

CONDITIONING FOR MARTIAL ARTS

KARATE

JUDO

TAE KWON DO

KICK BOXING

WRESTLING



Frederick C. Hatfield, Ph.D.

International Sports Sciences Association

Introduction

There is a mountain of misinformation available in fitness magazines and (especially) the Internet pertaining to weight loss, fitness and sports training. When someone makes the commitment to train, and then seeks information on how to begin, they are almost always overwhelmed and confused. That's why I made the decision to launch drsquat.com several years ago. I maintain my sincere hope that my teaching, writing and the drsquat.com Q&A forum has contributed significantly to dispelling much of the nonsense being passed off as expert advice. The many thousands of visits to drsquat.com each month bears witness to the belief that it has done just that.

To further demystify training and nutritional science, and to encourage safe and responsible conditioning techniques in sports training and fitness activities, I decided to provide visitors to drsquat.com with e-booklets. Unfortunately, there has to be a nominal charge for these booklets, just to cover my production costs. I have written scores so far, and the work continues. To date, almost every sport and fitness activity on earth is listed at drsquat.com. If your sport or activity is not listed let us know! The missing e-booklet will be available within a week. Guaranteed!

This martial arts conditioning e-booklet contains information vital to improving anyone's fighting ability. Certainly, given any level of skill, a stronger athlete is going to throw and hit harder. Certainly, careful attention to one's eating habits and the prudent use of state-of-the-art nutritional supplements is going to improve anyone's energy level, their ability to focus and their recovery capabilities. Just as certainly, if you're one of the millions of martial artists in the world, your level of enjoyment at playing your sport at a higher level is going to improve with your increased strength and energy!

Meet Dr. Fred Hatfield

Currently President and co-founder of the [International Sports Sciences Association](http://InternationalSportsSciencesAssociation.org) (ISSA), Dr. Hatfield (aka "Dr. Squat") won the world championships three times in the sport of powerlifting, and along the way broke over 30 world records, including a competitive squat with 1014 pounds at a bodyweight of 255 pounds (more weight than anyone in history had ever lifted in competition). Former positions include an assistant professorship at the University of Wisconsin

(Madison) and Senior Vice President and Director of Research & Development for Weider Health & Fitness, Inc. Dr. Hatfield was honored by Southern Connecticut State University when they presented him the 1991 Alumni Citation Award. He has written over 60 books and hundreds of articles in the general areas of sports training, fitness, bodybuilding and nutrition. In addition to serving three times as the national coach of the U.S. Powerlifting Team, he has been coach and training consultant to several world-ranked and professional athletes as well as sports governing bodies and professional sports teams worldwide.

Disclaimer

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CONDITIONING FOR MARTIAL ARTS

Fred Hatfield, Ph.D.

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All of the martial arts involve wide-ranging, multifaceted disciplines that involve a variety of skills and movements. They require not only speed and strength in short, explosive bursts, but also a high level of anaerobic strength endurance, flexibility and agility.

Every bit of your training and diet must reflect these all-important elements. They are what constitute the physical nature of the disciplines. Often, the martial arts are very “ballistic” in nature, so recovery, tissue repair and peak speed-strength are your training and nutrition objectives year-round. Nutritionally, that calls for an emphasis on short-term energy needs and maximizing your muscles’ recovery and tissue repair processes.

In the martial arts, most of your energy output is anaerobic. Without oxygen. Delivering blows and kicks, grappling, throwing and lightening fast reflexive movements must be performed over and over again, testing your tolerance to excruciating pain and fatigue from lactic acid buildup in your working muscles. Easily accomplished, right?

Wrong! To do it right, you’ll have to train very hard. It’s grueling, highly intense training. It punishes you. Performed at the highest levels, speed training for the martial arts forces you to operate at your anaerobic threshold. That’s the point at which you cannot go on unless oxygen is introduced. It’s totally exhausting.

Then, of course, there're the skills of your specific discipline. Muscles grow stronger and faster if you stress them. In the martial arts, your aim is to make them grow as strong and fast as possible. This calls for training specificity.

The incredible force output—and the ballistic nature of most of the disciplines comprising the martial arts—demands careful nutritional support. Here is a list of factors to consider when you're matching your nutrition to your training needs:

- You must have high quality protein several times a day (eat every 2-3 hours) in order to effectively recover and repair damaged muscle tissue;
- Explosive martial artists (who get their energy primarily from ATP and CP, two biochemical's formed inside of their muscles) as well as martial artists who must fight in round after round (whose energy comes from sugar—called glycogen—stored inside their muscles) cannot eat very much fat because it is not an efficient source of energy for their high intensity training (which is almost exclusively anaerobic in nature) -- fat calories are going to get stored because they can't be used for your energy needs;
- Endurance athletes in other sports (whose energy is manufactured through oxidation) can get away with eating more fat because they spend a lot of time in the aerobic pathway of muscle energetics, which uses fat. But even endurance athletes should keep the fat calories down a bit if they are training aerobically—with oxygen—for under a half hour. Remember, fat isn't used for energy until after about 20-30 minutes of aerobic activity. Until then, energy comes from the athlete's stores of muscle glycogen.
- A carefully measured supply of high quality carbohydrates several times throughout the day will ensure that your body is getting all the energy it requires, while the protein will ensure that muscle repair takes place;
- The carbohydrates in your pre-workout meal should be comprised of low glycemic index carbohydrates (the kind that converts to blood sugar very slowly, to ensure that your training intensity doesn't wane, and to ensure that lean tissue isn't cannibalized for energy);
- So, here are the energy sources that your muscles use in order to contract:
 - ATP/CP (short-term energy for explosive strength output)
 - GLYCOGEN (medium-term energy from your muscles' stored sugar for sports requiring near-maximum exertion over and over)
 - OXYGEN (long-term energy for endurance sports).

- Your aim is to support recovery and repair as speedily and efficiently as possible without—repeat—WITHOUT putting on any fat! This, while maintaining a high strength-to-weight ratio. That means that you must eat precisely the amount that your body needs in order to grow stronger, faster and more mobile. But you must always remain within 3-4 percent of your competition bodyweight!

That final fact alone makes nutrition for martial artists as critical as the training itself. You MUST do it right! Eat wrong even a little too often and you'll NEVER succeed. Most importantly, don't be in a hurry to put on muscle or to get faster! It takes YEARS to become a great martial artist. Rush the process, and you'll get fat, you won't recover fast, and you'll constantly train and compete in jeopardy of being injured more easily.

<i>Where Your Energy Comes From</i>			
Disciplines	Explosive (ATP/CP)	Stamina (Glycogen)	Endurance (Oxygen)
Martial Arts Competitions			
Wrestling	40	50	10
Karate	50	40	10
Judo	50	40	10
Kick Boxing	50	40	10
Tae Kwon Do	50	40	10
Average Off-Season Workout (All Disciplines)	60	30	10
Average Total Workout When Obligated To Do Aerobics If Too Fat (Off- Season Only)	50	30	20

The energy demands of each of the martial arts disciplines must be replicated in training. And, your nutritional intake (both diet and supplements) should correspond. So, for example, off-season training may require that you concentrate on improved limit strength, which requires a greater ratio of protein for muscle building. On the other hand, pre-fight meals require calories that supply ample and easily accessed energy for up to three hours.

This simple logic is reflected in the table below. It shows how to manipulate your calorie sources to match the energy demands of your discipline. The table below provides you

with the approximate percentage of fat, protein and carbohydrates that the calories in each of your 5-6 daily meals should consist of.

Where your Calories Should Come From								
OFF-SEASON TRAINING			PRE-SEASON TRAINING			PRE-MATCH OR PRE-WORKOUT		
% Fat	% Protein	% Carb	% Fat	% Protein	% Carb	% Fat	% Protein	% Carb
15	25	60	10	35	55	0/10	10-20	70-80

What To Eat

Fat has about 9 calories per gram, while protein and carbohydrates have only about 4 calories per gram. So, if you needed 3000 calories to continue slow muscle growth during the off-season, for example, you'd be getting 450 calories from fat (15 percent of your daily calories), 750 calories from protein (25 percent), and the remaining 1800 calories from carbohydrates (60 percent). Of course, these calories are divided by the number of times you eat each day (5 or 6 times).

For a detailed discussion of performance nutrition guidelines, read the article on zigzag dieting, or purchase the book by Dan Gastelu and myself entitled [Dynamic Nutrition](#) both at www.drssquat.com.

Here are some of the more important nutritional factors for martial artists to consider:

- Carbohydrates provide the major energy source for short-term training and competition. Complex carbohydrates provide for the best source of glycogen because they are the ones that most effectively refill the glycogen stores in your muscles and liver. In addition these carbohydrates elevate your blood sugar to levels sufficient for additional bouts of intense training and help to refill glycogen stores when they dwindle.
- When either your stores energy falls drastically or a build-up of lactic acid occurs, temporary muscular fatigue will be experienced. If you fail to refill glycogen stores prior to your next workout, it is possible that a breakdown of muscle protein for energy can ensue. That is why it is important for glycolytic athletes to have adequate carbohydrates in their diet along with protein.

- Prior to your training sessions or competition, it is wise to consume foods with a low glycemic index for sustained blood sugar levels. This allows you to train or compete more intensely for longer periods.
- As both an explosive fighter and an enduring one round after round, you should attempt to stimulate the storage of glycogen in your muscles while promoting repair and growth of muscle tissue and inhibiting fat build-up on your body. This can be done by following these suggestions:
 1. Train against the anaerobic threshold (to exhaustion) on a regular basis. Through intense, exhausting training you stimulate increased storage of muscle and liver glycogen. This permits additional levels of energy for greater workloads.
 2. Consume five meals each day. This will keep your blood sugar levels stable throughout your day, and allow your muscles to have available protein whenever they need it.
 3. Do not consume large amounts of fat. Large amounts of fat in your diet will undoubtedly add to your bodyfat and cause mineral loss through frequent urination.
 4. Consume low glycemic index foods 1 or 2 hours before your activity. This practice provides for sustained blood sugar levels.
 5. Consume adequate amounts of water. Not only does this reduce your chances of dehydration but also for every gram of glycogen that is stored within your muscle, three grams of water is stored along with it. And being dehydrated can mean weaker muscle contractions and bring on fatigue quicker.
 6. So as not to become deficient in any nutrients lost due to sweating or training itself, a multi-vitamin/mineral is highly recommended.
 7. It is important to realize that not all athletes react the same to food consumption during training or competition. You must know how your body reacts to various foods before you reach competition.

Supplementing Your Diet

By far more important than any known nutritional supplements to your career as a martial artist are the micro- and macronutrients—real food. Still more important yet is that you learn how to integrate all of the technologies available to you in your quest of peak performance. That most certainly should include supplements such as those listed below:

- [Antioxidants](#) (ProPower's Recovery Nutrients) —Substances that protect against free-radicals, highly unstable molecular fragments unleashed by strenuous exercise, chemicals, polluted air, and other factors, that can cause extensive damage to the body. Free radicals are involved in emphysema, wrinkled skin, cancer, blood clots, damage to cellular components and DNA, as well as muscle pains, cramps, and fatigue, and a host of other ailments and diseases normally associated with ageing. Free-radical “scavengers” (another term for antioxidants) include vitamins A, C, E, selenium, zinc, many different botanical preparations such as Maria thistle, pycnogenol and nordihydroguaiaretic acid (NDGA from chapparal), glutathione, and others.
- [Branched chain amino acids](#) (ProPower's BCAAs) --Leucine, isoleucine and valine comprise an overwhelming majority of the aminos your body needs for more rapid and complete recovery, repair and growth resulting from adaptive exercise stress. They must be taken in the right ratio (2:1:1 respectively).
- [Inosine](#) (ProPower's Anaerobic Power) —Inosine is a naturally occurring compound found in the body that contributes to strong heart muscle contraction and blood flow in the coronary arteries. As a supplement taken before and during workouts and competition, it stimulates enzyme activity in both cardiac and skeletal muscle cells for improved regeneration of ATP. What this means in training terms is that you'll be able to get a rep or two more out of yourself in each set. It means that you'll be able to do your wind sprints with greater stamina. Better workouts equal's better gains.
- [L-glutamine](#) (ProPower's L-Glutamine) -- Lymphocytes and other white blood cells, front-line fighters in the immune system, are strongly dependent on glutamine. Glutamine also helps memory and concentration, and aids in neutralizing the catabolic effects of cortisol, which is released during strenuous exercise. In combination with vitamin B-6, glutamic acid is converted to L-glutamine in the liver, scavenging ammonia in the process. Ammonia is a toxic byproduct of amino acid breakdown.
- [Creatine Monohydrate](#) (ProPower's Creatine) -- Creatine monohydrate has been clinically used in improving plasma creatine concentrations by as much as 50 percent. Research shows this substance to be effective in improving training intensity and recovery. It is able to pass through the gut wall and into the bloodstream intact, and upon entering the muscle cells, is converted into creatine phosphate (CP).

Conditioning Tips For The Martial Arts

Weight training, and especially conditioning are more than crucial for these sports—they're life saving. Although duels to the death are not featured in the competitive phase of any sport these days, the martial arts are set apart from other sports by the objective built into them—to crush (and in the earliest history of some of these fighting arts, to kill) the opponent.

Well, that's not the definition of any sport these days. But the martial arts still stress victory by physically overpowering your opponent, so there's a lot more at stake in one of these matches than in a volleyball game!

In these sports, body contact is not a byproduct of the game—it IS the game. When you deliver a blow to fell your opponent, you're not trying to run around him to score a goal or some points; you're readying to deliver another blow. The art of fighting, as it has advanced through the ages is the art of hitting without being hit, or, as in wrestling, achieving a dominating position in which you can immobilize your opponent.

Myriad disciplines and activities associated with the martial arts have been developed over centuries. Estimates on the number of Chinese styles alone range from 365 to 1500. And if you include all the other traditions - Japanese, Korean, and so on - there are just too many to explore in this one booklet.

However, with so many different styles and disciplines available, there should be one right for your individual needs. You can tailor a martial arts training program to strengthen whatever area of emphasis you prefer --, speed, power, anaerobic strength endurance, balance, flexibility, even meditation.

A good way to start your martial arts training is to decide what you are going to emphasize. There are two basic styles: internal and external. Though no martial arts instructor would simplify quite this much, for the purposes of introduction, let's just say that the external styles emphasize the development of reflexes and musculature, while the internal styles emphasize breathing and other internal sources of energy.

The External Styles

The external styles rely most on aggressive muscular force and speed. Karate, kung fu, kickboxing and judo are all external (or hard) styles. Conditioning for the external styles of martial arts involves building limit strength, and combining that strength with lightening speed. You'll need a high degree of speed-strength to execute the gymnastic-like flips and cartwheels in some of the more advanced styles.

Flexibility is also necessary to do hard, external style movements. Stretching exercises are extremely vital to executing the high kicks, punches, and blocks the hard styles demand. But, be aware that flexibility alone, without also becoming strong while in a stretched position, is counterproductive.

The Internal Training

Correct breathing is a way to increase your store of chi (pronounced "chee") -- your internal energy. Good balance and correct body mechanics are the key technical aspects of internal conditioning as maintaining your own balance while simultaneously upsetting your opponent's is the goal of this training.

Most of the martial arts combine both the external and internal styles to some degree, so your training should as well. Overall body conditioning in this case also includes the mind. You should have a philosophy in your training that integrates mind and body.

Basic Conditioning For The Martial Arts

In all the world of sport, SPEED is King! Regardless of your discipline, speed training and agility training are vital. Each discipline demands speed and instant power in many different situations. The following stages of speed training lead you from a solid starting point to a definite advantage point. These stages are sequential, so progress from the first stage on through to the last.

Stage 1: Limit strength and anaerobic strength endurance. For limit strength, focus on lifting weights (especially squats), doing maximum reps to build your large muscle groups. For anaerobic strength endurance, perform explosive interval sprints, using a sports parachute to provide added resistance.

Stage 2: Explosive strength and functional strength. For total-body explosiveness, do cleans and jerks. The carry-over value for martial artists performing this type of total-body movement against resistance is proven.

Stage 3: Ballistics. Fighting skills almost always require executing pivots and joint rotations in amazingly quick explosions; arm movements are widely varied. Discus, hammer, weight, and medicine-ball throwing pinpoint and stress all the different angles and range's of motion a fighter should be capable of. Practicing these throws will help develop both starting strength and explosive strength in all twisting, turning and throwing motions. Plyometrics (explosive hopping, jumping and skipping) for your legs is also included in Stage 3.

Stage 4: Overspeed. This simply means doing movement assisted exercises (e.g., surgical tubing assisted movements) for increasing total body as well as limb speed. The demands on your body are increased as you are forced to move at greater-than-voluntary speeds, thereby “teaching” your nervous system to respond at higher and higher speeds.

Year-Round Conditioning

The best way to weight train for the martial arts—all disciplines -- is on a cycle training schedule. This type of training schedule combines workouts and exercises that will meet all your basic needs—strength, power, speed, agility, and strength endurance. Below, a full training cycle (called a “macrocycle”) shows you how to prepare for each season or tourney.

- Your weaknesses must always be tended to FIRST in any training program
- Preparation will entail one “macrocycle” of about twelve weeks in duration
- The twelve week macrocycle is broken down into four mesocycles of three weeks duration

Mesocycle 1:

- Maximize muscle mass (strength-to-weight ratio)
- Minimize fat
- Improve general strength and fitness foundation (esp. weaknesses), including MODERATE aerobic threshold training
- Work on specific skills (weaknesses)
- Begin pushing anaerobic threshold

- Begin introducing light plyometrics

Mesocycle 2:

- Maximize limit strength of muscles/movement used in the respective disciplines (emphasis on legs)
- Push back the anaerobic threshold (maximum force output time after time—called anaerobic strength endurance -- while in both ATP/CP and glycolytic pathways)
- Begin training specific skills (weaknesses) in earnest
- Concentrate on between-workout recovery
- Introduce explosive strength and starting strength by doing moderate plyometrics

Mesocycle 3:

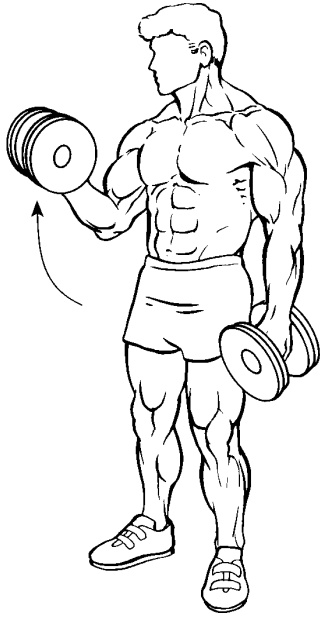
- Maximize explosive strength
- Specific skills must predominate training sessions
- Push back anaerobic threshold to the limits of your capabilities—high intensity
- Maximize between-workout recovery
- Weighted plyometrics and hill/stairs running incorporated into training

Mesocycle 4:

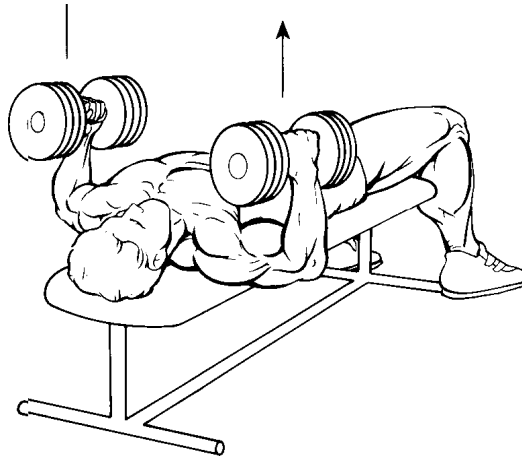
- Maximize ballistic strength (starting strength) by doing “shock” plyometrics
- Heavy emphasis on anaerobic threshold
- Maximize between-workout recovery ability
- Heavy emphasis on skills
- Emphasize speed, agility, ballistic movements
- “Overspeed” drills in final preparatory period
- Heavy, explosive weight training dropped in favor of complex training (combination of weights, running and plyometrics)

Weight Training Exercises

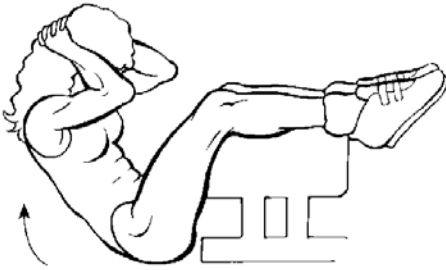
Here are illustrations of some exercises commonly performed by fighters. Other exercises from which to choose are illustrated and described at www.drssquat.com.



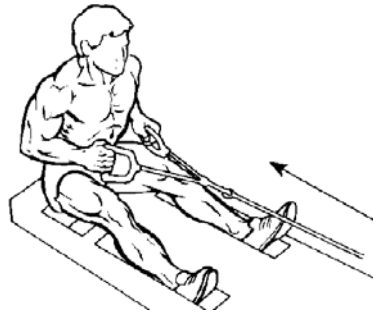
Alternate Dumbbell Curls
(Biceps)



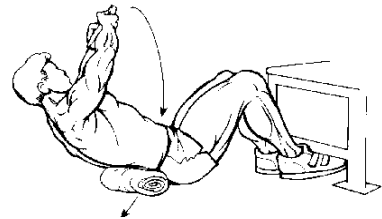
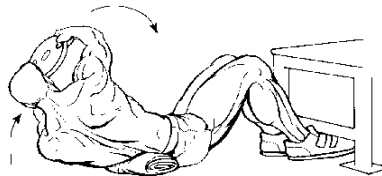
Dumbbell Bench Presses
(Pectorals)



Crunchers (Abdominals)



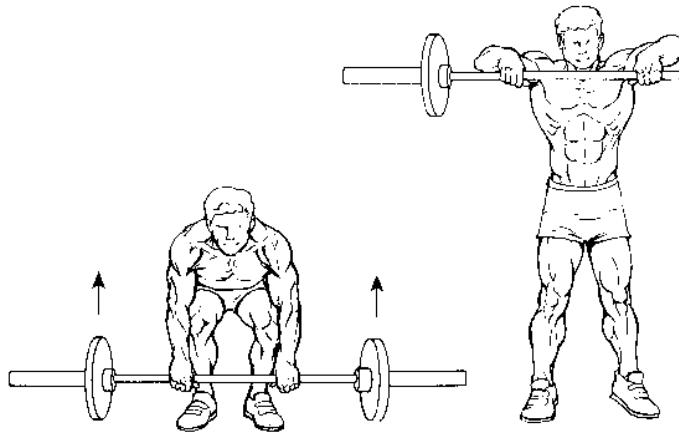
Low Rows (Upper Back Muscles)



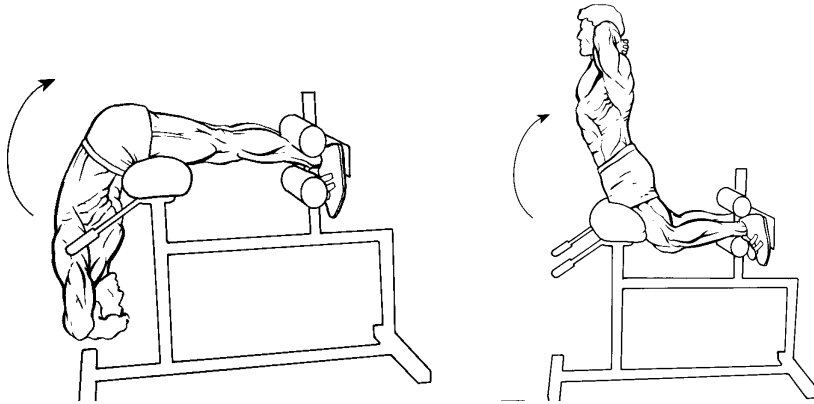
Your midsection muscles – abdominals and obliques – are often neglected by athletes in most sports. In fighting, these muscles are vital for transferring power from the legs to the upper body. Make this your **STRONG** link, rather than the weak one with Russian twists. And, of course, the power for almost everything you do in the martial arts comes from the legs, so one-legged squats (or lunge squats) are also clearly vital for martial artists.



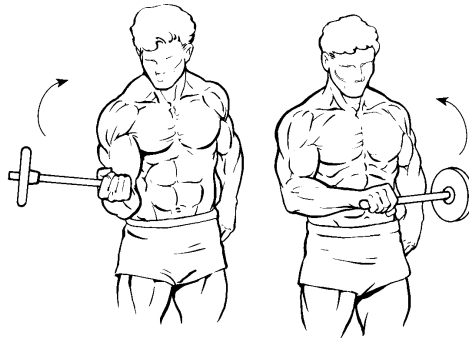
Lunge walking, or one-legged squats (illustrated above) are great for developing leg drive for explosive movements, agility and other sports attributes common in most sports.



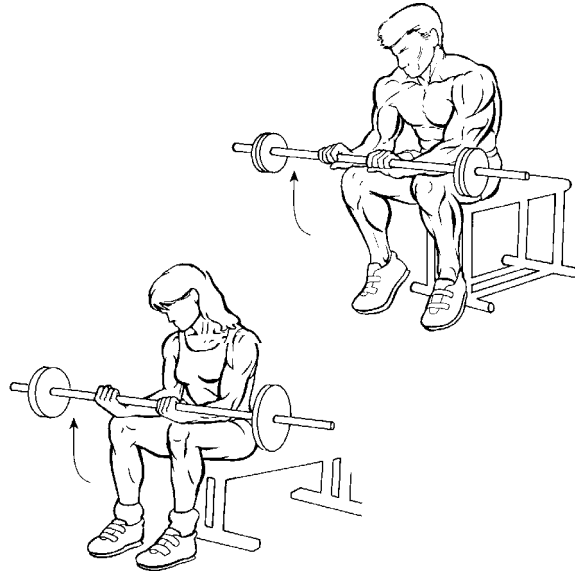
High pulls (illustrated above) simulate total body explosiveness. Visualize this movement being carried to full extension of the arms overhead, and you have another vital exercise for explosive athletes “muscle snatches.”



Glute-Ham raises are perhaps the single most important exercise for runners, as they simulate a runner's stride (albeit both legs at once instead of alternately) against the resistance afforded by your own bodyweight. Additional weight can easily be added simply by holding a weight behind your head.



Pronations and supinations with a dumbbell weighted on one end (above) are excellent exercises for developing forearm strength. So are wrist curls (female illustration below) and reverse wrist curls (male illustration below).



Concluding Comments

This e-booklet is by no means the final word on conditioning and nutrition for martial artists! Each of us is unique in our training and nutritional needs, and no single diet or training program is going to fit everyone's needs. But it is a great place to start, and the sooner the better. If you do nothing else, make the commitment to begin! Remember this: the single most important element of any diet or training plan is **CONSISTENCY!**

If you feel that your specific needs are not being addressed in this brief primer, you are invited to join us at the drsquat.com Q&A forum. Many of your questions will be answered there. Alternatively, feel free to contact us at ebooks@drsquat.com for an inexpensive detailed analysis of your training and nutritional needs.

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