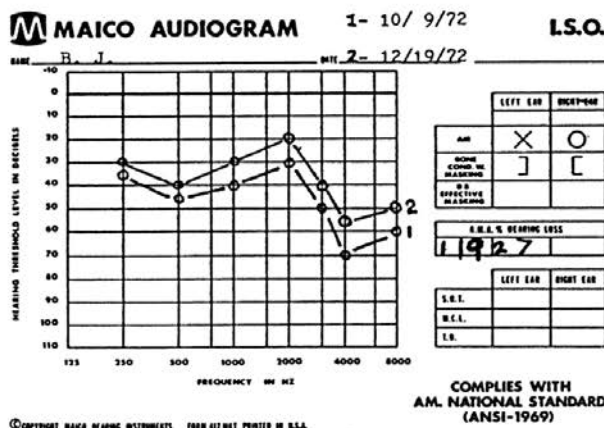
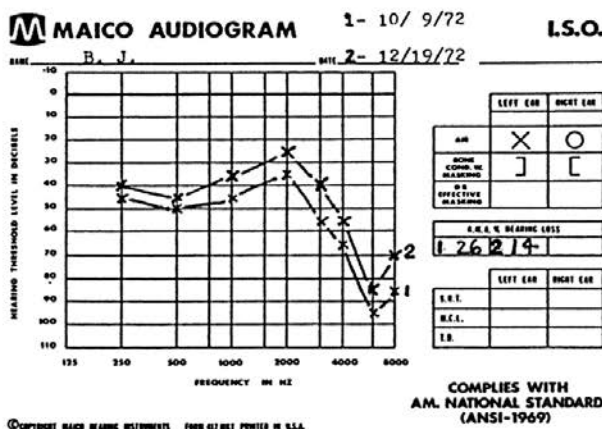


Figure 12.10

The eleventh patient was a 57-year-old female with a chief complaint of annoying tinnitus. She also had mild hearing loss with mild loss of the high pitch range as shown by an audiogram. In 1985 after seven sessions of once-weekly acupuncture treatment she had marked reduction of tinnitus and regained most of her

hearing. The treatment was then tapered to once every other week for four sessions. At the end of the series of therapy, she had no tinnitus with normal hearing and a normal audiogram. She has remained asymptomatic since.

The twelfth patient was a 60-year-old male physician, first seen by us in March 1992. His chief complaint was annoying tinnitus of both ears, worse on the right than on the left for about two year's duration. The noise in the ears was usually very loud in the evening and only barely perceptible, if any, during working hours. His hearing impairment was minimal. Three sessions of acupuncture treatment (on March 27, April 2, and April 4, 1992) cleared up the tinnitus of the right ear completely and of the left ear partially. An additional seven sessions of treatment (from June 12 through December 10, 1992) eliminated the tinnitus in his left ear completely. In March 1994, this patient reported a recurrence of tinnitus in the left ear. Plans were made to resume treatment.

We used YINGTANG (Ex-HN 3), and bilaterally TAIYANG (Ex-HN 5) and ZHONGZHU (T 3) or WAIGUAN (T 5), and electroacupuncture at TINGGONG (SI 19), TINGHUI (G 2) or ERMEN (T 21, TE 21, SJ 21) in the front of the affected ear with YIFENG (T 17, TE 17, or SJ 17) or FENGXHI (G 20) in the back of the ear to form a pair. We found such an arrangement quite satisfactory therapeutically for those with mild hearing loss.

The Chinese literature lists many other acupoints such as:

1. YIFENG (T 17, TE 17, or SJ 17), FENGCHI (G 20), ZHONGSHU (T 3, TE 3, or SJ 3), XINGJIAN (Liv 2), FENGLONG (S 40), TAIXI (K 3), and SHENSHU (B 23).
2. SHANGGUAN (G 3), XIAGUAN (S 7), SIBAI (S 2), BAIHUI (Du 20) or GV 20), TIANCHUANG (SI 16), YANGXI (LI 5), and GUANCHONG (T 1, TE 1, SJ 1).
3. HOUXI (SI 3), HAND-WANGU (SI 4), HEGU (LI 4), TIANRONG (SI 17), JIANZHEN (SI 9), and HEAD-QIAOYIN (G 11).

H. DEAF-MUTISM

During their Culture Revolution in the late 1960s and early 1970s, the Chinese claimed to be able to cure deaf-mutes with acupuncture. The main acupoint was the YAMEN (Du 15, or GV 15). It was necessary to generate a tingling sensation all over the body. Obviously, they must have been puncturing the medulla oblongata. I am not sure such a heroic procedure is adaptable in this country. After the downfall of the "Gang of Four," we have not heard any more of such magic cures.

In 1973 the late Dr. Samuel Rosen of the stapes-surgery fame treated deaf-mute children with acupuncture (315 and personal communications). He learned the procedure in China. He had twenty children each in the treated group and the control group. One child in each group had some improvement in their hearing.

We treated one deaf-mute child in 1975. We used YINTANG (Ex-HN 3), and TAIYANG (Ex-HN 5) and ZHONGZHU (T 3) or WAIGUANG (T 5) bilaterally, as well as electroacupuncture at TINGGONG SI 19) and FENGCHI (G 20) as a pair, or TINGHUI and TINGHUI (G 2) and YIFENG (T 17, TE 17, or SJ 17) as a pair alternatively. After acupuncture treatment once weekly for three months, some one accidentally clapped their hands behind him, and he was startled. It was the first sign that he might have gained some hearing. Another three month's treatment did not improve his condition any further. The treatment was then discontinued. We have followed this patient. So far as we know, his condition remains essentially the same at the time of this writing.

I. NAUSEA, VOMITING, AND DIARRHEA

Acupuncture offers almost instant and dramatic elimination of nausea with no recurrence. Vomiting and diarrhea of the so-called "twenty-four-hour runs" type are also amenable to acupuncture. However, from our personal experience, the patient should refrain

from eating or drinking for six hours or more after the relief. Otherwise, the symptoms will recur almost immediately. We used NEIGUAN (P 6) and ZUSANLI (S 36) acupoints bilaterally. These acupoints may also be tried for hyperemesis gravidarum.

J. VASOVAGAL ATTACK

Simple fainting spells can be dramatically and instantly alleviated with finger acupuncture by massaging gently and firmly at RENZHONG (Du 26 or GV 26) acupoint with the tip of the fingernail. Of course, this emergency measure should be followed by other appropriate medical management.

K. CHRONIC SINUSITIS AND POSTERIOR NASAL DRIP

We found that acupoints HEGU (LI 4) and particularly YINXIANG (LI 20) tend to immediately relieve nasal congestion. With improved sinus drainage, postnasal drip may become copious in some patients to the extent that they thought the condition was made worse by acupuncture. Thus, it is advisable to warn them of such a possibility.

L. HYPERTENSION

Our limited experience indicates that acupuncture can lower high blood pressure effectively. We used YINTANG (Ex-HN 3), TAIYANG (Ex-HN 5), FENGCHI (G 20), JIANJING (G 21), QUCHI (LI 11), NEIGUAN (P 6), ZUSANLI (S 36), and the HYPOTENSIVE GROOVE in the posterior aspect of the external ear. For those patients with headaches, the FENGCHI (G 20), HEGU (LI 4), and TAICHONG (Liv 3) acupoints should be added. The effects were quite lasting.

M. ARRHYTHMIAS

Clinically, arrhythmia can be inhibited by acupuncture at ZUSANLI (S 36) and/or NEIGUAN (P 6) acupoints. Xia and her associates confirmed this experimentally (382). They induced ventricular extrasystole in rabbits by stimulating the hypothalamic defense area. Stimulation of the deep peroneal nerve under the Zusanli acupoint (Xia and associates called it "analogous electroacupuncture") or the median nerve under the Neiguan acupoint with an electric current of low-frequency and low-intensity reduced or abolished this experimental arrhythmia and, in addition, caused a slight reduction of the blood pressure. An increase of the intensity of the stimulus in this instance increased this extrasystole and the blood pressure, and in some cases, the extrasystole became ventricular tachycardia. However, stimulation of the radial nerve or the superficial peroneal nerve with the low-frequency and low-intensity electricity enhanced this arrhythmia and caused a pressor effect. We summarized their experimental results and neuropharmacologic bases in Chapter 4 (380-383).

N. BRONCHIAL ASTHMA

Our limited experience seems to indicate that acupuncture may alleviate early cases of asthma quite quickly. We used DAZHUI (Du 14 or GV 14), DINGCHUAN (Ex-B 1), QUCHI (LI 11), HEGU (LI 4), NEIGUAN (P 6), ZUSANLI (S 36), XUEHAI (Sp 10), and SANYINJIAO (Sp 6). Acupoints TIAN TU (CV 22), SHANZHONG (CV 17), KONGZUI (L 6), LIEQUE (L 7), FENGLONG (S 40), FEISHU (B 13), XINSHU (B 15), PISHU (B 20), SHENSHU (B 23), GAOHUANG (B 43), QIHAI (CV 6) and GUANYUAN (CV 4) may be added. For an acute attack, massaging DAZHUI (Du 14 or GV 14) and DINGCHUAN (Ex-B1) acupoints may be used as first-aid and can quickly abort the attack.

O. HICCUPS

The relief of intractable hiccups can be dramatic. We used JIANJING (G 21), NEIGUAN (P 6), HEGU (LI 4), JUQUE (Ren 14 or CV 14), QIMEN (Liv 14) or ZHANGMEN (Liv 13), TAI XI (K 3) and TAICHONG (Liv 3). Acupoints TIAN TU (CV 22), SHANZHONG (CV 17), GESHU (B 17), XINGJIAN (Liv 2), NEITING (S 44) ZHONGWAN (CV 12), QIHAI (CV 6) may also be used.

P. FREQUENT URINATION

Three multiple sclerosis patients persuaded us to treat this symptom experimentally. All of them had marked reduction in the frequency after five sessions of acupuncture treatment. Later on, two of them moved away after a short course of the treatment. The remaining patient was followed up for almost ten years. The effect of acupuncture treatment in this case usually lasted for almost one year, with the shortest remission about two months and the longest about three years. When this patient was first seen she had to use a wheelchair because of the weakness of her lower limbs. Fairly quickly she graduated to the use of a cane. For the last six years or so when she was under our care, she ambulated without any assistive devices. She also moved away. We had no follow-up afterwards.

For incontinence of urine, we used electroacupuncture at YINLINGQUAN (Sp 9) and SANYINJIAO (Sp 6) acupoints bilaterally. For her general well-being and ambulation, we used QUCHI (LI 11), ZUSANLI (S 36) XUEHAI (Sp 10), LIANGQIU (S 34) and THIGH-FUTU (S 32).

Q. STROKE AND HEMIPLEGIA

Traditional Chinese medicine claims the effectiveness of acupuncture in the treatment of stroke patients. Since stroke is a

self-limiting disease it requires a properly designed statistical study to assess the effect of acupuncture. We have been reluctant to treat it in spite of frequent requests. Our very limited experience indicates a possible, transient improvement of ambulation of some stroke patients with short-term acupuncture treatment. Whether it is psychological or real awaits further investigation. However, there was no obvious improvement of the functions of the affected upper limb. Recently there have been some unconfirmed reports of improvement in the functions of stroke patients. If it is proven true, the cost of rehabilitation would be greatly reduced. It may be worthwhile to investigate such possibilities.

We used bilaterally JIANYU (LI 15), JIANLIAO (LI 14), GONGZHONG (Ex-UE), QUCHI (LI 11), WAIGUAN (T 5, TE 5, or SJ 5), HUANTIAO (G 30), FENGSHI (G 31), BIGUAN (S 31), LIANGQIU (S 34), YANGLINGQUAN (G 34), ZUSANLI (S 36), FONGLONG (S 40), XUANZHONG (G 39), and JIEXI (S 41). We also included the MOTOR AND SENSORY CORTICAL AREAS of the scalp. The SPEECH AREAS may be employed to treat aphasia as indicated.

R. PARAPLEGIA

Around 1976, *Time* magazine reported that the paralyzed Governor George Wallace had acupuncture treatment. It declared that the late Governor would be up and walking within six months. As is known, he never regained that ability. Soon after the appearance of the above-mentioned article, two paraplegics insisted that we provide them with acupuncture despite our dissuasion. We used the MOTOR AREAS of the scalp acupuncture schema, and SHENMEN, SYMPATHETIC, HIP, KNEE, and ANKLE acupoints on both ears. After two sessions of acupuncture treatment, their physical therapists reported that the patients had some increase of endurance for ambulation between parallel bars and some possible improvement of strength of the lower limbs. After an additional eight sessions of the treatment, there was no further improvement

in the patients' conditions, and we discontinued the treatment. Whether additional treatment would improve these patients' status and whether it is psychological or real needs further investigation.

S. ANXIETY, CHRONIC FATIGUE SYNDROME, AND GENERAL DEPRESSIVE DISORDERS

We have very limited experience with this group of disorders. Because of its sedative effect, acupuncture seems to offer an alternative and complementary modality. The acupoints used by us were YINGTANG (Ex-HN 3), TAIYANG (Ex-HN 5), QUCHI (LI 11), NEIGUAN (P 6), ZUSANLI (S 36) and SANYINJIAO (Sp 6).

T. BREECH PRESENTATION

The acupoint ZHIYIN (B 67) on the little toe is said to be remarkably effective for this condition. However, one must bear in mind that breech tends to correct itself. Further investigation with controlled methodology is required.

U. INFECTIOUS DISEASES

Cholera, dysentery, malaria, and many other infectious diseases are listed in traditional Chinese medical books as amenable to acupuncture. Zhang Zhongjing (142-220 A.D.) wrote in the preface to his renowned medical classic, *On Fevers*,

"My family clan used to be large, with more than two hundred members. In less than ten years, two thirds of them passed away. Seven out of ten died of fevers."

He suggested that, in the majority of cases with fevers, acupuncture offered quicker results than medicinal herbs. In the late 1920s, Souliè de Morant, the then French Consul in China, was very much impressed by the effectiveness of acupuncture in treating cholera during an epidemic over there. He learned and mastered the art of

acupuncture while there. He brought it back to France in 1929 and led its renaissance in France and the rest of Europe. We mentioned him in Chapter 2. Of courses most of the then common infectious diseases are rarities now and can be treated very effectively with antibiotics.. Various claims of curing the newly discovered viral infections, such as AIDS, need careful evaluation.

V. MECHANISMS OF GASTRIC SECRETION

Chey and his associates (Zhou L., Chey W.Y.: *Life Sci.* 334:2233-2238, 1984, and Jin H.O., Zhou I., Chang T.M., Chey W.Y.: *Clin Research* 40:167A, 1992) used acupuncture at the Pishu, Zusanli, and Neiguan Acupoints on dogs. Electroacupuncture significantly inhibited the secretion of gastric acid but significantly enhanced that of bicarbonate and sodium. This coincided with significant increases of plasma somatostatin, VIP, and endorphin, and a significant decrease of plasma gastrin. Naloxone completely reversed these changes. These effects of acupuncture were also blocked by a local anesthetic agent or an anticholinergic agent. They suggest that endorphins and a cholinergic nerve were involved in the mechanisms of gastric secretion of acid and hormones. They also demonstrated that electroacupuncture was more effective than acupuncture without electric stimulation. Their elegant experiments on dogs indeed provided us with a scientific basis for the use of acupuncture to treat gastric diseases.

W. SPASTIC COLON AND CROHN'S DISEASE

Our limited experience seemed to indicate that acupuncture relieved pain and regulated the bowel movements at least temporarily. Since, besides the pituitary gland, the gastrointestinal tract stores large quantities of endorphins, it is reasonable to expect its favorable response to acupuncture. The main acupoints are ZHONGWAN (Ren 12 or CV 12), GUANGYUAN (Ren 4 OR CV

4), SHOUSANLI (LI 10), and ZUSANLI (S 36), SHANGJUXU (S 37), and NEITING (S 44).

X. RENAL COLIC

Acupoints SHENSHU (B 23), ZHISHI (B 52), SANYINJIAO (Sp 6), and TAI XI (K 3) may be tried.

Y. POST-SURGICAL COMPLICATIONS

In Chapter 2 on the history of acupuncture in this country, we mentioned the much publicized elimination of James Reston's post-appendectomy complications by acupuncture in 1972. The following list shows the possible uses of acupuncture for relieving some of the post-surgical complications:

1. Headaches after lumbar spinal anaesthesia: Basically, YINGTANG (Ex-HN 3), TAIYANG (Ex-HN5), HEGU (LI 4), and TAICHONG (Liv 3). Additionally, BAIHUI (GV 20), TOUWEI (S 8), FENGCHI (G 20), and ZUSANLI (S 36).
2. Nausea and vomiting: NEIGUAN (P 6), ZUSANLI (S 36), and YINTANG (Ex-HN 3).
3. Abdominal distension and ileus: ZUSANLI (S 36).
4. Acute Retention of urine: YINLINGQUAN (Sp 9), SANYINJIAO (Sp 6), ZHONGJI (CV 3), and QUGU (CV 2). It is important not to use a long needle at the last two acupoints. Otherwise, puncturing a fully distended urinary bladder is a distinct possibility.

Z. POST-CHEMOTHERAPY AND/OR POST-RADIATION THERAPY NAUSEA AND VOMITING

Dundee, Yang, and McMillan reported in 1991 that the NEIGUAN (P 6) acupoint was an effective antiemetic for cancer chemotherapy (67). We would like to add the ZUSANLI (S 36) acupoint.

Recently we treated a 70-year-old female patient for her nausea, projectile vomiting, and diarrhea. She had the Whipple procedure for a pancreatic carcinoma, involving at least two-thirds of the organ. These symptoms became severe and frequent during the third week of daily radiation therapy. In addition, she had episodes of sharp abdominal pain of short durations from time to time. Antiemetics *per os* could not control her symptoms. Acupuncture at the NEIGUAN and ZUSANLI Acupoints did not reduce the symptoms either. Percutaneous electric stimulation with a skin probe at the CARDIA, STOMACH, SMALL INTESTINE, LARGE INTESTINE, LIVER, PANCREAS, SHENMEN, and SYMPATHETIC acupoints was given twice daily for two days. The symptoms were completely abated. This treatment was then continued on a once-daily basis for three days during radiation therapy. However, during the subsequent episodes of the complications, the results of the treatment was inconsistent.

CHAPTER 13

ELECTROACUPUNCTURE

Traditionally, acupuncture needles are twirled manually in order to achieve therapeutic effects. The application of electricity to the needles for stimulation has offered a regulatable means of achieving them.

A. THE HISTORICAL DEVELOPMENT

With the discovery of the Leyden jar in 1745 (accidentally by P. van Musschenbroek of the University of Leyden) and the advent of the voltaic pile in 1799 (by Alessandro Volta, 1745-1827), electricity became the high technology of the time (209). The medical profession was fascinated by its amazing potential. The voltaic pile was the first reliable source of electricity. Thus, electric stimulation of muscles became possible. In 1752, Benjamin Franklin treated a young woman for her convulsive fits (230). In 1759, John Wesley, the founder of Methodism, published a book, *The Desideratum: or, Electricity Made Plain and Useful* (230). In 1816, Dr. Joseph Berlioz, father of the famous composer Louis Hector Berlioz, recorded the use of electrified acupuncture to treat pain. Sarlandiere inserted acupuncture needles into the muscles and applied electric sparks to them. This caused the muscles to contract. He reported good results in the treatment of rheumatism and pain. He coined the word *electropuncture*. He published a book on electropuncture in 1825. Guillaume B. A. Duchenne (1806-1875), the father of neurology, started to experiment with electropuncture in 1833. His results must have fascinated him because he devoted the remaining forty-odd years

of his life to expanding the use of electricity for diagnosis and treatment. At one time, he allegedly applied so much electricity that a patient sustained fractures of cervical vertebrae (209). He also found that muscles could be stimulated without using acupuncture needles by simply applying the electrodes to the skin. He obtained results similar to acupuncture. He eventually developed skin electrodes (without piercing the skin) for electric stimulation (209, 230). He called his procedure "localized electrization." It formed the basic concept of modern electrotherapy. His contemporary, R. Remak of Germany, discovered that the most easily stimulated points on the skin were points where nerves enter into muscles. These points are now known as motor points of muscles. (95). The majority of acupoints coincide with motor points. For further discussion on this subject please see Chapter 9.

Because of the pain caused by large needles, the inability to fine tune the current with the then available crude electric instruments, and the controversial nature of acupuncture in Europe at the time, the use of electropuncture waned and became almost forgotten. However, there were occasional reports about its clinical usage.

In 1921, E. A. Goulden reported in the *British Medical Journal* (98) on the use of electroacupuncture in the treatment of sciatica. He applied a positive electrode to the back of the knee and moved the negative electrode along the skin of the buttocks to determine the most sensitive points. This was probably the first instance of an acupoint being detected because of its electric properties. He then needled the point and connected direct current to the needles. He reported favorable results with his procedure.

There seems to be a correlation between skin conduction and painful areas. In 1949, T. E. Van Metre (347) reported that, in painful sinusitis, he found high skin conductance in the painful areas which became lower when the pain subsided. In 1949 and 1958, I. M. Korr and co-workers reported (155, 156) that the

referred pain areas corresponding to a diseased internal organ had a high skin conductance and shared segmental innervation with the diseased organ. In recent years psychologists have been making use of this high skin conductance in the technique of galvanic skin responses.

In 1953, Zhu Longyu [朱龙玉] initiated electroacupuncture in China (390). He used 0.1 to 0.5 volts of direct current for one half to one hour on animals. He often found that animals fall asleep during the application of the electric stimulation. One day, he tried electric stimulation with acupuncture for five minutes on himself at 6:30 p.m. and went to sleep at 8 p.m. He did not wake up until 6 a.m. the next morning. He found that he slept more soundly than usual. He had no hangover, and was very alert afterwards. He considered it a type of physical therapy. He called it "acupuncture electrotherapy." Later, he changed the term to "electroacupuncture." In Chapter 9 we described a similar relaxing effect of acupuncture on our patients.

In 1955, R. Voll of Germany demonstrated an apparatus for electroacupuncture. He detected the acupoints by measuring the electric conductance of the acupoints with a microammeter. The treatment was given with either pulsating direct current or alternating current as generated by his device. Subsequently, he incorporated homeopathic herbal preparations in his diagnosis and treatment techniques. (361)

B. THE BASIC PRINCIPLES OF ELECTROACUPUNCTURE DEVICES

The basic device consists of an electric power source and an oscillating unit to generate electric impulses of different waveforms and frequencies, with adjustable intensity of the electrical output. The power source for the device is usually supplied by batteries with potentials in the range of three to nine volts. The frequency range of the electric current is usually from 2 to 300 Hz. It is

important to have a proper waveform of the stimulus, preferably of the faradic or biphasic type. In 1974 we did some very limited experiments with a pulsed square-wave direct current device. Quickly we found corrosion of the acupuncture needles. When direct current is used in electric stimulation with acupuncture needles or skin electrodes, it is actually a form of iontophoresis. Most electroacupuncture devices can supply electric impulses of a continuous range from low to high frequencies. They may supply a continuous train of impulses, an intermittent train of impulses, or a combination of low and high frequencies in sequence. The clinical importance of the frequency and intensity of the stimuli is discussed in Chapter 4.

The circuit diagrams on the following pages are some of basic designs commonly used in the electric stimulators made in China. (Figures 13.1 through 13.4)

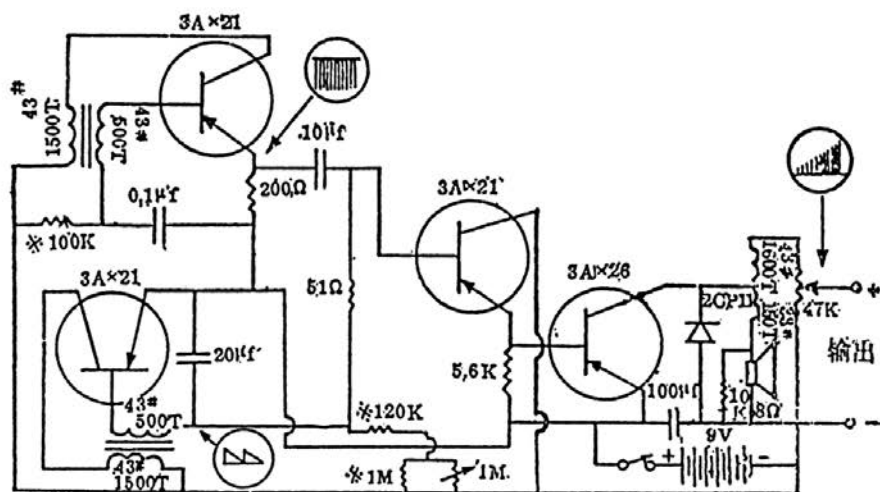


Figure 13.1

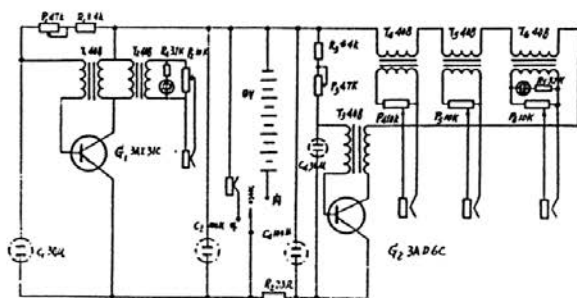
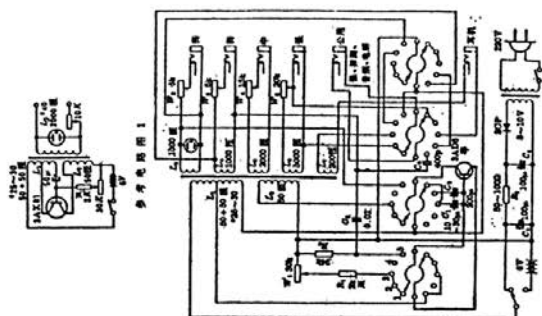
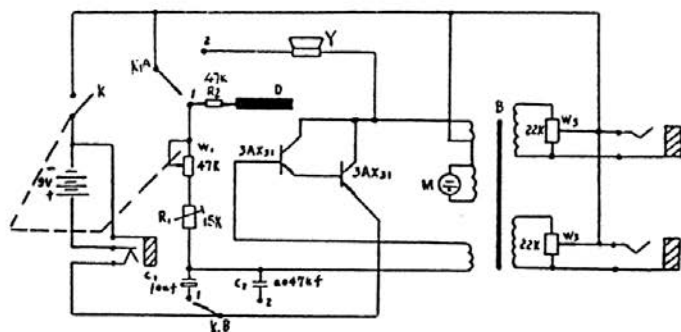


Figure 13.3

C. TENS (TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION) DEVICES

In 1975, TENS units appeared on the market for therapeutic uses of pain. Figure 13.5 is a copy of the instructional diagrams

Recommended Procedures for T.E.N.S. Electrode Placement

HOW TO USE THIS CHART

Figures 1 and 2 illustrate the approximate placement of the upper extremity electrodes on one hand and half of each figure. Since the "R" afferent fibers — stimulation of which is the primary goal of T.E.N.S. application — are sensitive afferent fibers, the electrodes may then be connected in either pair of pain treatment as well as pain treatment.

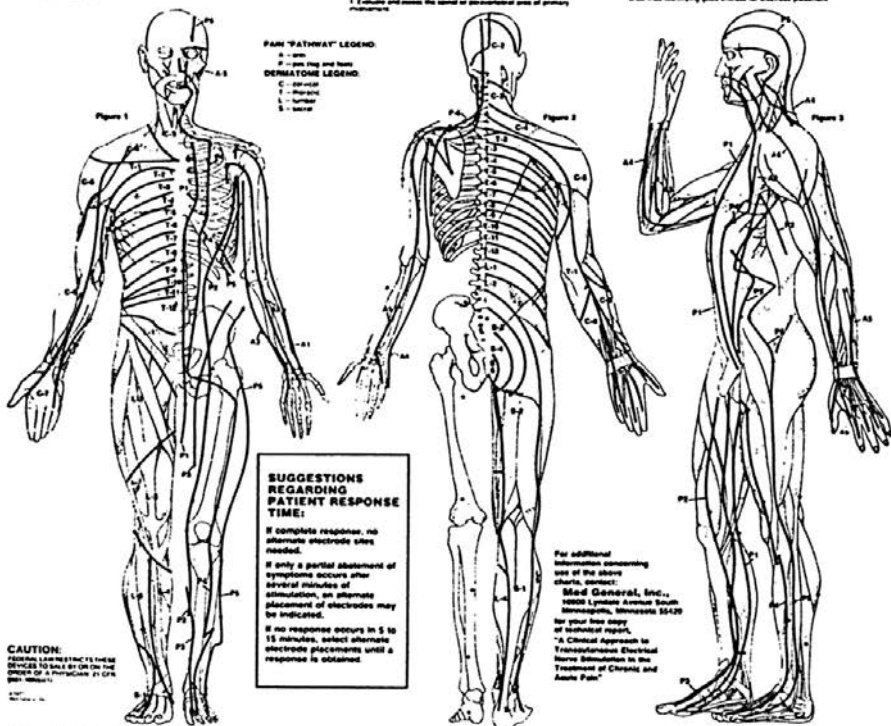
The conventional half of Figures 1 and 2 illustrates lower extremity with a separate upper and each illustrated separately. Partnerships starting with the upper extremity are indicated through AB. Those of the lower extremity through PQ. These pairings offer a methodology for testing pain syndromes which involve multiple distributions or areas simultaneously by using the minimal application. For example, use of all 4 Sample sites 2 or more of the distributed pathways leads to the use of dual electrode placement on the pathway or localized area. For generalization of stimulus. Stimulus placement of electrodes in lower limbs is generally indicated, after obtaining a dual channel (1 & 2).

For more information on the use of this chart, contact: Med General, Inc., 16800 Lyndon Avenue South, Minneapolis, Minnesota 55425.

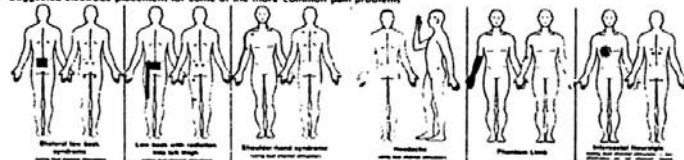
Preprogrammed Alternative Methods for Proper Electrode Site Selection

- All TENS TENS 1 — For wrist localized pain**
- Place the electrodes at the level of pain.
 - Forward the area of pain with the electrodes.
- All TENS TENS 2 — For pain with the primary component on the lateral or anterior trunk — or on an extremity**
- Place the electrodes on the primary trigger point within the distribution of sensation.
 - Place two electrodes on the opposite side of spinal segment that corresponds to the trigger point.
 - Use localized electrodes may be placed on any other point within same component or other primary trigger point is located.
 - Evaluate dual-channel stimulation, place two electrodes at spinal segment and stimulate at pain site.
- All TENS TENS 3 — For pain with primary component localized centrally along the spinal column**
- Place and remove the lateral or distalateral area of primary component.

- Place two electrodes on the area as located.
 - Place second electrode on the region just below the distribution area corresponding to the spinal segment operated at Step 1. Make a trigger point or localized corner second electrode in the distribution area.
 - Use two trigger points on localized, use a dual channel TENS 3.
 - Use the pathway which has the most pronounced sensation.
- All TENS TENS 4 — For pain with the primary component on the lateral or anterior trunk — or on an extremity**
- Place two electrodes on the primary trigger point on the pathway.
 - Place two electrodes on the opposite side of spinal segment that corresponds to the trigger point. Place second electrode in the most distal trigger point along the same pathway.
 - Use two trigger points on the primary trigger point on the pathway.
 - Place two electrodes on the opposite side of spinal segment that corresponds to the trigger point. Place second electrode in the most distal trigger point along the same pathway.
 - Use two trigger points on the primary trigger point on the pathway.
 - Place two electrodes on the opposite side of spinal segment that corresponds to the trigger point. Place second electrode in the most distal trigger point along the same pathway.



Suggested electrode placement for some of the more common pain problems



From Medgeneral — the most complete selection of T.E.N.S. pain control products and accessories — including Clinical Neurostimulators, Neurostimulators I and II, Microstimulators I and II and Mastopier.

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Figure 13.5

of its usage. The drawings are reminiscent of the acupuncture charts from China. The major difference from acupuncture is the labelling of the lines and points. Basically, TENS is the same procedure as electrotherapy which has been one of the standard modalities of physical therapy since the 1930s. The difference is that TENS is powered with batteries and administered by the patient while electrotherapy is usually powered with regular electric current and administered by a physical therapist. There is little doubt that TENS is an effective therapeutic device when it is used in suitable cases. A detailed discussion of its usage is beyond the scope.

D. THE RYODORAKU THERAPY [良导络]

This procedure was designed by Yoshio Nakatani of Japan (246) taking advantage of the skin conductance of six acupoints of each hand and another six of each foot. Seven of them coincide with the *Yuan Acupoint*, while the other five are one point distal to the corresponding *Yuan Acupoints*. Those on the hand are around the wrist. He called them H₁ (Taiyuan, L 9), H₂ (Daling, P 7), H₃ (Shenmen, H₇), H₄ (Yanggu, SI₅), H₅ (Yangchi, T 4), and H₆ (Yangxi, LI 5). He called those on the foot F₁ (Taibai, Sp 3), F₂ (Taichong, Liv 3), F₃ (Zhaohai, K 6), F₄ (Shugu, B 65), F₅ (Qiuxu, G 40), and F₆ (Xiangu, S 43). He used them as reference acupoints. He constructed a table of anticipated skin conductance values for each of these acupoints in microamperes. He then measured the conductance of all these acupoints on a patient and compared the patient's values with those in his reference table. If the patient's value for a particular acupoint was higher than his reference value, he would consider the *Jing* represented by that acupoint in excess. If the patient's value was lower than the reference one, the *Jing* was considered to be deficient. Acupuncture with or without electric stimulation was then given to purge or sedate the excess *Jing*, or to strengthen or tonify the deficient one.

CHAPTER 14

ACUPUNCTURE-LIKE THERAPEUTIC MODALITIES

Adequate stimulation of acupoints by local injection, massage, or transcutaneous electrical stimulation often replicates the therapeutic goal of acupuncture.

A. PAIN AND TRIGGER POINTS

In the seventh century, Sun Simiao (590-682) [孙思邈] was the first to associate the tender points with their therapeutic importance. He named them *Ashi Xue* [阿是穴] (or Ouch Points). Their plausible equivalent in western medicine are the trigger points.

According to Wallnoefer and Rottauscher (363), Pehr Henrik Ling (1776-1839) of Sweden observed a relationship between the tender points and visceral diseases in 1834. Two American physician-brothers, W. Griffin and D. Griffin, published their observations of a similar nature in 1843 (101). A. Weihe (1840-1888) of Stuttgart in 1883 reported his discovery of 195 tender loci in relation to visceral diseases (363). Ferreyrolles and de Morant in 1929 reported an existence of a correspondence between 16 of Weihe's points and the Chinese acupuncture points (81). de la Fuye found from 95 to 132 of Weihe's points similar to Chinese acupuncture points (88). In March 1973, we reported about this similarity at the Annual Scientific Meeting of the Eastern Section of American Congress of Rehabilitation Medicine in Georgetown, Washington, D.C. We found that about 80% of the acupoints coincided with trigger points (187). In 1977, Melzack, Stillwell and Fox (237) demonstrated "a remarkable high degree (71%) of

correspondence" between trigger points and acupuncture points. They commented that "this close correlation suggests that trigger points and acupuncture points for pain, though discovered independently and labelled differently, represent the same phenomenon and can be explained in terms of the underlying neural mechanism."

It is essential to obtain the *deqi* responses (i.e., the needling sensations) at the acupoint while the needle is manipulated, so as to attain a satisfactory therapeutic result. These sensations can only be demonstrable if the needle is inserted at the proper acupoint. The *deqi* responses are described as soreness, numbness, warmth, heaviness, or a needle-distending feeling. Wang and associates (364) found that Group II afferent fibers conveyed a numb feeling, Group III fibers a heavy and distending feeling, and Group IV fibers a sore feeling.

Over 2,300 years ago, *Huangdi Neijing* observed that an affliction of a viscus and its associated meridian could exhibit pain in some distant part of the body (For details, please see Chapter 7). In the 1890s, Henry Head, after extensive studies of his patients' clinical conditions, reported that a diseased organ which might have a dull aching would provoke a sharp or stabbing pain at a distant part of the body with marked local tenderness (118-120). Figure 14.1 on the next page is a composite copy of Head's mapping of the hyperesthetic zones. Anginal pain starts at the chest, and radiates along the medial aspects of the arm and forearm to the little finger. The nerves innervating the heart apparently share the same spinal segments as those supplying the medial aspects of the arm and forearm, essentially C 8 and D 1 (Fig. 14.2). This coincides more or less with the course of the Heart Meridian. Patients with diseases of the diaphragm and liver may sometimes have pain at the top of the right shoulder. The nerves to the diaphragm and the liver share the C 4 segment of the spinal cord with those to the top of the shoulder (Fig. 14.3). The Gall Bladder Meridian traverses along the top of the shoulder.

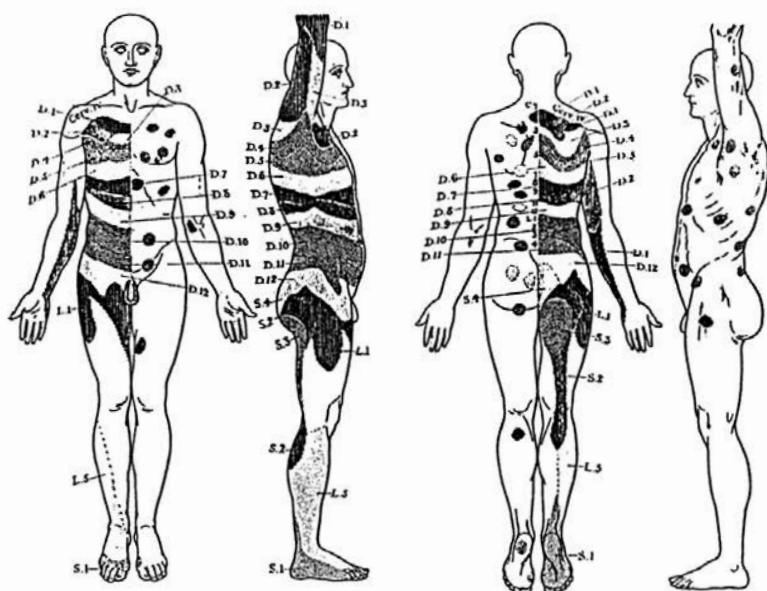


Figure 14.1

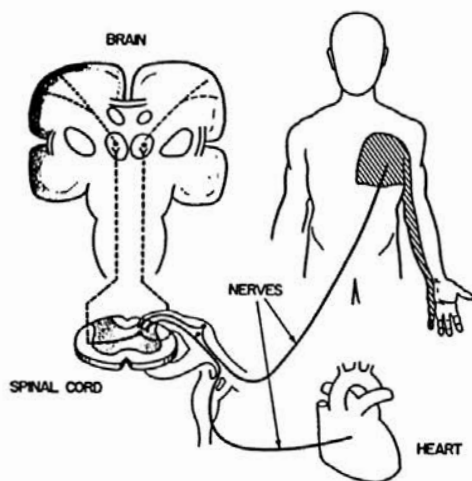


Figure 14.2

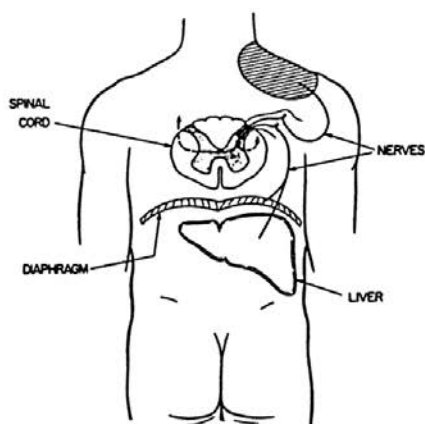


Figure 14.3

We suspect this phenomenon is ascribable at least in part to an involvement of the autonomic nervous system in order to explain the possible functional existence of the *Jings* or the Meridians. It is altogether plausible that the stimuli of acupuncture share the same pathways as the referred pain but in the reverse direction, with the internal organs at one end and the skin and its underlying tissue at the other (Fig. 14.4). Visceral disturbances set up referred pain with maximal tender areas of the skin and its underlying tissues while acupuncture at such hyperesthetic loci (i.e., acupoints) in a counter-current fashion attenuate the referred pain and, henceforth, the visceral disturbances.

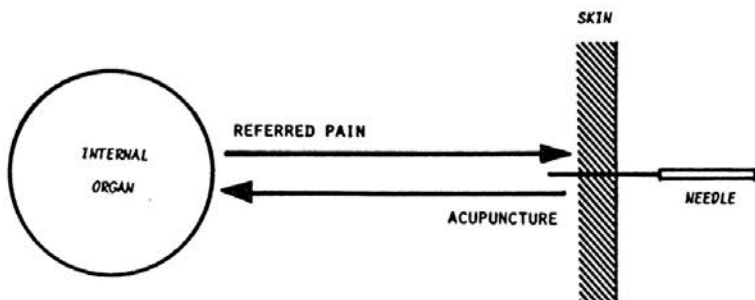


Figure 14.4

B. ACUPUNCTURE AND TRIGGER POINT THERAPY

Bristowe and Hutchinson remarked in their 1876 textbook, *A Treatise of the Theory and Practice of Medicine* (29), of the injection of narcotics, "especially morphia and atropia, ... at the seat of pain" for the treatment of pain in neuralgia. Bartholow commented in his 1880 textbook, *A Treatise on the Practice of Medicine* (10), that he

"has witnessed remarkable cures of chronic cases by the deep injection of five to ten minims of chloroform. ... The injection should be practiced at those points where the pain has been severe."

In the 1880s, W. Huneke of Duesseldorf accidentally discovered that an intravenous or a paravenous injection of Novocain® would eliminate migraine headaches. According to Lu and Needham (215), around 1929 J. J. Forestier of France lectured about injecting the tender areas with local anesthetics, and Schoeler used Huneke's technique to inject Weihe's points.

Travell and her associates in 1947 (343) demonstrated that injections of procaine or physiologic saline, or "dry needling" were all effective for the alleviation of pain at trigger areas. At that time, an oriental visitor suggested that she was doing acupuncture (342). In her 1983 monumental book with David Simon, they stated that "precise dry needling of TP's without injecting any solution, approaches, but does not equal, the therapeutic effectiveness of injecting procaine into the TP's" (344). In 1955, one of us (SJL) learned from her the technique and practiced it with grateful therapeutic results before he knew anything about acupuncture.

In 1980, Frost and associates in Denmark (86) reported their double blind studies of mepivacaine injection versus saline injection for myofascial pain. They demonstrated that physiologic saline injection was statistically more effective than mepivacaine injection. They attributed the therapeutic effectiveness to an

irritation by the needling. They concluded, "There is much to suggest that injection therapy of myofascial pain is one form of acupuncture." Gunn also pointed out that when acupuncture needles are inserted at the local tender points in musculoskeletal pain, acupuncture is nearly indistinguishable from trigger point therapy (36, 104).

Careful palpation of the trigger points frequently demonstrates thickening of the underlying tissues, in the form of bands or nodules (enthesopathic), hence the term, myofibrositic nodules. In the 1930s and 1940s, before the term trigger point was introduced from Europe to this country, those painful nodules were called panniculitis (inflammation of panniculus adiposus) and regarded as the cause of pain. They were frequent subjects of surgical excision particularly for treating low back pain, before the intervertebral discs were implicated.

An electric point-finder is sometimes utilized to locate acupoints, on the basis that they tend to have a high electric conductance. However, it often produces false-positives due to a number of factors entirely unrelated to the patient's disease, e.g., the pressure of the point finder applied to the skin, the ambient humidity, the sweat and temperature of the skin, and other local pseudomotor activities. All such incidental factors can alter the skin's resistance, thus leading to false findings. Figure 14.5 on the next page illustrates a point finder made in China around 1972.

Adequate stimulation of local points can be accomplished by manual twirling, by electrical stimulation, or by heating the needle with herbs (moxibustion).

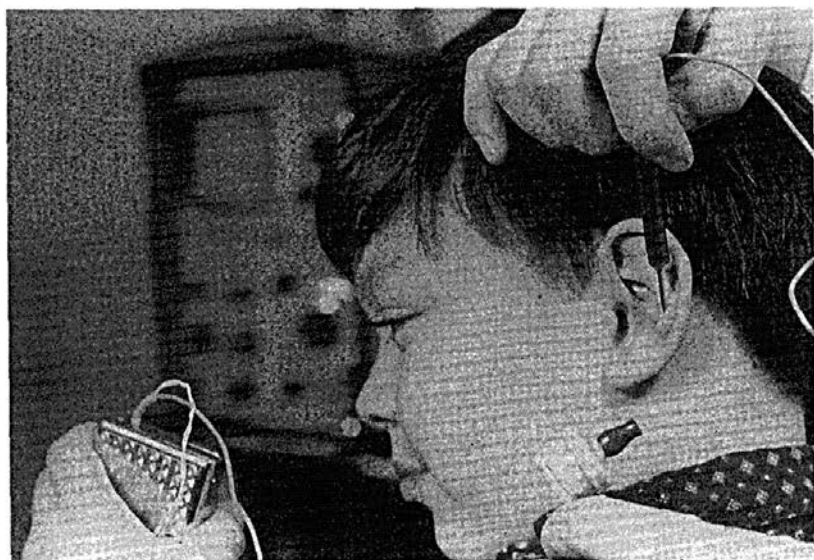


Figure 14.5

C. SHIATSU OR ACUPOINT MASSAGE

Shiatsu is the Japanese word for "finger pressure." It means massage at the acupoints or tender loci for treatment of diseases. *Neijing* alluded to the therapeutic use of massage. In China, massage includes bone-setting and manipulation. When the Imperial Medical College was established in the sixth century A.D., the Massage Department had a much bigger teaching staff than the Acupuncture Department. When used judiciously, shiatsu is effective in treating minor illnesses.

D. ACUPRESSURE

The term, acupressure, is currently used to imply pressing or massaging at the acupoints. When this term first appeared in the 1823 Index-Catalog of the Library of the Surgeon General's Office, it meant to apply pressure to stop bleeding (125). There was a fairly large listing of reports on this technique until the early 1900s.

Elsewhere in this book, we mentioned that the Chinese established massage by imperial decree as a therapeutic modality in the sixth century A.D. For those health practitioners who are not trained or legally not permitted to use invasive procedures, they may wish to try massage at acupoints. The results can be quite gratifying in some cases. Being physiatrists, we (MHML and SJL) have attempted to teach such techniques to our physical therapists.

E. REFLEXOLOGY

This is another new form of massage. It calls for mainly massaging the sole of the foot. The sole of the foot is divided into areas or zones, each of which represents a viscus or a part of the body. Massaging a particular area of the sole is said to affect a cure of the disease of that viscus or that part of the body.

CHAPTER 15

POSSIBLE RISKS AND COMPLICATIONS WITH ACUPUNCTURE TREATMENT

In any of our undertakings, there is always the possibility that things may go wrong unforeseeably to any of us at any time. This is particularly true in the practice of medicine because there are always slight variations or anomalies of one body from another. Potentially, anything is risky even in one's own home. Basically acupuncture is quite safe as compared with many other medical procedures, such as sternal puncture.

In 1974, one case of pneumothorax and one case of hemothorax with complications of pneumonia and wound infection following acupuncture were reported in the Washington, D. C. area (33, 328). Such complications can occur whenever a needle is introduced into areas such as the upper trapezius muscle or supraspinatus muscle. For example, in 1987 Reinstein and associates reported a case of pneumothorax as a complication of needle electromyography (305).

Hematomata can easily be induced by any invasive procedure especially in patients who are on anticoagulants, and can be quite annoying. Acupuncture is no exception. For example, Smith et al. reported in 1986 (326) such a case of deep hemorrhage resulting in anterior compartment syndrome after acupuncture treatment. Thus, routinely we are rather reluctant to offer acupuncture to this type of patient.

Cases of otitis externa (135) and of perichondritis or chondritis of the pinna were reported (58, 366) as a result of auricular acupuncture which entailed the insertion of a small metal stud-like needle in the pinna.

A case of subacute bacterial endocarditis or possible septicemia was reported following acupuncture with a small metal stud inserted into the pinna of the patient's ear (41, 42, 174). Staphylococcal septicemia was reported by Izatt and Fairman in 1977 (131).

Kent, Brondum, and their associates (149) reported their elegant detective work of one of the largest, if not the largest, outbreaks of hepatitis B out of one acupuncturist's office among the patients treated from January 1 through November 30, 1984. It was probably the first time an epidemic of hepatitis was so definitively diagnosed not by relying only on the clinical investigation but also by serologic studies of the patient population. An infection rate of 111 per thousand (thirty five cases of hepatitis B out of 316 patients tested) was determined by detecting the presence of HBsAg and/or anti-HBc IgM in the patients' sera. (In a general population the positive rate is usually from 1 to 5 per thousand). There was sufficient evidence to indicate that contaminated needles were repeatedly used from one patient to the next, and to implicate that the practitioner did not seem to understand or to observe the absolute necessity of sterile techniques in administering the therapy. There was also a distinct possibility that the practitioner might not even recognize the illness since the epidemic appeared to have started by treating an acute hepatitis patient with obvious jaundice. The next nine to ten patients developed clinical hepatitis with jaundice. The Kent-Brondum epidemic was not an isolated case. For example, a similar case was reported by Boxall in 1977 (26). It was also found by Stryker and associates in 1986 (333) among six patients treated with needles insufficiently sterilized by using benzalkonium chloride solution. No known serologic investigation was conducted for that epidemic. It is prudent for practitioners to take strict precautions in managing acute hepatitis patients or post-hepatitis patients (167). Among the patients of the Kent-Brondum epidemic, three individuals were said to be avowed homosexuals. No serologic investigation of HIV or AIDS viral infection was conducted of the blood samples (Brondum--personal communica-

tion). The transmission of AIDS and other infectious diseases is an ever-present risk when contaminated needles are used.

In our twenty odd years clinical practice we encountered only three patients who are allergic to nickel. They were all females and had experienced allergic dermatitis from wearing costume jewelry earrings of which the posts were usually made of stainless steel. Acupuncture needles are usually made of stainless steel in which nickel is an important ingredient. We saw the first such patient in 1974. We have refrained from using acupuncture in such patients. Fisher (82) reported such a case of allergic dermatitis from acupuncture needles and cited two other cases of Romaguera and Grimalt's. Incidentally, we routinely question our patients concerning such allergies as a part of the history taking.

Traditional Japanese acupuncture may entail "burying" thin gold needles in the soft tissues for treating chronic pain conditions. These needles may migrate into the spinal canal causing serious injuries to the spinal cord and/or spinal nerves. (129) The "buried needle" technique is peculiar to the Japanese practice.

Pregnancy is not an absolute contraindication. Certain acupoints should be avoided, such as the *Hegu* Acupoint (LI 4) which tends to cause dilatation of the cervix and initiate contraction of the uterus. Three young pregnant women came separately at different times to us for different chronic pain problems. We declined to render any acupuncture treatment. All of them later had miscarriages. If we had inserted a needle in any of them even not at a "prohibited" acupoint, we could easily be blamed as the cause of their misfortune. On the other hand, we treated a young alcoholic pregnant woman for detoxification successfully. She gave birth to a beautiful, healthy baby at full-term. She is no longer an alcoholic since the acupuncture treatment over eleven years ago. We described her case in Chapter 12.

Patients with pacemakers most probably should not be treated with electro-acupuncture particularly in the upper half of the body so as to avoid possible electric interference. (201)

Vasovagal episodes are not uncommon, particularly since the American public is so fearful of "needles." Occasionally they can be quite severe. As a preventive measure, it is well advised to have the patient in a recumbent position for acupuncture treatment if this is suspected. Of course, such incidents are not confined to acupuncture since it happens in any circumstances where a needle is inserted into a susceptible person. We commented on this in Chapter 9.

CHAPTER 16

THE LEGAL AND INSURANCE ASPECTS OF ACUPUNCTURE PRACTICE IN THE UNITED STATES

The legality of the practice of acupuncture in this country varies from state to state. According to Jane Bennett Clark (49), "About half the states register or license acupuncturists or require them to practice under medical supervision." For example, in Nevada, all practitioners of acupuncture must be licensed by their State Board of Oriental Medicine. In New York, physician-acupuncturists are licensed differently from non-physician-acupuncturists. In Connecticut, only physicians can practice acupuncture legally. A non-physician may practice acupuncture only under the personal supervision of a licensed physician, as his/her assistant. That is, the supervising physician is responsible for the conduct of the non-physician. Some states are said to be rather lax in monitoring acupuncture practice, allegedly due to a shortage of inspectors. There was a known instance that an impostor dispensed acupuncture illegally without a license or without any supervision. A local newspaper wrote up the person's multiple phantom qualifications in acupuncture and oriental medicine. At the same time, the impostor pointed to the newspaper article as solid supporting evidence for his qualifications. A certain lay group even hired him to teach acupuncture. This was discovered by an investigative news reporter.

Some of the acupuncture schools in this country are registered as trade schools with their state authorities of vocational education. This is an indication that their training is at the level of a tradesman and not that of a physician. These graduates are not given an academic diploma, a certificate, or a degree by a

university. So far as we know, few acupuncture schools in this country are a part of a university degree or certificate curriculum, or actually chartered by a state higher education authority. However, for example, one of the very few, the American College of Acupuncture, Inc. was granted a charter in 1975 by the Board of Regents of the State Education Department of the State of New York as a higher education institution. The University of Alberta in Edmonton, Canada established an academic certificate program on acupuncture in 1992.

Medicare and Medicaid usually do not reimburse the expense of acupuncture treatments. In 1992, upon the U. S. Congress's decree, the National Institutes of Health set up an *Ad Hoc* Panel on Unconventional Medical Practices "to screen and select the procedures for investigation and to recommend a research program to fully test promising unconventional medical practices." The Office of Alternative Medicine was established at the National Institutes of Health in 1993. We commented on this in Chapter 2.

The major health insurers, such as Blue Cross and Blue Shield, have held steadfastly to deny reimbursement for acupuncture treatments except in a few states. Others, such as Aetna and Metropolitan Life insurance companies have started reimbursement in some states. The same insurance company may have riders to cover a certain segment of their corporate policyholders but not other segments. Because of the complexities of insurance policies, policyholders should consult their insurance agents to ascertain the coverage. According to Ms. Clark, "Insurers are 'much more willing to pay than they used to be' when acupuncture is recommended by a doctor after conventional methods fail" (49).

We anticipate major changes due to the Clinton administration's new healthcare reform plan. A detailed discussion at this point in time is premature.

CHAPTER 17

VETERINARY ACUPUNCTURE

The Chinese have been using acupuncture to treat diseases of farm animals, such as horses, cattle, pigs, goats, camels, sheep, chickens, and ducks. In 1975, we assisted Dr. Nguyen Van Nghi of Marseilles in translating veterinary acupuncture in a Chinese textbook into French. (192, 193, 206) Figure 17.1 shows the cover of the issue of Dr. Van Nghi's acupuncture journal and the first page of the article. All the acupoints and procedures are related to farm animals. In that textbook and in other Chinese veterinary books, we did not find any references to small animals, such as dogs and cats.



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III^e CONGRÈS
DE L'UNION SCIENTIFIQUE MONDIALE
DES MÉDECINS ACUPUNCTEURS
ET DES SOCIÉTÉS D'ACUPUNCTURE
À L'OCCASION DU 25^e ANNIVERSAIRE
DE LA SOCIÉTÉ ALLEMANDE D'ACUPUNCTURE

BIENVENUE
AUX
CONGRESSISTES
BERLIN
du 26 au 30 Mai 1976

mai 1976
31

Dr. Sung L. Ulin
Membre Honoraire de l'Association Française des
Médecins Chinois d'Acupuncture Médicale

ACUPUNCTURE VÉTÉRINAIRE

avec l'autorisation de son directeur de Dr. SUNG L. ULIN, il se dévoue
au perfectionnement et au développement de l'acupuncture dans le
domaine animal, dans l'espoir qu'il sera apprécié de tous les praticiens
chinois et étrangers de l'acupuncture.

A. V. N.

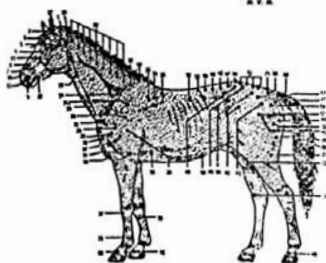


Figure 17.1

Our first experience was treating a race horse in 1975. She had arthritis of the left wrist. Her owner asked us to try acupuncture since their veterinarian had failed to improve her limping. Before she had acupuncture, her limping was made much worse when the rider was heavy. We were successful at eliminating her limping even with a heavy rider. However, her arthritis was so advanced that acupuncture could not improve her condition enough to enter a race (Fig. 17.2).

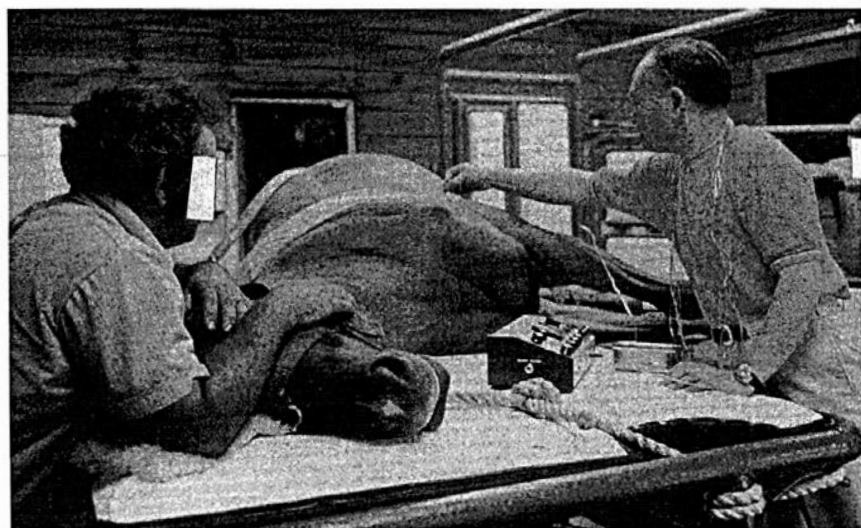


Figure 17.2

In October 1977, one of our patients asked us if we could help her grandchildren's nine year-old Pekinese, named Sniffles. He had paralysis of both hind legs and incontinence of urine for about ten days. Figure 17.3 on the next page shows Sniffles, with assistance, barely standing up before acupuncture treatment. X-ray studies revealed narrowing of the intervertebral space between D 12 and L 1. Their veterinarian diagnosed it as hip dysplasia or intervertebral disk syndrome. He recommended expensive surgery. However, its success rate was said to be very low.

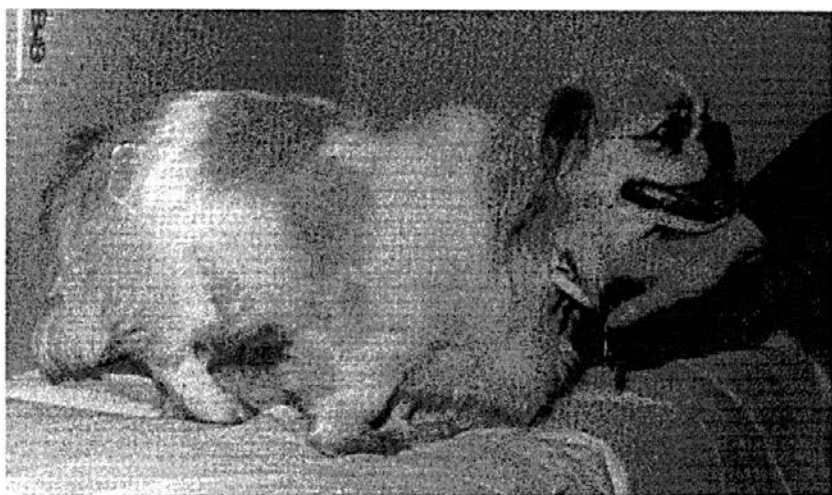


Figure 17.3

In desperation, our patient sought our assistance. We searched the Chinese literature and could not find any reference to small animals or pets. As a trial, we adapted points from those found in large animals. To our total surprise, immediately after the very first treatment, Sniffles jumped off the treatment table. He ran out of the room perfectly normally as if nothing had ever happened to him. The next week, the family brought him in "just for a booster." After another week, the family reported that Sniffles dug up their neighbor's garden. Figure 17.4 on the next page shows Sniffles on his hind legs begging two weeks after the second acupuncture treatment. In June 1980, Sniffles had a mild recurrence. One session of treatment again eliminated his palsy. About four years later, the family referred to us a dachshund with a similar condition. At that time, they reported that Sniffles had no recurrence of his condition, and was living and well. This dachshund was also relieved of his palsy with one session of acupuncture treatment. So far we know, it had no recurrence.

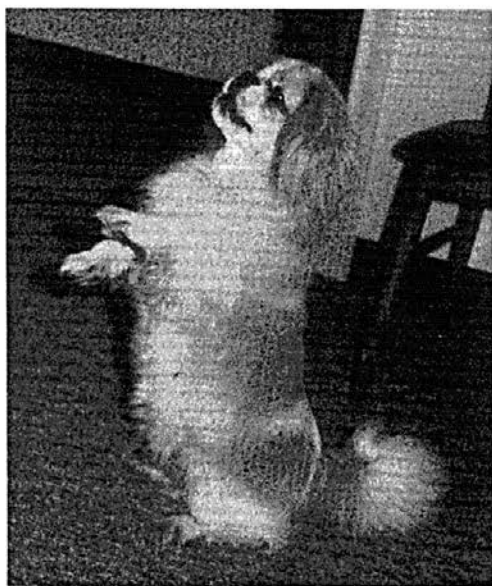


Figure 17.4

In November 1977, we treated a nine-year-old German shepherd, Mugsie, for arthritis of the right hip. She had been limping for about three months. Applying pressure on the sacrum would make her right hind leg buckle. When she was a puppy, her hind quarters were injured by a car. X-rays demonstrated degenerative changes in the right hip. After two sessions of acupuncture treatment, her limping completely subsided. She could bear pressure on the sacrum. After another three sessions of treatment, she was out in the woods chasing a deer.

The fifth dog was an eleven-year-old seeing-eye German shepherd, Millie. Arthritis of her right shoulder and left hip made her too disabled to carry out her routine duties. X-rays demonstrated severe degenerative changes in those joints. We treated her in July 1978. The evening after the first acupuncture treatment, Millie jumped up, put her front paws on her mistress's shoulders, and licked her. She had two more sessions of treatment.

Her walking became almost normal. About one year later, Millie died of natural causes.

In September 1978, a veterinarian friend brought in a dachshund, Heidi. She had had paraparesis of both hind legs for about two week's duration. She had no incontinence of urine. One treatment with acupuncture eliminated the palsy completely.

In June 1981, we treated Dusty, an eight-year-old dachshund. He had had hip dysplasia with palsy of both hind legs for about ten days. One treatment alleviated his palsy and restored his walking to normal. On March 24, 1985, We received a thank-you letter and a picture of Dusty walking normally, from his mistress. She said, "you did acupuncture on him, he couldn't walk. That was 4 years ago, he is still walking and doing well."

In August 1983, we treated Murphy, a seven-year-old Labrador retriever. He had complete paralysis of both legs for almost one month. Three sessions of acupuncture treatment failed to improve his condition at all. The treatment was discontinued because we could not foresee any benefit from additional treatments.

In March 1984, we treated Jupiter, a nine-year-old Labrador retriever. He had complete paralysis of both hind legs for about two months. In addition, he had a large decubitus ulcer on the left hip/gluteal area. After the first treatment, he managed to stand on four legs for a short period of time for the first time in two months. A week later, his owner phoned to report that he passed away from a heart attack.

In May 1984 we treated Cody, a beagle with arthritis of the knees of the forelegs of about four week's duration. Three treatment did not appreciably help him.

In July 1985, we treated Winnie, a German shepherd. He had complete paralysis of both hind legs for about three weeks. Two sessions of acupuncture treatment failed to alleviate his condition.

In late November 1985, we started to treat Jeb, a Dalmatian. He had a skin disease of the right hind leg, mostly around the knee, for about one year. The skin was denuded. Conventional veterinary medications, including steroids, did not offer him any help at all. After six weekly sessions of acupuncture treatment, by January 1986 the skin lesions completely healed. The hair almost completely grew back to cover the previously affected areas. Figure 17.5 shows the skin lesion around the right knee area before acupuncture treatment.



Figure 17.5

In January 1986, we treated Christi, a ten-year-old vizsla, for arthritis of both hips. Her arthritis was so severe that she could not jump onto her mistress's bed any more. After two sessions of acupuncture treatment, she regained her ability to jump onto the bed without any difficulty.

For treating hip dysplasia or intervertebral disc syndrome, we used electroacupuncture at the **PARAVERTEBRAL ACUPOINTS**.

For the skin disease case, we used the loci corresponding to **QUCHI (LI 11)**, **XUEHAI (Sp 10)**, **ZUSANLI (St 36)** and **LOCAL** acupoints as in human acupuncture.

Obviously, our experience is very limited, to only one horse and thirteen dogs. It, though circumstantial and anecdotal, does indicate that early diagnosis and early treatment are essential in veterinary medicine just as in human medicine. For hip dysplasia or intervertebral disc syndrome, acupuncture can be quite effective if the dog is treated within two weeks of onset, though preferably within the first week and half. In these cases, small dogs tend to be more amenable to acupuncture than the large dogs. The only case of skin condition was surprisingly encouraging indeed. We would like to encourage our readers, particularly veterinarians, to try this complementary healing art.

Figure 17.6 shows a pouch of veterinarian acupuncture needles which we acquired in Beijing in 1972.

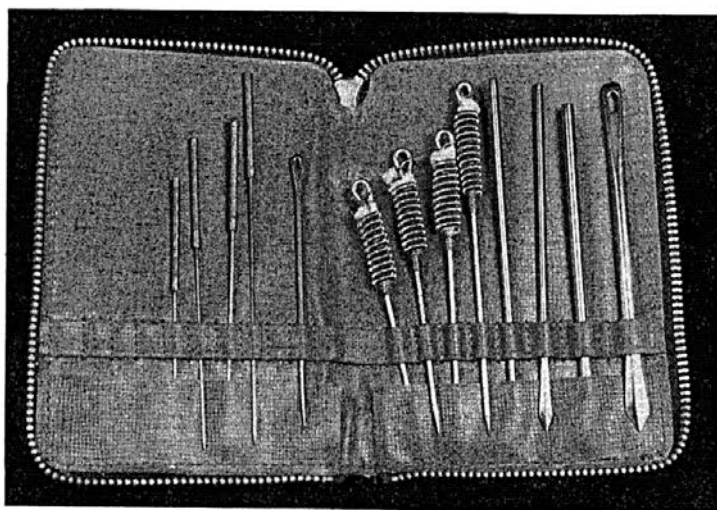


Figure 17.6

APPENDIX I
SMOKING SURVEY

Date: ___ / ___ / ___ Name: _____

Date of Birth: ___ / ___ / ___ Sex: _____

Marital status: _____ Occupation: _____

City: _____ State: _____

Age that you first started to smoke: _____

No. of packs per day now: _____

Why did you start? Peer pressure: _____ Social custom: _____

Other: _____

Do (did) your parents smoke? _____

Other treatments tried:

Self: _____ Smoke enders: _____

Hypnosis: By self: ___ By others: _____

Acupuncture: _____ Nicolet gum _____

Other (specify): _____

When? _____ How effective? _____

How long did it last? _____

(Please fill in the next page)

Any withdrawal symptoms? _____

Irritable: _____ Hard to get along with: _____ Sweaty: _____

Light-headed: _____ Over-eat: _____ Cannot think straight: _____

Other (specify): _____

Under what circumstances you feel the need for a cigarette?

Coffee: _____ Meals: _____ Work: _____ Phone: _____

Stress: _____ Drinking: _____ Waking up: _____ Driving: _____

Emotional: _____ Habitual: _____

Other (specify): _____

Does your spouse smoke? How long? _____

Do co-workers smoke? _____

Do your children smoke? _____ Who? _____

For how long? _____

What caused you to seek treatment?

Health: _____ Cost: _____ Other (specify): _____

Other remarks: _____

APPENDIX II

A SUGGESTED PATIENT CONSENT FORM

I hereby authorize and consent to the performance upon me of the treatment of acupuncture by Dr. _____, or any of the physicians who may become associated with him/her in the practice of acupuncture and to the employment of such assistants as they may deem necessary to carry out such treatments. Acupuncture has been explained to me as a medical treatment performed by the insertion of special needles (with or without the application of small pulses of electric current to the needles) through the skin into underlying tissues at certain indicated points on the surface of the body, for the purpose of seeking the alleviation, for an undetermined time, of pain or of bodily diseases or disorders.

I am aware that the use of acupuncture is not a common practice in this country. The nature and purpose of my treatment and the hazards and potential complications have been explained to me and no warranty or guarantee has been made to me as to any result of cure.

I have been advised that acupuncture is not covered by medicare policies and, thus, Dr. _____ and his/her associates are not participating physicians/dentists. I understand that I am responsible for the payments of all the professional services rendered by them.

WITNESS

SIGNATURE OF PATIENT

ADDRESS

DATE

TIME

APPENDIX III

BROCHURE FOR PATIENT EDUCATION

PATIENT EDUCATION SERVICE

PHYSICIAN'S NAME

ADDRESS

PHONE NUMBER

Questions & Answers
about

ACUPUNCTURE

针疗问答

In response to many questions from our patients about acupuncture, we have prepared this pamphlet to try and answer concisely some of the most commonly asked ones.

Q. WHAT IS ACUPUNCTURE?

A. Acupuncture is a relatively new procedure in the United States although it has been practiced for centuries in China and the Orient. It utilizes special, very thin stainless steel needles which are inserted at the acupuncture points on the body. These needles are solid and no fluid is injected into your body. They are usually only about half the diameter of the smallest-sized needles used by physicians for the injection of medicine.

Acupuncture is considered by the Food and Drug Administration and American Medical Association as an experimental procedure. By experimental, it does not mean you are used as a guinea pig. It only means that we are trying a "new" procedure.

Q. WHAT CONDITIONS CAN ACUPUNCTURE BE USED FOR?

A. First of all, acupuncture is **NOT** a cure-all. It is a good pain-reliever. It brings about high degrees of success in treating low-back pain (even after surgery), neck pain (e.g., whiplash), myofascial pain, arthritic pain, migraine, tension and vascular headaches, trigeminal neuralgia, (tic douloureux), temporo-mandibular joint syndrome (TMJ), pain from shingles, menstrual cramps and pain, abdominal pain (e.g., spastic colon, colitis, ileitis), anginal pain and certain types of psychosomatic diseases. It has also been used very effectively to stop smoking, for drug addiction, alcoholism, and food "addiction" (overweight). It is quite helpful

in psoriasis, cystic acne, poison ivy, genital herpes, cold sores, allergic dermatitis, eczema, and some other skin conditions. Tonsillectomy, tooth extraction and other dental and surgical procedures have been performed in this country under acupuncture analgesia. Painless child-birth is feasible with acupuncture. It has been used in veterinary medicine. However, you should always try conventional western medicine first. If it fails, acupuncture may be tried.

Q. CAN ACUPUNCTURE HELP EVERYBODY?

A. Like any other medical treatment, the results of acupuncture will not be known until after it is done. It is effective in as many as 85% of the patients who have failed to respond to conventional medical or surgical management. There is a tremendous individual difference of response to acupuncture from patient to patient. There is no guarantee or warranty of how you are going to respond to acupuncture. But, it is indeed a very valuable addition to our western medicine.

Q. HOW SHOULD I FEEL AFTER MY FIRST TREATMENT?

A. That depends entirely upon the person. A few patients may have extremely satisfactory relief of pain after the very first treatment. For most people, several sessions of treatment are necessary before any kind of relief is felt. Just like any other kind of medical or surgical treatment, there is no way to predict the results.

Q. HOW OFTEN SHOULD I BE TREATED?

A. The frequency and the number of treatment depends on your clinical status as well as your need and your response to acupuncture.

Q DOES ACUPUNCTURE HURT?

A. Usually you will feel a slight prick. Whether it hurts or not depends entirely on you. If you are very afraid of needles, you may feel it more than other people. Actually the feeling is much less than having an injection or being pricked by a sewing needle.

After the acupuncture needle is inserted some kind of sensation is generated. It may be slight tingling, warmth, soreness, or numbness. It may appear locally or in a somewhat distant part of the body.

Q. SHOULD I REST AFTER THE TREATMENT?

A. After the treatment when some patients feel better, they tend to do things which they have not been able to do for quite some time. Thus, they overextend themselves, causing aggravation or recurrence of the pain-producing problem. No matter how good you feel after a treatment, you should take it a little easy for at least a couple of days.

Q. WILL MY PAIN GET WORSE AFTER ACUPUNCTURE?

A. An apparent increase of pain may be coincidental because your attention is drawn to that specific area. It is also possible that your body might overrespond to the treatment. It is an exception rather than the rule. A clinical trial is the only way by which you can tell whether there may be additional pain after a treatment.

Q. IS THERE ANY BLEEDING?

A. Usually not. You may even not see a needle mark. Sometimes, however, a minute invisible blood vessel

underneath the skin may be pricked during the insertion of the thin needle. Very rarely, there may be a black and blue spot.

Q. ARE THERE ANY COMPLICATIONS?

A. Newsweek magazine in July, 1974 quoted the Journal of the American Medical Association to report cases of pneumothorax (air in the chest) and hemothorax (bleeding in the chest), etc. A large epidemic of infectious hepatitis was reported in the American Journal of Epidemiology in March, 1988. Forty patients contracted hepatitis in one acupuncturist's office. Cases of septic infections were also reported. There is also the possibility of AIDS infection. All these are traceable to the use of non-sterile, contaminated needles. However, when acupuncture is carried out with sterile needles and proper sterile precautions, it would be highly unusual to have such complications.

Q. MAY I DRIVE MY CAR IMMEDIATELY AFTER THE TREATMENT?

A. We recommend that you have someone drive you to and from our office for the first visit. After that, it would be up to your best judgement. It is not unusual for some patients to feel very relaxed and even be sleepy after acupuncture treatment.

Q. SHOULD I GIVE UP ALL MY MEDICATIONS?

A. No. You should continue to follow your own physician's instructions. A sudden change of your medication regimen could possibly cause severe adverse effects to you. Acupuncture is used to complement and supplement your own physician's treatments. We work with him and do not replace him.

Q. WHAT ABOUT A SPECIAL DIET AFTER ACUPUNCTURE?

A. At this point in time we do not know what effect any particular food has on acupuncture or vice versa. We would therefore recommend that you keep your regular diet, especially if it is a special one, such as for diabetes.

Q. HOW DOES ACUPUNCTURE WORK?

A. In the early 1970s, the National Institutes of Health sponsored research projects on acupuncture research. Research has been done mainly in China, Sweden, and Canada, and only some in this country. Since 1975, we understand more about acupuncture scientifically. Basically, acupuncture releases morphine-like chemicals produced by our own body (endorphins) to suppress pain via certain neural mechanisms. Little research on its mechanism to counteract addictions to drugs, alcohol and nicotine, and skin diseases has been done. It is quite conceivable that acupuncture may be involved in the healing processes. A lot more research needs to be pursued. In 1993, the National Institutes of Health has again started to sponsor research programs on acupuncture through its Office of Alternative Medicine.

Q. DOES MY HEALTH CARE INSURANCE COVER ACUPUNCTURE TREATMENTS?

A. It depends on your insurance policy. Though some insurance policies, such as Medicare and Blue Cross/Blue Shield, do not cover acupuncture treatment *per se*, they may cover a part of the office visits. Recently, a few major insurance companies started to cover the expenses for acupuncture treatment in certain areas of the country. You should check with your insurance agent. If you are a medicare patient, please check with

our staff as to whether or not we participate in the medicare program. The financial responsibility for our professional services is entirely yours.

If you have other questions concerning acupuncture please do not hesitate to discuss them with us. We will do our best to answer them.

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