

AMERICAN MUSCLE & FITNESS
SPORTS NUTRITIONIST CERTIFICATION PROGRAM

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1988 AAU MR. INTERNATIONAL

1987 AAU MR. NORTH AMERICA

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INTRODUCTION

Welcome to the American Muscle and Fitness Sports Nutritionist Certification Program. You may already be a personal fitness trainer and wish to offer your customers something extra. Diet plays as much as a fifty-percent role in the results (or lack of results) that a fitness client or athlete may achieve, and an eighty- percent or higher role in weight loss. A Sports Nutritionist is someone who recommends to exercisers and athletes how to make state of the art food choices so that they can improve their athletic performance. A certified Sports Nutritionist should not be confused with a registered dietitian, a health professional who creates menus for medical purposes. Dietitians are often employed by hospitals. You will only be making recommendations and suggestions about healthy eating and which over the counter supplements are available. It is up to your clients to use due diligence by checking with their doctor if they have questions about a particular supplement or diet. It is important that your clients understand that.

This manual should teach everything you'd need to know about effective eating for peak performance and health. It covers powerful weight loss and gain diets, performance enhancing menus and the latest research in dietary supplementation. It also includes a section about the psychological aspect of food. To help educate your clients about nutrition you might consider going grocery shopping with them.

The four types of diet and supplement programs that you will be asked to create are: 1) Weight Loss; 2) Weight Gain; 3) Athletic Performance Enhancement; 4) Health & Fitness Maintenance. Many elements from each of these systems are universal, like vitamin and mineral supplementation, adequate protein, complex carbohydrates and reduced saturated & trans-fat intake.

Educate yourself enough to be able to answer any nutrition or supplement question quickly and accurately for you clients, based on the latest scientific discoveries. You will need to constantly keep abreast of the most recent developments in supplementation. Breakthroughs in sports nutrition include high BV protein powder blends, Hydroxy-citric acid for weight loss, DHEA, creatine and other promising supplements like Maca that will be covered in this manual. When a client comes to you for nutrition information, you will have precise diets to hand out to clients to meet their fitness needs or competitive goals.

As a sports nutrition adviser, you may want to go into business for yourself or work for a health club. Either way, the pay can be as much as \$100 per hour and the work is both challenging and rewarding. You will be asked to design menus and supplement programs for your clients. Supplement sales can also become a big percentage of your income. To create a specialized menu for an individual, you can charge a one-time fee of \$100. A better way to run your business is to have clients pay a monthly fee and have them come in once a week for counseling. You will analyze and make adjustments to their menu, while giving them a pep talk of encouragement. The rate can vary from \$50 to \$100 per month. Remember that most diets will take twelve weeks or more to

achieve the desired goal and have clients pay for a four week, eight week, twelve week or fifteen week program in advance. Always ask for referrals.

A Sports Nutrition Consultant wears many hats. Always a diet coach first, athletes come to rely on him or her as a friend, confidant, psychologist, technician, and problem solver. Keep in mind that you are in business to make money so that once you get started, your current customers must become a constant source of referrals. Their excellent results will speak volumes about your expertise. When your client's friends start to notice the improvements they're making in their physique, naturally he or she will brag about the great nutritionist they have and the wonderful job that you are doing for them. Your business will grow quickly. Always do the right thing, and be aware of your language and never swear or curse. Any statement that may be perceived as sexual harassment, such as telling racy jokes, should be avoided, especially in today's litigation crazy world. In order to negate your liability, each client must fill out a health questionnaire and waiver before you advise them on eating. (See following page). You can make copies of this one and have clients fill it out. Just add your name and/or gym name. The completed and signed form for each client should be kept in your files.

Always protect yourself from any potential legal suit by purchasing a good insurance policy in case something does go wrong. The cost is usually only around \$170-\$220 annually for a \$1,000,000 policy. You can contact the "National Health Club Association," at 1-800-765-6422, or www.sportsfitness.com for more information and a policy. Let your insurance agent know that each customer fills out a waiver form. Read the waiver to each client and go over it with him, or it may not be considered valid in court if you ever have to go. Use common sense in every situation, and if you think someone is going to cause a problem in the long run, decline to take that person as a customer. Remember that your customers will quickly become your friends. The key to success when applying sports eating and supplement regimen to clients is constant feedback. Daily, initially, and weekly after the first week, clients should report their reactions to the changes in their food and supplement intake. Use the forms to document their experiences.

Try to keep current on popular diet fads and be ready to endorse or expose them as worthless. The vegetarian diet, fruit before noon program and no meat diet all have some value. There are many popular and effective diet systems. Yours will be more sports oriented than general weight loss diets. Focus on the overarching goals your client has in determining what foods and supplements to add or eliminate to achieve those goals.

The fitness and supplement industries are so huge in the US today that almost anyone can establish a nutrition-based business. By learning all that you can about nutrition you may one-day end up with your own diet program, book or infomercial, and customers will probably be knocking down your door to buy it! More than that, you'll be helping people improve performance and bodies without resorting to dangerous surgical techniques like liposuction. The following forms are tools that you will utilize every day in your business. You may make copies for that purpose.

NUTRITIONAL HEALTH QUESTIONNAIRE

FOR _____

READ CAREFULLY AND CIRCLE YES OR NO IF IT APPLIES TO YOU.

YES NO 1. HAS YOUR DOCTOR EVER TOLD YOU HAVE HEART TROUBLE?

YES NO 2. DO YOU FREQUENTLY HAVE PAINS IN YOUR HEART OR CHEST?

YES NO 3. DO YOU OFTEN FEEL FAINT OR HAVE SPELLS OF DIZZINESS?

YES NO 4. HAS A DR. EVER SAID YOUR BLOOD PRESSURE WAS TOO HIGH?

YES NO 5. DO HAVE HEART OR KIDNEY DISEASE OR ANY CHRONIC ILLNESS? LIST ALL KNOWN ILLNESSES HERE. _____

YES NO 6. ARE YOU ALERGIC TO ANY FOODS OR SUPPLEMENTS? (If yes, list below)

ALLERGY: _____

YES NO 7. IS THERE A GOOD PHYSICAL OR PSYCHOLOGICAL REASON NOT MENTIONED HERE WHY YOU SHOULD NOT FOLLOW A WEIGHT LOSS/GAIN DIET IF YOU WANTED TO?

YES NO 8. ARE YOU OVER AGE 65 AND NOT ACCUSTOMED TO DIETING?

IF YOU ANSWERED YES TO ONE OR MORE QUESTIONS:

If you haven't recently done so, consult with your doctor by phone or in person, before dieting or taking supplements! Tell him what questions you answered yes to on survey. After medical evaluation, seek advice from your doctor as to your suitability for either restricted or slightly increased calorie intake for a limited time period, or supervised supplementation to suit your needs. If your doctor is aware of the problem, put your initials and a note next to the question(s) you answered "yes" to, explaining why it is OK to proceed with caution.

IF YOU ANSWERED NO TO ALL QUESTIONS:

If you answered accurately, you have reasonable assurance of your present suitability for a graduated diet and exercise program. If you have a temporary minor illness, like a cold, postpone dieting and increased activity.

WAIVER/RELEASE FORM

YOU AGREE TO THE TERMS OF THIS RELEASE FORM. RESTRICTIVE DIETS AND OVER THE COUNTER SUPPLEMENTS MAY CAUSE ADVERSE REACTIONS IN SOME INDIVIDUALS. YOU, THE GUEST/CLIENT/MEMBER, ARE AWARE THAT YOU ARE ENGAGING IN DIETING AND THAT THE USE OF SUPPLEMENTS AND DIETARY INSTRUCTION COULD CAUSE INJURY TO YOU. YOU ARE VOLUNTARILY PARTICIPATING IN THESE ACTIVITIES AND ASSUME ALL RISKS OF INJURY THAT MIGHT RESULT. YOU AGREE TO WAIVE ANY CLAIMS OR RIGHTS YOU MIGHT OTHERWISE HAVE TO SUE _____, OR ANY AGENT, EMPLOYEES OR NUTRITIONIST, OR _____, FOR INJURY TO YOU AS A RESULT OF THIS DIETARY ADVICE. IT IS ALWAYS ADVISABLE AND RECOMMENDED TO CONSULT YOUR PHYSICIAN BEFORE UNDERTAKING THIS OR ANY DIET PROGRAM.

SIGNED (PARTICIPANT): _____ DATE: _____

ADMINISTERED BY:

ATHLETE NUTRITIONAL ASSESSMENT FORM

FOR _____ **DATE** _____

ATHLETIC GOAL: _____

DESIRED WEIGHT: BY (DATE): _____

WOULD YOU DESCRIBE YOURSELF AS (CIRCLE ONE): BEGINNER OR ADVANCED?

HAVE YOU BEEN ABLE TO ACHIEVE GOOD RESULTS WITH TRAINING AND DIETING IN THE PAST? (CIRCLE ONE) YES NO NEVER: TRAINED OR DIETED

IS YOUR SPORT OR LIFESTYLE PHYSICALLY DEMANDING OR DO YOU SPEND A LOT OF TIME SITTING? (CIRCLE ONE) ACTIVE SITTING

IN YOUR OPINION, WHERE ARE YOU ON THIS SCALE? LEAN 1 2 3 4 5 6 7 8 9 10 FAT

WHAT DO YOU WANT FROM A DIET PROGRAM? (LOSE WEIGHT, GAIN WEIGHT, IMPROVE PERFORMANCE, ETC.)

HOW MUCH TIME CAN YOU DEVOTE TO TRAINING EACH WEEK (SPORTS EXPERTS RECOMMEND 3-5 HOURS OF EXERCISE PER WEEK FOR OPTIMUM RESULTS)? 1 2 3 4 5 HOURS

ARE YOU WILLING TO FOLLOW ALL INSTRUCTIONS TO THE LETTER REGARDING MENU, FOR 8-12 WEEKS IN ORDER TO ACHIEVE YOUR GOALS? YES NO

DID YOU KNOW THAT NUTRITION IS AT LEAST 80% RESPONSIBLE FOR WEIGHT GAIN OR LOSS, EVEN WHEN EXERCISING (BED RIDDEN OPTIFAST PATIENTS ROUTINELY LOSE 100 POUNDS WITHOUT EXERCISING)? YES NO

WHAT SERVICES DO YOU EXPECT FROM A SPORTS NUTRITION ADVISOR?

SEVEN DAY DIET REPORT

FOR _____ DATE _____

Write down all meals, snacks, drinks and time of day consumed.

SUNDAY

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

UNDERSTANDING POPULAR DIET SYSTEMS

Below is a brief outline of the most popular diet systems. Make yourself familiar with each of these so you can decide which systems have value and may be recommended to clients.

VEGETARIAN DIET

The vegetarians diet is excellent for weight loss because it is automatically low in fat and calorie dense foods. Deficiencies can occur in protein and B vitamins while following a vegan lifestyle. These can be overcome by the use of a soy based protein powder and a B-complex supplement every day. Those wishing to lose weight will be able to make good progress with this system. Bodybuilders will find it difficult to add muscle mass using the vegan approach.

Octo-ovo vegetarians include eggs and milk in their diets and are not as likely to be protein deficient. They will still make good gains in muscle size and strength. The vegetarian diet gets a rating of 10 for general health and 7 for pure muscle building.

LOW CARBOHYDRATE DIET

The low carb diet is probably the best weight loss system available. It has a muscle sparing effect when protein consumption is kept at normal or higher levels. Carbohydrates should never be lowered to less than 80-100 grams per day because the brain requires that amount for proper functioning. Hard training strength athletes should drop no lower than 150 grams per day or the training intensity will suffer. The low carb diet gets a 10 for fat loss and another 10 for pre-contest phase cutting up.

HIGH FAT DIET

There are still some who advocate this dangerous and unhealthy system of eating. The premise is that you eat fat and protein, but no carbs. With what we know about lipid bad fat and cholesterol problems associated with excess fat intake, this system is of little or no practical value. A top current bodybuilding champion followed this system several years ago and ended up looking so bad on contest day that he fired his trainer. He went back to the tried and proven moderate carb diet and won the USA Bodybuilding Championships. I have to admit that I knew a Mr. Rochester winner who ate nothing but bacon and eggs for six weeks and looked incredible. He won the show. I don't know if he's had heart bypass surgery or not. This diet gets a rating of 0 in all categories.

FOOD ALLERGY DIET

Allergists often put patients suffering from allergic reactions to food on a rotational diet. Food allergies can be responsible for stomach bloating, gas, fatigue, headaches, colitis and arthritis. Milk, eggs, dairy products, wheat flour products, corn, chocolate have all caused allergic reactions in certain individuals. The rotational diet is a non-pharmaceutical cure that includes extra Vitamin C and quercetin (a bioflavonoid), four times a day. Inability to process certain foods may hinder athletic performance. Clients with food allergies will only be able to consume a narrow range of foods, so you will have to research alternatives from the list of acceptable foods that they provide you. When trying the rotational diet, the client starts off with a one day fast. On day one rice protein (baby rice cereal) and water is added back. The following day brown rice is added to the menu. The third day any vegetables are allowed. By adding foods back one or two at a time, the item causing the allergic reaction is singled out. Whatever it is must be eliminated from the menu. This procedure has cured chronic colitis in some people. Rates a 10 for those with colitis or food allergies.

LOW FAT DIET

The low fat diet, as recommended by Cardiac Specialist Dr. Dean Ornish in his book, "Reversing Heart Disease," is probably the most effective diet for keep fitters and the senior client who's goal is good health and weight loss. Dr. Ornish recommends that fat calories make up no more than 10-15% of the daily calorie intake. Strength athletes may see a loss of muscle mass and strength on a low fat diet because fat intake plays a major role in muscle building. It is important for clients to understand that fats have more calories per gram (9 calories per gram) than carbohydrates (5 calories per gram) or protein (4 calories per gram). Rates a "10" for heart health.

LOW CHOLESTEROL DIET

The low cholesterol diet is important to any American because heart disease is the number one killer in the US and elevated blood cholesterol is directly linked to dietary cholesterol. LDL is bad, low-density lipoprotein. HDL is good, or high-density lipoprotein. Total blood cholesterol of less than 150 is considered excellent on a fasting blood test, with HDL levels no lower than 30.

Cholesterol consumption can elevate LDL cholesterol blood levels, but not as much as saturated fat can. Saturated fat raises LDL blood cholesterol levels. For health reasons, everyone is encouraged to eat less than 300 milligrams (mg) of cholesterol daily. Someone having 2,000 calories daily should keep saturated fat intake to less than 22 grams. Foods like egg yolks, whole milk, cheese, mayonnaise, red meat, shellfish (except lobster), chicken skin, grease, butter, margarine, and palm oil must be eliminated while following a low cholesterol regimen. Fish and olive oil are low in cholesterol, so olive oil sprays are excellent for cooking. Fish oil is particularly good because it contains omega-3 fatty acid, which has been shown to lower blood

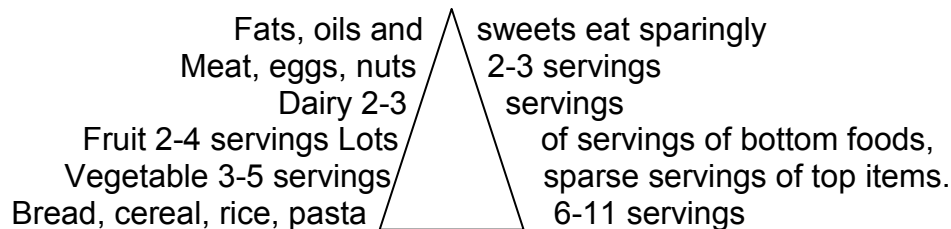
cholesterol levels. Many of your clients will be following low cholesterol diets. That means egg beaters instead of whole eggs, and lean cuts of meat, chicken, turkey and fish protein sources.

FDA FOOD PYRAMID RECOMMENDATION

The food pyramid chart shows people how to select food based on new groupings. For good health, foods at the bottom of the triangle should be eaten more often than items at it's point. The U.S. Department of Agriculture in 1992 created the Food Guide Pyramid as a replacement for the four food groups formerly presented to school children. I still like the four food groups: the milk group; meat group; bread and cereals group; and the vegetable and fruit group. The old chart put greater emphasis on meat and dairy products.

At the base of the pyramid are breads, cereals, rice, and pasta, with a recommendation that 6 to 11 servings be eaten daily. On the next levels up are the vegetable (3 to 5 servings) and fruit (2 to 4 servings) groups, dairy group (2 to 3 servings) and meats, eggs, nuts, and dry beans group (2 to 3 servings). Fats, oils and sweets are at the point, with a recommendation that they be limited.

If you tell clients who are trying to stay in shape about this system, you can't go wrong. Not only is it politically correct, you can't be held liable for pointing out the government's eating guidelines. It is a healthy way to eat, but it won't quite mesh with the high protein muscle building diet or the low carb fat loss system. It is OK for those athletes who really don't need anything specific, like golfers. It's probably better than most high school and college athlete's current eating system, no matter what.



MACRO NUTRIENTS

Macro Nutrients are Water, Protein, Carbohydrates, and Fats.

WATER

Athletes and dieters are often urged to drink plenty of water, but seldom told why. Water consumption is critical to all the body's chemical reactions, for starters. A person can live without food for several weeks, but only a few days without water. One of the main reason athletes need to be concerned about fluid intake is to prevent dehydration and muscle cramps during training. Dehydration can occur quickly during a hot summer practice. Eight ounces of water every ten minutes is the minimum requirement for

athletes during training or practice sessions. Sports drinks like Gatorade are also a good choice because they contain the correct ratio of the electrolyte potassium and sodium, which need to be replaced quickly during hot practice sessions. Drinking a glass of water can often eliminate even midnight muscle cramps. Weight watchers need to drink a gallon of water each day because it will act as a diuretic, ridding the body of excess fluid. If too little water is taken in, the liver takes over some kidney functions, and cannot do the job of breaking down stored body fat. The liver can become chronically overworked if fluid levels are below normal over an extended period. Always have clients drink plenty of water to lose weight.

PROTEIN

Protein is the most important muscle building, organ repair and insulin-regulating hormone. It is a key macro nutrient, since all of the skin, organs and muscle are made of protein. Your body can break down protein for energy if it needs to, but can not make proteins out of carbohydrates or fats. Protein is made up of chains of amino acids, some of which the body cannot manufacture. Protein is essential for building and maintaining muscles, as well as repairing the muscle damage that occurs during training. It is also required to make red blood cells, produce hormones, boost the immune (disease-fighting) system, and help keep hair, fingernails, and skin healthy. Athletes who are protein deficient may complain about having hair that falls out easily and fingernails that grow slowly and break easily. Female athletes who eat a protein-poor diet may also stop having periods.

Proteins are the "building blocks" of the body. Protein is broken down by the digestive system into amino acids which are used for building cells. Some proteins are considered complete, while others are incomplete. That means that the body can manufacture the rest of the amino acids it needs if the food contains the eight essential amino acids. The measurement of a protein's completeness is protein efficiency ratio (PER). The great thing about the PER is that if two types of protein are consumed at the same meal, one with a low PER like beans and one with a high PER, like eggs, the total PER goes up instead of down. Combining protein foods for muscle building purposes is better than eating one protein at a meal. Cottage cheese or milk consumed with a protein-based meal is a good example of combining proteins.

The other protein value rating systems are biological value (BV), Net Protein Utilization (NPU), chemical score, and protein digestibility corrected amino acid score (PDCAAS). BV is the most commonly used and is the best way to gauge protein. Biological value is a measure of *nitrogen* retained for growth or maintenance. This means that BV is simply how much protein is absorbed and used by the body. The greater the amount of protein or nitrogen retained, the greater the BV. If a protein has a BV of 100, all of the protein absorbed has been utilized. Eggs have the highest rating with a BV of 100. Beans have a low BV of 49. Whey protein also has biological value near 100. A food cannot have a BV value greater than 100, even if ads claim a value of 104 to 157. Chemical score is a comparison of the amino acid pattern in an ideal reference protein to a test protein. Numbers that exceed 100 are the chemical score and not the BV.

Because whey or egg protein has high BV, it probably offers the most benefits when clients are dieting. It has been suggested that whey may have other advantages besides high protein quality, although they are frequently overstated. Another benefit of whey protein is its fast absorption rate. Although there isn't any evidence that protein supplements digest more efficiently than whole foods (as is often claimed), they are definitely digested faster. This is most important after a training session when the rates of protein synthesis and glycogen re-synthesis are increased. This is the reason it is often recommended that a liquid meal containing protein and a high glycemic carbohydrate be consumed immediately post-workout and that whey is the ideal protein for this purpose. Even in post-workout nutrition, there is no evidence that a liquid protein-carb complex will actually produce better muscular growth than whole foods. Complete whole food protein foods and complex carbohydrates can be consumed immediately after the training session, and every three waking hours, for a period of 24 hours after training.

Protein intake should be increased in proportion to desired body weight for those who wish to increase muscle mass. There is a direct relationship between protein intake and lean muscle tissue. The ratio in bodybuilders training for competition should be one gram of protein per pound of desired body weight. Non-strength athletes and fitness dieters should strive for at least .6 grams of protein per pound of body weight, a level that most Americans can achieve easily with a normal diet.

NOTEWORTHY AMINO ACIDS

Liquid amino acids are complete, predigested protein. Amino acid pills are not as effective as liquid formulas and clients will be disappointed with results from pills. Liquid amino acids are remarkable in their ability to help transform the pre-contest bodybuilder's physique. It is during low carbohydrate and calorie periods that extra, quickly digested protein sources are crucial. One drawback is that many of the formulas taste terrible, but for those committed to excellence, recommend an amino acid liquid drink right before, during and immediately after training. Your client will be amazed at the results.

HOMOCYSTEINE

You may have heard about research reported in the New England Journal of Medicine that points to the amino acid homocysteine as a contributing factor in heart disease. Since it is a common component of protein, elevated protein intake may increase the risk of developing heart disease. Other studies seem to show that heightened homocysteine levels are the result of heart disease rather than a precursor. Since the data is still inconclusive, you must use your best judgment when informing clients about this fact. Elevated protein levels may cause additional strain on the kidneys as well. If the client has a history of kidney disease then a high protein diet is out of the question. Dr. Dean Ornish, a well known LA cardiologist and author of the popular book "Reversing Heart Disease," noticed a cessation and reversal of heart disease symptoms

after putting heart patients on a diet that included no more than 10-15% of the calories from fat. Protein intake was kept at normal levels (15% of total calories). Dr. Ornish made no concern about a possible relationship between a high protein diet and heart disease.

GLUTAMINE

Glutamine is the main amino acid found in muscle tissue. The thinking has been that taking extra glutamine will help increase muscle mass, but this has not been the case. Creatine is a much better blend for adding muscle size and strength. Clients can try Glutamine, but they may be disappointed with the results.

ARGININE & ORNITHINE

Arginine and Ornithine were touted as great growth hormone boosters in the eighties, but never lived up to the hype. There are still supplements advertised as GH stimulators, but none of them work very well. They are quite expensive, and if they produce any results at all, it is probably a placebo effect. Steer clients away from them.

CARBOHYDRATES

There are three classifications of carbohydrates: monosaccharides, disaccharide's, and polysaccharides. These are glucose; table sugar (or sucrose); and complex carbohydrates (starches), respectively. Carbohydrates are all converted to glucose in the body. The brain is a voracious glucose consumer. A problem occurs when the carbohydrates consumed are more than enough for immediate energy. The excess becomes stored as fat. Carbohydrates have been classified as high or low on the glycemic index. Bread, oats, rice, barley, rye, all vegetables, apples, potatoes, yams are all examples of low glycemic (good) complex carbs. However, people trying to lose weight don't get good results with bread or dairy products. Candy, cookies, sugar, cake beer, liqueur, wine are of the simple, high glycemic variety, and should be limited (except during training) because of the effects they have on insulin production and fluctuating energy levels. Insulin also interferes with fat loss and growth hormone (GH) production. GH is an anabolic and fat burning hormone.

STACKING CARBOHYDRATES

The little known techniques of stacking carbohydrates is more important than the now debunked system of carbohydrate loading. Carbohydrate loading, where an athlete depletes and then force-feeds carbohydrates over a period of several days, has proven not to work. The better carb stacking technique involves consuming several kinds of carbohydrates that are assimilated at different rates (see *glycemic index*) for enhancing performance. For example, pasta or rice eaten with a potato and some fruit would provide immediate energy and long term energy for an event. This is especially useful for endurance athletes.

FATS

Another major nutrient is fat (lipids). Here are common fat sources: Crisco, butter, margarine, lard, and bacon grease, chicken skin, pizza cheese. A gram of Fats act as a back up source of energy for carbohydrates. They burn more slowly and each gram of fat contains 9 calories, about twice the amount in protein (4 calories per gram) or carbohydrates (4 calories per gram). Excess calories are stored in the body as fat. This can cause high blood pressure, heart disease, cancer, and other problems. Some fat is necessary to maintain healthy skin and hair, but fat intake must be kept at a reasonable level. Experts suggest that no more than 20% of total calorie intake should come from fat sources. Nutritional requirements vary based on activity levels, but fat calories should remain constant. Even clients who are eating five or six small meals a day should limit fat intake to 10 to 20% of total calorie intake while drinking plenty of water. Lowering fat intake can prevent health problems and improve performance. Cholesterol levels tend to be lower in individuals who exercise regularly and eat foods low in saturated fats. Those with tendencies towards high cholesterol levels should avoid saturated fats, which are found in animal products.

Regular exercise prevents and reduces high blood pressure. The heart and lungs improve through controlled, regular physical exertion. By adding exercise that includes a muscle building program, the body will actually burn more calories even while sitting still. Muscles require more calories to maintain; therefore, a greater amount of calories are burned on muscular people than non-muscular individuals. The bottom line for your clients is to have them drastically reduce fat intake and start exercising. You should either purchase a small book with all the calorie, protein, fat and carbohydrate values in it or copy this web address into your browser window: <http://www.caloriecountercharts.com> to go to Mike's award winning comprehensive calorie chart online.

SPORT SUPPLEMENTS

Supplements build on the foundation of proper food intake. Before applying supplementation, the basics of performance eating should be addressed. For example, consuming protein from food sources is better than taking a protein powder. Once you have assembled the food menu for the client, you can create a supplement program to compliment it. The client's weight gain, loss or athletic goals and calorie requirements will dictate exactly what type of diet and supplement program to recommend. While there have been many sports supplements which have caused sensations down through the years, but failed to live up to the hype. Boron was a great testosterone booster that did very little. Vanadyl sulfate was an insulin mimicker. Arginine and Ornithine were touted as growth hormone elevators. All of these have fallen by the wayside to be replaced by creatine, caffeine and DHEA, which have withstood the test of time. And protein powder is still the greatest anabolic supplement ever discovered. They should make up the core ingredients of any supplement stack. It is a popular myth that the average diet provides all the Vitamins and minerals necessary for good health.

Modern farming techniques allow farmers to grow crops by adding only two minerals to the ground, potassium nitrate and calcium. Since there are about fifty known Vitamins and minerals, it is unlikely that your client is getting the nutrients they need out of the coffee and donut they had for breakfast (if they even eat breakfast), Big Mac, fries and coke for lunch, or the pizza and beer for dinner. Your job is to make clients aware of the need for supplementation to increase their performance. It starts with a good multiple vitamin-mineral every day, a must.

FOOD AND SUPPLEMENT TIMING

Studies have shown that when a person eats or consumes a supplement is just as important to athletic performance as what they eat. Eating late at night causes calories to be stored as fat, while eating early does not. The rule of thumb for food and calorie intake is to eat for the activity that follows the meal. Sleep is a period of energy storage that requires very little food, while intense weight training may burn 500 calories an hour, so the heaviest meal should be consumed prior to training. How long the person should wait after eating to train is up to the individual. The period could be as long as three hour or as little as thirty minutes. Some trainees consume high calorie sports drinks during the training session. That optimizes energy levels and enhances training intensity.

The pre-workout meal should be about 30-40 grams of protein and at least 100-150 grams of various kinds of carbohydrates (depending on goals, gender and body weight). Creatine, DHEA, desiccated liver, glutamine, amino acids, vitamin/minerals, and caffeine should also be taken then. The post training meal should always be eaten within an hour of the end of the workout, along with another dose of muscle building

supplements and vitamins, because blood flow is altered away from the organs and toward the muscles (target tissue) for about an hour after training. Protein at this meal should be 30-50 grams and carbohydrate should be 100-200 grams (again, depending on goals, gender and body weight). A liquid weight gain supplement is an ideal meal after training because it is assimilated quickly. Calories are burned at a higher rate even while resting, after weight training, for up to eight hours. Protein synthesis (building) stops during training so that amino acids build up in the blood stream ready to repair muscle after the workout. By continuing to add to the supply, muscle repair and building are optimized.

No residual fat burning effect has been observed after aerobic activity. A greater fat burning effect has been noted in those who do their aerobic component training in the morning on an empty stomach. Training with weights will be hindered if done on an empty stomach first thing in the morning and intensity levels will drop dramatically, defeating the purpose of weight training.

MICRONUTRIENTS – VITAMINS & MINERALS

All natural vitamins are organic foods nutrients found only in plants and animals. The body cannot manufacture or synthesize vitamins (except for Vitamin D through exposure to sunlight). They must be supplied in the diet or in dietary supplements. Vitamins are essential to the normal healthy functioning of our bodies. They are necessary for growth, health and, energy. Most important to athletes is the effect they can have on endurance and stamina.

The Food and Drug Administration (FDA) has designated minimum standards for vitamins and minerals in maintaining good health. Athletes (Adults and children) need to take at least one multiple vitamin/mineral tablet per day to meet their minimum nutritional requirements. A one-a-day type multivitamin/mineral gives ample intake of the daily necessary vitamins and minerals. Anyone who trains regularly will become deficient in one or more micronutrients if they are not using a supplement, and their performance will drop off. To avoid indigestion, vitamins should be consumed with food. One-a-day formulas do not contain the minimum recommended amounts of some nutrients. Multiple vitamins' requiring several capsules or tablets per day work best. Two or more pills should be spaced evenly throughout the day. Vitamin formulas are available in tablet, powder filled capsule, or liquid filled soft-gel cap form. Since multiple vitamins have all the ingredients mixed together, the B vitamins can react with the rest of the ingredients in the capsule or tablet. It can cause the B vitamins to seep through the capsule or tablet, discoloring it and emitting a strong odor. It is still safe for consumption and effective. Properly made tablets and capsules dissolve readily in the stomach. Time release vitamins have not been proven to be better than regular formulas.

VITAMIN A

Vitamin A assists in growth and repair of body tissues, helps maintain smooth skin, protects the mucous membranes and susceptibility to infections, protects against air pollution, counteracts night-blindness or poor eyesight, and helps in bone and tooth formation. 4000 IU daily is 100% of the RDA. Vitamin A can build up in fat tissue since it is an oil soluble (dissolves in oil) compound, and is toxic in high amounts, so caution must be used. No high doses of Vitamin A should ever be recommended. A lack of Vitamin A may cause night blindness, increased susceptibility to infections, rough, scaly skin, loss of appetite or smell, fatigue, no tears, poor teeth & gums, or slow growth. Food Sources of Vitamin A are beef liver, cod liver oil, egg yolk, cheddar cheese, milk. Beta-Carotene, which is a type of Vitamin A, helps reduce the risk cancer. Beta-Carotene is non-toxic. 1000 IU daily is 100% of the RDA. Food Sources of Beta-Carotene are sweet potato, carrot, pumpkin, cantaloupe, broccoli, and apricots.

VITAMIN B-1 (Thiamin)

Generates energy; aids in the digestion of carbohydrates; essential for the normal functioning of the nervous system, muscles & heart; stabilizes the appetite; promotes growth & good muscle tone. Lack may lead to the loss of appetite; weakness & feeling tired; paralysis & nervous irritability; insomnia; loss of weight; vague aches & pains; mental depression & constipation; heart & gastrointestinal problems. 1.5 mg. daily is 100% of the RDA.

VITAMIN B-2 (Riboflavin)

Riboflavin is utilized in protein, carbohydrate, and fat metabolism, also helps form red blood cells and antibodies, cell respiration, good eyesight, healthy hair, skin, and nails. This is the one that makes urine that bright yellow color. 1.7 mg. daily is 100% of the RDA. Deficiency may lead to itching and burning eyes, cracks and sores in the mouth or lips, bloodshot eyes, purple tongue, dermatitis, poor growth, digestive disturbances, trembling, sluggishness, oily skin.

VITAMIN B-12 (Cobalamin)

Necessary for formation and generation of red blood cells, protein, carbohydrate, fat and metabolism; keeps nervous system healthy, aids growth in children; increases energy; essential for calcium absorption. Shortage may cause brain damage, depression, pernicious anemia, poor appetite, low growth rate in children, fatigue, nervousness, neuritis, spinal cord degeneration, poor balance. 6 mcg to 50 mcg is the dose range for B-12.

VITAMIN B-3 (Niacinamide)

Utilized in lowering blood pressure and cholesterol levels, elevating GH in the bloodstream, bolsters the nervous system and protein, carbohydrate and fat

metabolism, increases energy through proper utilization of food. Lack may lead to headaches, nervousness, fatigue, gastrointestinal problems, depression, aches & pains, irritability, loss of appetite, insomnia, skin disorders, muscular weakness, indigestion, bad breath, canker sores, pellagra. 20 mg daily is the RDA.

VITAMIN B-5 (Pantothenic Acid)

Pantothenic acid helps release energy from protein, carbohydrates, fats and assists in the utilization of vitamins, improves resistance to stress, aids in cell building, central nervous system development, bolsters adrenal glands, builds antibodies. 10 mg daily is 100% of the RDA. Insufficiency can cause pain or burning sensations in feet, skin problems, slowed growth, dizziness, digestive problems, vomiting, cramps.

VITAMIN B-6 (Pyridoxine)

Used in synthesis of amino acids, helps in carbohydrate and fat metabolism; used in the creation of antibodies, crucial to central nervous system function, keeps skin healthy, lowers incidence of muscle spasms, leg cramps, hand numbness, nausea & stiffness of hands; helps maintain phosphorous and sodium balance. Lack may lead to dermatitis, insomnia, anemia, nervousness, pimples, lack of muscular control, mouth problems, weak muscles, arm and leg cramps, hair loss, impaired learning, and water retention. 2 mg 10 mg daily is the range for athletes.

BIOTIN

Biotin helps in protein, folic acid, Pantothenic acid, and Vitamin B-12 utilization, and hair health. 300 mcg is 100% of the RDA of Biotin. Biotin shortage causes exhaustion, sleepiness, muscular pains, poor appetite, depression, and grayish skin.

FOLIC ACID

Folic acid helps synthesize DNA & RNA (used for reproduction and cell growth). It is used in the creation of red blood cells in the bone marrow and helps in protein metabolism. Physicians put their pregnant patients on folic acid supplements because the developing fetus requires extra amounts. It is essential for proper brain and nervous system development. 400 mcg daily is the normal daily adult requirement. Inadequate folic acid can cause anemia, gastrointestinal problems, Vitamin B-12 deficiency, and premature gray hair.

VITAMIN-LIKE SUBSTANCES

Vitamin-like substances are compounds that resemble vitamins in their activity but are created in the body. They are generally in the category of B vitamins because they are similar in function and distribution in foodstuffs. Their standing as essential nutrients is uncertain.

Choline is found in all cells and helps nerve function and metabolic processes. Inositol or (Myoinositol) is a water-soluble compound, but its significance in human nutrition has not been clearly established. Para-aminobenzoic acid is part of folic acid but its specific role in nutrition has not been agreed upon.

Carnitine transports fatty substances like sterols.

Lipoic acid has a coenzyme function like thiamine. Since it is synthesized in the liver and kidneys, it is not considered a vitamin.

Bioflavonoids are a group of substances that affect capillary permeability, but are not called essential nutrients.

INOSITOL

Inositol and its derivative, Inositol hexaphosphate (IP-6), helps form lecithin, aids in lipid breakdown, lowers cholesterol, and prevents balding. New research suggests that it can even prevent cancer formation and shrink pre-existing cancer cells. Suggested amount is 500 mg twice per day. For depression, anxiety and obsessive-compulsive disorders, doctors will prescribe 12–18 grams per day. Deficiency can cause high cholesterol, hair loss, constipation, and eczema. No RDA has been established for Inositol.

CHOLINE

Choline helps control fat and cholesterol buildup in the body, while preventing fat from accumulating in the liver and facilitates the movement of fats in the cells. It helps regulate the kidneys, liver and gallbladder and promotes nerve transmission. Bodybuilders use choline to enhance muscle tone. Liquid choline consumption has been shown to improve memory by five percent for up to fifteen minutes after consumption on memory tests. It can leave a fishy smell around the person who consumes high amounts because it is derived from fish (brain food). Lack can cause cirrhosis and of the liver, hardening of the arteries, heart problems, high blood pressure, hemorrhaging kidneys. 550 mg daily is the minimum needed to prevent liver damage. There is no US RDA for choline.

PABA (Para Amino Benzoic Acid)

PABA helps healthy bacteria to produce folic acid and aids in forming red blood cells. It also is used as a sunscreen. PABA helps in assimilating Pantothenic acid while returning hair to its original color. Lack of PABA can cause extreme fatigue, eczema, irritability, depressions, nervousness, constipation, headaches, digestive disorders, and hair turning prematurely gray. No RDA for PABA has been established. 30-50 mcg per day for six weeks is a common dose. Food sources are Liver, Brewer's yeast, wheat

germ, black molasses, gut bacteria, bran, cabbage, sunflower seeds, oats, spinach, citrus fruit, black currants, sprouted seeds.

VITAMIN C (Ascorbic Acid)

Vitamin C is necessary for strong teeth, gums & bones. It also helps heal wounds, scar tissue, broken bones while preventing scurvy and building resistance to infection C aids in the prevention treatment of colds, strengthens blood vessels, and helps with iron absorption. It is required for the synthesis of collagen, and is also one of the major antioxidant nutrients. C also prevents the conversion of nitrates into cancer-causing substances. According to Dr. Linus Pauling, the Vitamin C Doctor, Vitamin C will decrease the risk of cancer by 75%. Pauling used to take 10 grams daily. He lived to age 90. Lack can cause gum disease, joints pain, slow wound healing, bruising, nosebleeds, cavities, loss of appetite, weakness, skin hemorrhages, capillary weakness, anemia, poor digestion. The best food sources are citrus fruits and juices, and tomatoes. 60 mg is the RDA of C.

VITAMIN D

Vitamin D helps absorption of Calcium and Phosphorous; while maintaining a stable nervous system and normal heart action. Lack can lead to rickets, tooth decay, softening of bones, improper healing of fractures, lack of vigor, muscular weakness, inadequate absorption of calcium, retention of phosphorous in the kidneys. Food sources are fish, Cod liver oil, and Milk. 400 I.U. is the minimum RDA for Vitamin D.

VITAMIN E

Vitamin E is an anti-oxidant nutrient that slows cellular aging due to oxidation. It alleviates fatigue, helps nourish cells, strengthens capillaries prevents and dissolves blood clots. Doctors preventing heart conditions, sterility, and muscular dystrophy have also used E. Lack can cause rupturing red blood cells, lack of sex drive, fatty muscles, degeneration in the heart and muscles, skin dryness. E is found in egg yolks, olive oil, and fish oils. RDA of E is 30 I.U.

VITAMIN K1

AKA Phylloquinone or Phytonadione

Vitamin K is utilized in proper bone formation and blood clotting by helping the body transport calcium. Doctors use Vitamin K when treating an overdose of the drug warfarin. Doctors prescribe 65–80 mcg per day of vitamin K to prevent excessive bleeding in people taking warfarin who require surgery. 65-80 mcg can be achieved without supplementation by eating vegetables. The RDA for vitamin K is about 1 mcg

per 2.2 pounds of body weight. K is found in leafy green vegetables. Vitamin K interferes with the action of some prescription blood thinners. People taking these drugs should never supplement vitamin K without consulting a physician. All newborn infants receive vitamin K to prevent deficiencies that sometimes develop in breast-fed infants.

MINERALS

Fluoride (fluorine) is a trace mineral. Dietary sources of Fluoride include fluoridated water and foods grown or cooked in fluoridated water, canned fish (with bones) and teas. Fluoride helps form bones and teeth and may help prevent osteoporosis. Lack may cause increased tooth decay. Too much may impair bone health, kidney function, muscle and nerve function. Toothpaste is the common source of fluoride. It is never necessary for adults to supplement this mineral.

Iodine is another trace mineral. Dietary sources of Iodine are iodized salt and seafood. and crops grown Iodine regulates thyroid hormones and is necessary for growth and development. 150 mcg is the daily requirement. Iodine deficiency can cause goiter, enlargement of the thyroid gland, cretinism, dwarfism and mental retardation. Too much can enlarge the thyroid.

Iron is a trace mineral. Food sources of Iron are liver, kidneys, red meat, poultry, eggs, peas, legumes, dried fruits, dark green leafy vegetables, enriched breads and cereals. Heme Iron, which is found in animal products, is absorbed better than non-heme Iron, the type in plants. To boost non-heme Iron absorption, foods rich in Vitamin C must be eaten during the same meal. Iron aids the formation of hemoglobin, which carries oxygen in the blood, and myoglobin, which carries oxygen in muscle tissue. Lack of Iron can cause Microcytic anemia, fatigue and a decrease in immune function. Overdose may lead to organ failure and death. Toxicity is rare from food sources, but can occur from excess supplementation. 18 mg daily is the recommended amount.

Magnesium is an essential mineral. Foods containing Magnesium are milk, dark green leafy vegetables, meat, nuts, legumes, bananas, and whole grains and wheat bran. Magnesium aids in bone growth and the function of nerves, bones and muscles and regulation of normal heart rhythm. It also aids in regulation of blood pressure and water balance in cells. Lack can cause nausea, weakness, irritability and heart rhythm disruption. There is no toxic effect in people with normal kidney function. 250–400 mg daily should be taken.

Manganese is also a trace mineral. Dietary sources of Manganese include whole grains, nuts, legumes (dried beans), vegetables, fruit, instant coffee, tea, and cocoa.

Manganese is Vital to reproduction, energy metabolism and aids in blood, cartilage and bone formation. Lack may cause nausea and vomiting while no evidence of toxicity has been noted from dietary intake. Excess may interfere with iron absorption. 2 mg 2–5 mg is the range.

Molybdenum is a trace mineral. Food sources of Molybdenum are milk, whole grains, liver, legumes and dark green leafy vegetables. Major Body Functions: Activates certain

enzymes in the body Necessary in energy metabolism. It aids in blood, cartilage and bone formation. Deficiency is rare. Excess amounts may interfere with Copper absorption Gout like symptoms. 75 mcg daily is the correct amount.

Potassium is another essential mineral, especially to athletes. Food sources of potassium are fruits, vegetables, milk, meat and poultry. Potassium is an electrolyte that maintains acid-base balance, helps muscle contraction and nerve impulses, heart and kidney function, and regulates blood pressure and water balance in cells. Potassium lack leads to weakness, anorexia and nausea, drowsiness and irrational behavior. Too much can cause cardiac arrest. Supplements that are not prescription are less effective than eating a banana each day because the FDA allows only a tiny amount in over the counter supplements.

Selenium is a trace mineral. Food sources of Selenium are fish, shellfish, red meat, grains, eggs, garlic and liver. Selenium prevents oxidation of unsaturated fatty acids while helping with heart function. It is also necessary for immune function and lack can cause muscle weakness and cardiomyopathy. Too much causes nausea, abdominal pain and diarrhea. 70-200 mcg daily is the athlete's requirement.

Sodium is a crucial mineral. Food sources of sodium are table salt, soy sauce, monosodium glutamate, and cheese, smoked and cured meats, and processed and canned foods. Sodium is an electrolyte that helps maintain acid-base balance, regulates blood pressure and water balance in cells and aids in muscle contraction and nerve impulse transmission. Lack causes headache, weakness, muscle cramps and shock. Too much causes fluid retention (important to competitive bodybuilders) and high blood pressure. Don't supplement sodium.

Zinc is a trace mineral. Food sources of zinc are meat, liver, shellfish, milk, whole grains and wheat germ. Zinc is used in cell division, growth, and healing and immune system function. Low levels can cause loss of appetite skin and immunological problems, dwarfism, slow growth, and healing. Too much zinc causes vomiting and may impair the immune system. 15–25 mg each day is necessary for good performance.

EFFECT of VITAMINS on COMMON DRUGS

Extra doses of vitamins such as C and E may hinder some benefits of cholesterol-lowering drugs, one study concluded. Other research suggests that antioxidant vitamins, which offset the harmful effects of oxygen may help keep arteries healthy. A study compared patients with coronary artery diseases that were taking a mix of antioxidant vitamins and drugs to those who were taking drugs alone. The study used niacin and the drug Zocor, which lowers artery-clogging LDL cholesterol while increasing beneficial HDL cholesterol. It found that the volunteers' HDL levels failed to rise as much as expected when they mixed vitamins with their cholesterol drugs. No change in HDL was noted in people taking just niacin, C, and E, or a placebo. Vitamin E has been shown in other studies to reduce the risk of heart disease.

CAFFEINE AND LIPOTROPICS

Caffeine is a powerful stimulator that increases metabolism. Caffeine has been used as a wake up potion in coffee but can also enhance performance. Research conducted on this chemical has shown that it has positive implications for bodybuilders, weight-trainers, and athletes. Some of the effects are weight loss, metabolizing (burning) fat, and muscle maintenance.

Most of the over the counter fat burners like Hydroxycut contain caffeine. When 300 mg. is taken, fat burning will be enhanced through the process of thermogenesis (raising the body temperature). Brown fat cells in the body are the greatest recipients of this heating process, and they will shrink noticeably in just a few days.

Athletes have taken caffeine for a number of years to enhance performance. Bodybuilders can benefit from supplementation of caffeine in many ways. The compound not only promotes the breakdown of fat cells, but also stimulates the biochemistry of muscles, while enhancing performance.

Caffeine should not be recommended for athletes under age 18, pregnant or nursing women, people with high blood pressure, liver, thyroid, or psychiatric disease, diabetes, pernicious anemia, nervousness, anxiety, depression, seizure disorder, cardiac arrhythmia, stroke, difficulty in urination due to prostate enlargement, or pheochromocytoma. Clients should discontinue use and consult a health care practitioner if dizziness, sleeplessness, tremors, nervousness, headache, heart palpitations or tingling sensations occur. They should always consult their healthcare professional before using if they are taking a prescription drug.

There are oil based, or lipotropic weight loss compounds that you can recommend to your clients in addition to stimulant capsules. If a client cannot tolerate caffeine, suggest a lipotropic fat burning supplement containing hydroxycitric acid (HCA). Some clients may see good results from lipotropics alone. Others will require a more potent metabolism stimulator. Discovering the client's health history and plainly stating possible side effects is crucial before clients use any stimulant supplement. Feedback is essential when the client actually begins to use a product. And start with less than the manufacturer recommended dose. 300 mg. before the training session is a good place to start. Stay with that amount for two or three days and get feedback about things like mood, irritability, sleep patterns and energy levels. If the client's report is negative, switch to a lipotropic formula.

MACA

Maca comes from Lima, Peru. Maca can boost sex drive by up to 200 percent, according to a study by Peruvian Pharmaceuticals Company Hersil. The study found, can also cut stress, boost energy, and well being and increase fertility. Maca (like a small brown turnip, with a pungent smell and a foul taste) can produce a 180-200 percent raise in libido (sex drive) and up to a doubling of sperm production in men. Maca also reduced blood pressure with no adverse effect on the heart and shows energy-giving properties, while boosting physical and sexual performance. Maca produced an increase in sex drive within two weeks in men, but there are no studies yet on maca's effects on women. It is available in powder or tablet form in health food stores, and is goes by the names Peruvian Ginseng, or Korean Red Ginseng.

PROTEIN POWDER

There are many popular protein powder formulas available. One of the best is whey & casein protein, although lactose intolerant individuals can not use whey or dairy products. For them a good egg or soy protein powder is recommended. Vegetarians will still make good muscle gains if they stick with a soy based protein source like tofu, and soy protein powder. No more than 100 grams of protein daily should come from protein powders. Food should be the primary source of protein intake for athletes. The rule of thumb for building mass is to eat about 30-40 grams of protein every three waking hours from many different sources.

CREATINE

Creatine is a blend of three amino acids and is considered a food by the FDA. It is a cell volumizer and works by increasing muscle structural protein and causing greater amounts of ATP and water to stay inside muscle cells. Many weight trainers gain five pounds the first few days they use creatine. At first creatine was "loaded" and consumed with fruit juice to maximize the effect. Later studies have shown that loading creatine and taking it with juice is unnecessary. There are now many kinds of creatine available, including effervescent creatine. The problem with any liquid creatine or pre-packaged drink is that creatine degrades after about ten minutes in water. Until research that refutes this finding surfaces, using powdered creatine added to water, and consumed immediately, is still the best way to take creatine. Caffeine also blunts the effect of creatine, so they should never be taken together. The correct muscle building dose is 1-2 tablespoons (depending on body weight and gender) taken before and after training.

DHEA

Tribulus and DHEA are all called pro-hormones -- hormone precursors, or muscle building stimulators. They are one chemical step away from being transformed into testosterone by the liver. The body will produce only a small extra amount of testosterone from DHEA if there is already an adequate supply of testosterone in the

blood stream. Taking huge amounts of DHEA is unnecessary because the excess will be excreted in the urine. And the half-life of many DHEA formulas is only about an hour, which means half of the hormone is gone after sixty minutes. 100 mg taken 30 minutes prior to training is best for muscle building. Because the body builds up a tolerance quickly to DHEA, it should not be administered on non-training days. Cycle DHEA by going on for four weeks, off for two and back on for four more. A six-week break can be followed by the same cycle again. Following a cycling program like this, the trainee should be able to keep all of the gains they made while on the pro-hormone.

Tribulus and DHEA are fast acting pro-hormones with a half-life of an hour or less. There are slight differences in the chemical formula of each, so stacking tribulus and DHEA, (a shotgun approach) is the best system. Elevated blood testosterone levels that will cause a quick boost in drive for the workout will remain high for several hours after training, when blood flow is still altered away from organs and toward the target muscle tissue. Many popular pro-hormone formulas now have a blend of all three substances in them.

GLYCEMIC INDEX

The glycemic index (GI) is a measure of how much a food affects your blood sugar level if consumed by itself after a period of fasting. It does not measure insulin levels in the blood, but the amount of sugar in the blood. It measures the effect food has on blood sugar compared to the effect of sugar, or glucose, which has a level of 100. That means that if a client eats a piece of fruit with a GI of 50, and measured blood sugar levels over a two hour period, the fruit would cause an increase in blood sugar half as high as the 100 percent spike that table sugar would cause. Thus the piece of fruit would have a rating of 50 on the glycemic index. When carbohydrates are consumed in meals that contain protein and fat, the glycemic index loses its significance because the protein and fat slow the absorption of the carbohydrate.

The Glycemic Research Institute (GRI) rates foods as acceptable or unacceptable, rather than use the glycemic index number. A food is acceptable to the GRI if it does not overly stimulate blood glucose, lipoprotein lipase (that enzyme that promotes fat storage), or insulin too much. The food can't have high-glycemic components. or contribute to hyperactivity, ADD, or dyslexia in children. A food is unacceptable if it reduces sports performance because of insulin spikes, or causes hypoglycemia (low blood sugar). Many fruits can skip a step in the liver and stimulate lipoprotein lipase production, while bypass the insulin engine spike. They would have a higher rating on the glycemic index, even though they are low in sugar.

By recommending low glycemic index foods, clients can lose weight and improve sports performance. The complete glycemic index of foods is available at www.mendosa.com/gilists.htm, one of the best GI sources on the web. You can also do a search on *glycemic index* to ferret out additional sources. Become familiar with the glycemic index because it is important for athletes, who require carbs for performance.

Monitor your clients closely for any reaction to supplements, especially:

Designer Protein, whey protein, egg protein or soy protein. (Lactose intolerant individuals must use egg or soy protein). Protein supplement use may cause digestive problems, diarrhea, stomach upset

Creatine in various forms may cause digestive problems, diarrhea, stomach upset.
DHEA - tribulus testosterone boosters in various forms

Hydroxycut and Xenadrine containing caffeine in low doses are excellent for weight loss. Non- caffeine, oil based containing fat burners are also good recommendations for clients who can't tolerate caffeine. Make sure they watch for symptoms like irritability, digestive problems, diarrhea, stomach upset, nervousness, insomnia, or fatigue.

Non- caffeine containing fat burners

Various multi Vitamin mineral complexes

Sports drinks with carbs, caffeine, protein, or high protein weight gain drinks.

Low carbs

High protein

Reduced or increased calories

Mood, hunger levels, irritability, digestive problems, diarrhea, stomach upset, rate of weight gain or loss, water retention, nervousness, insomnia, fatigue, sleepiness, energy levels.

Most of the responses will be subjective. Clients may have to tone down their goals if their response to supplements or diet is adverse. Always be flexible. Start out with a gradual change and check reaction rather than adding everything the first day. Do one new thing each day. Moderate changes will allow the client to judge what is working and it will be documented on the feedback sheet.

ATHLETE'S RESPONSE TO DIETARY CHANGES

Do you have any indigestion or other reaction after consuming a particular food or supplement?

How do you feel on your new diet?

How is your energy level?

Are you nervous or irritable?

Are you sleeping more or less now than before starting the diet?

Are you making the improvements that you anticipated on the diet?

Stomach gas problems can be caused by Designer Protein, whey protein, egg protein or soy protein. (Lactose intolerant individuals must use egg or soy protein). Any protein supplement use may cause digestive problems, diarrhea, stomach upset
Creatine in various forms may cause digestive problems, diarrhea, stomach upset. If the powder doesn't sit well with someone, have him or her try pills, or the new effervescent creatines on the market.

Low carbs, high protein, reduced or increased calories all may affect mood, hunger levels, irritability, digestive problems, diarrhea, stomach upset, rate of weight gain or loss, water retention, nervousness, insomnia, fatigue, sleepiness, energy levels. Hydroxycut and Xenadrine containing caffeine in low doses are excellent for weight loss. Non- caffeine, oil based containing fat burners are also good recommendations for clients who can't tolerate caffeine.

Make sure they watch for symptoms like irritability, digestive problems, diarrhea, stomach upset, nervousness, insomnia, or fatigue. You may have to reduce or eliminate caffeine containing fat burners, or cut out DHEA and tribulus if the client's irritability level rises. If they're also drinking sports drinks with carbs, caffeine, protein, or high protein weight gain drinks, they may have to quit them, too²⁸.

APPLYING NUTRITION TO ATHLETES

Protein

Protein is the most important component of any athlete's diet. Each meal must be protein based. Protein controls glucagon secretion. Glucagon is a hormone that causes stored carbohydrates in the liver to be released while reducing insulin spiking, so that normal blood sugar levels are maintained. If levels increased glucagon reduces insulin levels. Animal is the protein of choice for athletes because it is more easily digested than fibrous vegetable protein, and it has a more complete amino acid base and B-vitamins. Tofu, made from soybeans, is a low fiber vegetable protein and is easily absorbed for athletes who wish to avoid animal protein. Fiber free soy based protein powders are also acceptable.

Athletes should consume 5 ounces of lean protein per meal from (in order of importance):

Eggs, steak, skinless chicken breast, turkey, fish, tofu.

Carbs

Carb stacking is the method of consuming several different types of carbohydrates from the same meal like pasta, fruit, and vegetable for controlled carbohydrate absorption and consistent energy levels during training or a sporting event. The effect of carbohydrate stacking is dramatic and immediate. An athlete will instantly feel more energy throughout the training session by eating this way. Athletes need to consume 10 ounces of low glycemic index carbs per meal from the following sources:

Vegetables, fruits, pasta, bread, bagels, cereals, potatoes.

Fat

Fats are essential for athletic performance. Good fats are monounsaturated fats and long-chain omega-3 fats. Monounsaturated fats are in olive oil, nuts and avocados. Long-chain omega-3 fats come from fish oils. Bad fats are saturated fats and trans fats, which should be moderated. Saturated fat comes from animal meat and high-fat dairy products and trans fats are hydrogenated oils used in fast food production. The omega-6 fatty acid, arachidonic acid is contained in red meats, egg yolks, and organ meats. Some arachidonic acid is good, although too much can cause health problems like obesity.

Good Fats are:

Almonds, cashews, macadamias, peanuts, avocados, canola oil, olives & olive oil

Bad Fats are:

Butter, lard, margarine, safflower, soybean oil.

HORMONE REGULATION

Hormones are primarily responsible for an increase or decrease in athletic performance, strength and muscle mass. Eating correctly can regulate hormones, improve athletic performance, increase muscle mass, and reduce body fat. Research has shown that by consuming certain foods or supplements and timing meals correctly, athletes can control insulin, growth hormone, and testosterone and cortisol levels in the body. The way to maximize hormone values is to time supplementation and food intake so that they coincide with training sessions. For example, by consuming a high protein-high carb –protein meal one hour prior to training, the athlete will have more energy and stamina because insulin, testosterone and growth hormone levels will remain steady while damaging cortisol hormones will be kept in check. By supplementing with fish oil, flaxseed oil, olive oil, B-12 vitamins, niacin and desiccated liver, both testosterone and growth hormone values will be increased (niacin has been shown to increase growth hormone levels in the body by as much as 800% when 1000 mg is consumed). Testosterone is made up of sterols, which are oil-based hormones. Vitamin B-12 and desiccated liver have proven to increase stamina and endurance during athletic events.

By training for periods no longer than 30 minutes several times daily, athletes will maintain high testosterone, growth hormone and insulin levels, while minimizing damaging cortisol in the bloodstream. Studies have shown that after approximately 30 minutes of intense physical exercise cortisol levels rise dramatically, while growth hormone, testosterone, and insulin levels drop correspondingly.

To repair protein damage and replace glycogen in the muscles after training sessions, a high carb/high protein meal should be consumed within one hour after the end of exercise. The reason is that insulin, which is a very anabolic hormone, will increase and force glycogen back into the storage places of the body (the liver and muscles) and blood flow is altered during that period away from the organs and toward the muscles for one hour after training. It is at this time that the athlete wants to make sure that hormone affecting vitamins, minerals, carbohydrates and proteins are replenished. If the workout is longer than 30 minutes, a carbohydrate drink may be consumed so that there is a readily available source of glycogen for the muscles, which will also cause an upward spike in insulin levels. Elevated blood insulin is desirable during and after training, when it can be utilized immediately, but not prior to training.

PRE- WORKOUT MEAL & SUPPLEMENTS

Prior to training the client must prepare by eating the proper nutrients. This meal can also be consumed before a sporting event.

Pre workout supplements and meal 1 ½ hours before training: 4 eggs, 2 slices bread, 8 oz. milk, 1 banana, 1 apple.

Supplements: 1 Multivitamin-mineral, 1000 mg. C, 1000-mg fish oil, 1000-mg flaxseed oil, 400 iu. vitamin E, 1000 mg. time release niacin, 1000 mcg. B-12, and ten 50 grain desiccated liver tablets required prior to workout. Client must stay hydrated with Gatorade or other electrolyte replenishment drink.

POST-WORKOUT MEAL & SUPPLEMENTS

Protein shake mixed with 1 banana, 1-pint milk, and strawberries. Supplements:

1000 mg vitamin C, 10 50 grain desiccated liver tablets, 1000 mg fish oil, 1000 mg flaxseed oil, 1000 mg. time release niacin.

CARBOHYDRATE LOADING

Carbohydrate loading has been around for years as a way to boost endurance during a marathon and it works well for other endurance athletes, too. To best determine the effects carb loading has on the athlete, experiment with carbohydrate loading as part of their training before an actual meet. Marathoners, Triathletes, long-distance swimmers and cyclists may be able to improve their performance by forcing carbohydrates as glycogen into their muscles.

Carbohydrates are converted to sugar and stored as glycogen in your muscles and liver. Muscles store only enough glycogen enough to provide adequate energy reserves for normal training sessions and short distance running. After 90 minutes the muscles run out of stored glycogen and cause reduced performance. Carbohydrate loading is a way to boost performance beyond the 90 minute "wall." Too properly carb load, one week before the event cut down carb consumption to one-half of the total calorie intake. Increase the amount of protein and good fat to make up the calorie deficit. This is the carb depletion phase. Three days before the competition increase carbs to 70 percent of total daily calories (4 grams per pound of bodyweight) and reduce intake. Reduce training down to mild short pumping sessions to avoid carb depletion and stop training altogether two days before the contest.

Research has proven that taking a couple of days off and increasing carbohydrate intake three days before a competition will also load carbohydrates, probably because of the chronically carb depleted state that the athlete is already in. The athlete should continue taking carb drinks during the event.

ATHLETE WEIGHT REDUCTION PLAN

Studies have shown that athletes can develop the ability to use about 50% fat and 50% glucose for energy during aerobic exercise. That is about the best fat burning ratio available. An excellent system for fat loss without aerobics is to circuit train with weights, employing an out of breath pace for cardiovascular benefits, and here's why: The latest research indicates that the body burns fat for up to four hours after a heavy resistance workout. There is no residual fat burning observed after an aerobic session. You simply burn the amount of calories that the treadmill workout used. The easiest way to attack fat is through food group choices.

If you burn 500 calories per hour during an aerobic training session, that equals a *calorie dense* McDonald's meal of a burger, fries and a diet soda. A better way to remove unwanted fat is to avoid the junk food and concentrate on foods that are lighter in calories per gram, like rice, rice cakes, low cal bread, vegetables of all kinds, oranges, apples, potatoes, yams. There are so many low calorie snack foods available today that you should be able to satisfy any cravings without unwanted calories. It's a lot less energy and time intensive method for losing unwanted fat, and you can eat that way all the time.

Most people have poor results when eating pasta, cereal, milk and sugar while trying to lose fat. Try the suggestions below and the menu choices I mention. High protein, low carbohydrate meal replacement drinks are excellent meal substitutes, especially when you are on the go. Also use chicken or turkey breast sandwiches with mustard on reduced calorie bread. Limit bread intake to four slices per day, and don't eat carbohydrates before bed. If you are starving, eat egg whites or plain (albacore) tuna at night with vegetables.

Here are the most frequent reasons that a dieter doesn't lose fat, as opposed to weight. Weight may not change much if you are gaining muscle mass while reducing food intake. Adding muscle will help you lose fat.

1. Menu is too high in calories from calorie dense foods like snack foods, pizza, desserts, pasta, bread, and dairy products.
2. Activity and exercise levels are too low, or non-existent.
3. Slow thyroid. Check by taking your temperature as soon as you wake up each morning. If your temperature is below 98.6 degrees for 7 days in a row, bring the results to the attention of your physician. He can run further tests. About one in two Americans has an under active thyroid.
4. Fewer than 20 grams of protein are consumed for breakfast. Protein regulates insulin levels. When a high sugar or carbohydrate meal is consumed for breakfast, insulin levels in the blood become elevated. In the presence of insulin, fat is stored for energy, not broken down. Hypoglycemia all day long is the result

5. Too much fat is consumed. Butter, salad dressing, fried foods.
6. Too much sugar is consumed. Did you know that juice manufacturers are allowed by the FDA to put sugar in juice and label it "unsweetened," because they feel that much of the sugar was leached out during processing. You eat too much sugar. Each American eats 50 lb. per year!
7. The heaviest meal is eaten at night rather than at breakfast. Way too often people eat too much right before they go to bed, or worse, they eat midnight snacks. If you eat for the activity level that will follow the meal, then you'll know not to eat a big meal before bed. All you're doing is sleeping and storing fat (energy). Try no food after 6:00 p.m.
8. Alcohol slows down the metabolism and is processed like sugar by the body.
9. Too few meals or calories are eaten per day. The body goes into a starvation mode, where it uses muscle for energy needs while conserving fat. Eat at least three staggered meals per day. Never skip a meal, unless it's at night.
10. Too many in between meal snacks are consumed.

So there are the ten main reasons why clients who want to lose fat don't. If each one of them is honestly addressed, weight loss will be ensured.

PROTEIN

Steak, eggs, chicken, fish, turkey, milk, cheese, ham, any seafood, beef, or pork are all protein foods. These are what replace broken down muscle and organ proteins, and add a little (0.1% per training session) more back into the muscle than there was before exercise.

THE GLYCEMIC INDEX

The body converts carbohydrates into glucose, or sugar. The glucose is stored in the muscles and liver. Some foods convert to glucose at more quickly than others do, which gives it a higher ranking on the *glycemic index*. For example, potatoes are slowly converted complex carbohydrates that do not spike insulin levels the way that grape juice does (100 on the glycemic index). Hydroxy-citric acid is a supplement that can help block this insulin spiking when it is taken with meals. Vanadyl sulfate and chromium also lower insulin levels. The body stores fat when insulin is present in the blood stream.

INCLUDE LOW GLYCEMIC INDEX CARBS: Whole grain rye bread, yogurt, apples, oranges, peaches, plums, pears, grapefruit, oatmeal, whole wheat bread, pasta, baked beans, peas, kidney beans, lima beans, sweet potatoes, yams, soy beans and potatoes.

HCA

HCA, or *hydroxycitric acid*, is a natural substance that is extracted from the rind of the fruit of the *Garcinia cambogia* tree. This acid is a natural compound that is similar to the citrus fruit found in other citrus fruits. When combined with a low-fat diet, HCA may help dieters lose weight by preventing carbohydrates from being turned in to unwanted body fat.

HCA enhances weight loss by curbing appetite and by modifying the metabolism so food does not convert from carbohydrates to fat. Other studies have found that HCA supplementation may decrease appetite and also inhibit the actions of a specific enzyme in the liver called *ATP Cytrate Lyase*. This enzyme is specifically responsible for the conversion of carbohydrates to fat. Thus athletes or dieters looking for a natural way to decrease their appetite and help change their metabolic pathways towards burning more carbohydrates rather than storing them, can look to HCA as a possible aid. HCA has been shown to be safe and effective. No known side effects have been reported.

NO MORE FATS: Greasy foods, hamburgers, cheese, red meat, bacon, ham, pork, oils, butter, egg yolks, mayonnaise, cooking oils, whole milk, ice cream, pizza, salad dressing, cream sauces, doughnuts, potato chips, chicken wings, nuts of all kinds, peanut butter.

ELIMINATE SUGAR: White table sugar or refined sugar is more dangerous than any other FDA approved food additive on the market. It warrants a special warning because of its negative effect on fat loss and heart disease. Sucrose (refined sugar) is an ingredient in almost every processed food you purchase. Here is why you should avoid sugar: hypoglycemia is a condition where the blood sugar drops below the normal level because of sugar consumption. The pancreas shoots insulin into the blood stream, the hormone responsible for dealing with excess blood sugar and as little as 20 minutes your blood sugar and energy level drop to lower than pre-meal levels. The insulin continues to scavenge glucose until your liver is forced to push its stored glycogen out in a vain attempt to maintain normal blood sugar levels. This begins a crash cycle that causes a craving for more sugar. A previously mentioned way to counter this is by eating 20 grams of protein for breakfast and by avoiding sugar in coffee.

UNWANTED SPORTS INDUCED WEIGHT LOSS

During the competitive sports season weight loss may be undesirable for a strength athlete like a football lineman or an already thin enough distance runner. Football players and other athlete's whose sports require great energy expenditure during lengthy events may lose twenty pounds or more over the course of the sports season. This weight loss can adversely affect the athlete's performance if left unchecked. The only way to prevent dramatic undesired weight loss is to adjust calories and protein upward in the individual's diet by increasing good fat and protein intake.

A carbohydrate - protein - fat intake ratio of 40/30/30 and one to two gallons of water daily are recommended for your clients. By increasing protein and fat the energy level will be more consistent. 2000 mg of a medium Chain Triglyceride compounds are also available at health food stores that may be enough to boost calories and halt the unwanted weight loss.

Active athletes must include a fish-oil supplement of at least 2000 mg per day. Fish oil contains EPA, which helps regulate insulin levels, and DHA, a brain builder. Fish oil supplements contain long-chain, omega-3 fatty acids that also help fight cholesterol build up in the arteries. 2000 mg of Flaxseed oil and 2000 mg of olive oil daily will keep good sterol consumption high and boost field performance while providing additional calories to keep weight loss in check. Consuming at least 1 gram of protein per pound of bodyweight every day during the competition season will help combat sports induce catabolism.

ATHLETE'S WEIGHT LOSS MENU

BREAKFAST: 5-10 egg white or egg beaters veggie omelet, and rice cakes or low cal toast or English muffin plain, grapefruit juice, coffee black, and a multiple-Vitamin/mineral.

LUNCH: 6-8 oz. Broiled fish, or skinless chicken or turkey breast, salad or vegetable dish, dry baked potato or yam, or rice, 1 cup of melon or strawberries for dessert.

SUPPER: 6-8 oz. Broiled fish, or skinless chicken or turkey breast, salad or vegetable dish, dry baked potato or yam, or rice, 1 cup of melon or strawberries for dessert.

SNACKS: Rice cakes or popcorn, no butter.

Meal substitutes are 8-10 oz non-fat cottage cheese. Calories are approximately 2500 and carbohydrate intake is about 150 g. Protein is about 150 g. Drink at least a gallon of water per day.

Individuals go on and off diets all the time. Losing weight temporarily and then gaining the weight back once off the diet is referred to as yo-yo dieting. The key to losing weight and keeping it off is to incorporate healthy eating habits into one's life. "Diet" usually conjures up feelings of deprivation, which is why diets are difficult to hold maintain. Some fad diets are too low in calories. A menu too restrictive in calories can have adverse effects. The body will go into a starvation mode that causes the internal systems to slow down. Metabolism slows to a pace that will conserve energy. Muscle loss tends to occur as the body cannibalizes its own muscle, which is protein, for energy. By making a few minor adjustments in one's daily eating pattern, changes in physical appearance, as well as overall health, will result without taking drastic measures.

One diet may not work well for everyone. A person's size, metabolism, lifestyle, and goals will determine the proper nutrients required for providing adequate energy. A sedentary person will require a different eating pattern than a long-distance runner. A runner needs plenty of carbohydrates for sustained energy. A body builder needs extra protein for building muscle and fewer carbohydrates when he or she wants to get lean and defined. Some basic knowledge of nutrition can help one to make the correct choices to achieve personal goals. Carbohydrates are necessary in the diet for proper brain, heart, muscle, and vital organ functions.

ATHLETE'S FAT LOSS TIPS HANDOUT

For lower activity athletes like golfers who may want to lose weight, the following ideas are recommended. Losing weight temporarily and then gaining the weight back once off the diet is referred to as yo-yo dieting. The key to losing weight and keeping it off is to incorporate healthy eating habits into one's life. "Diet" usually conjures up feelings of deprivation, which is why diets are difficult to hold maintain. Some fad diets are too low in calories. A menu too restrictive in calories can have adverse effects. The body will go into a starvation mode, which causes the internal systems to slow down. Metabolism slows to a pace that will conserve energy. Muscle loss tends to occur as the body cannibalizes its own muscle, which is protein, for energy. By making a few minor adjustments in one's daily eating pattern, changes in physical appearance, as well as overall health, will result without taking drastic measures.

One diet does not fit all. A person's size, metabolism, lifestyle, and goals will determine the proper nutrients required for providing adequate energy. A sedentary person will require a different eating pattern than a long-distance runner. A runner needs plenty of carbohydrates for sustained energy. A bodybuilder needs extra protein for building muscle and fewer carbohydrates when he or she wants to get lean and defined. Some basic knowledge of nutrition can help one to make the correct choices to achieve personal goals. Carbohydrates are necessary in the diet for proper brain, heart, muscle, and vital organ functions.

There are three classifications of carbohydrates: monosaccharides, disaccharides, and polysaccharides. These are glucose, table sugar or sucrose, and complex carbohydrates (starches), respectively. Carbohydrates are converted to glucose in the body. The brain is a voracious glucose consumer. A problem occurs when the carbohydrates consumed are more than enough for immediate energy. The excess is stored as fat. Proteins are the "building block" of the body. Protein is broken down by the digestive system into amino acids which are used for building cells. Another category of nutrients is fat. Fats act as a secondary source of energy after carbohydrates. Excess calories are stored in the body as fat. This can cause high blood pressure, heart disease, cancer, and other problems. Some fat is necessary to maintain healthy skin and hair, but fat intake must be kept at a reasonable level. Although nutritional requirements will vary based on one's activity levels, here are a few basic guidelines towards for becoming physically fit.

Exercise three to five times a week for thirty to forty minutes, eat five to six smaller meals a day, limit fat intake to 10 to 20% of total calorie intake, drink plenty of water, eat complex carbohydrates, and limit simple sugars. Proper nutrition can prevent various health problems. Cholesterol levels tend to be lower in individuals who exercise regularly and eat low amounts of saturated fats. Those with tendencies towards high cholesterol levels should avoid saturated fats that are found in animal products. Regular exercise can prevent, as well as reduce, high blood pressure. Heart and lungs are also beneficiaries of regulated physical exertion. By adding exercise that includes a muscle

building program, one's body will actually burn more calories even while sitting still. Muscle requires more calories to maintain; therefore, more calories are burned. First, let's make a list of things that you do in your every day routine from the time you get up, until the time you go to bed. And for those of you who get up for a midnight snack, add that to the list. Write down whether or not you eat breakfast, what you generally have, and if it changes on weekends. Do that for your whole day. Note if you eat donuts at work, or snack on cookies and milk during coffee breaks. Once you've committed it to paper, you can start to see where the problems are with bad habits that are causing you to eat poorly during the day. The key to changing is becoming aware of what you need to change.

ATHLETE'S WEIGHT LOSS MISTAKES AND REMEDIES

7am: No breakfast.

10am: Coffee break with 1-2 donuts, coffee with cream and sugar.

Noon: Lunch at the office cafeteria, usually a cheeseburger, or spaghetti, pint of milk, cake or pie for dessert.

2pm: Coffee with cream and sugar, cookies or left over donut

5pm: Dinner, could be pizza, chicken wings, or hot dogs & hamburgers, or leftovers. Ice cream for dessert.

8pm: Beer and buttered popcorn or potato chips.

10pm: Slice of cake or pie with ice cream.

Now, let's look at this pattern, which actually represents the average American menu. First, by skipping breakfast and then eating a high sugar meal at morning break, the body started to slow down the metabolism. But by consuming all that sugar, the blood insulin levels skyrocketed, and remained high, driving the sugar into storage areas of the body. Then you got an energy surge, followed by lethargy. Lunch was high in fat and sugar, again giving a temporary energy surge, followed by a slump and drowsiness. The afternoon break gave another slight boost in energy, but lethargy set in and the rest of the night was spent soaking up calories in front of the tube, virtually inactive. That cycle assures no energy and plenty of fat storage.

This is called unconscious or programmed eating. It comes from being wisely denied desserts and sweets as a child, and finding out that as an adult you can consume anything as much and as often as you want. It is what is called automatic behavior. So reprogramming yourself to consume certain foods or less food has got to become as ingrained and unconscious as your present behavior. You have got to attack the problem from an unconscious perspective, and re-program yourself to enjoy healthy, energizing foods.

The way to reprogram yourself is to consciously eat less and select low calorie, low fat and sugar free foods for at least two months. At the end of two months, the new eating pattern should stick. You will also have seen a great improvement in the way you look and feel, which will reinforce the positive changes you have made. It will be easy to maintain your new menu.

FOOTBALL OR BODYBUILDER MASS DIET HANDOUT

To build mass you need to eat at least 1 gram of protein for each pound of your desired body weight each day. That means that if you want to weigh 200, and you now weigh 175, then you have to eat 200 grams of protein each day. Let's see what kind of menu would deliver the 200 figure. First, some rules. Eat once every three to three-and-a-half hours. It takes that long for the last meal to move out of the stomach. If you eat too soon, the food that you've already eaten will stop digesting, and the whole thing starts all over again. Food will actually remain in the intestines undigested for as long as two days! Then what good is it?

7:00 AM: 12 egg whites (50 g. prot.), 4 slices of toast, large orange juice, multi-Vitamin/mineral tab, 3 liver tabs, 3 amino tabs, digestive enzyme.

10:00 AM: Snack: 8-10 oz. cottage cheese or a protein drink. 3 liver and 3 amino's. If this meal is eaten before training, add a banana. Provides about 30-g. protein.

1:00 PM: 8 oz. chicken or steak, 2 baked potatoes or 1 cup pasta, salad or steamed vegetables, 3 liver, 3 amino's, enzymes. Provides about 50-g. protein.

4:00 PM: Snack: 8-10 oz. cottage cheese or a protein drink. 3 liver and 3 amino's. If this meal is eaten before training, add a banana. Provides about 30-g. protein.

7:00 PM: Supper: 8 oz. chicken or steak, 2 baked potatoes or 1 cup pasta, salad or steamed vegetables, 3 liver, 3 amino's, enzymes. Provides about 50-g. protein.

10:00 PM: 5 egg whites. This menu allows about 200 grams of protein, about 40 grams of fat, and about 350 grams of carbohydrate. Total calories are close to 3000.

If you can be this meticulous about eating, then you will reap the rewards of increased muscle mass and performance on the playing field. Use creatine before every workout. Don't let yourself get hungry during the day, and modify the schedule based on your daily routine. Eat every three hours, except when sleeping.

FOOTBALL OR BODYBUILDER MASS SUPPLEMENT STACK HANDOUT

1. **Creatine**, take two tablespoons daily, one before and one after training. This can produce gains of 5 pounds of muscle in 3 days!
2. **DHEA**, take with tribulus tabs as a testosterone booster. There may be a synergistic effect between both products. They are changed into testosterone in the body, DHEA takes two steps and tribulus takes one, but both use different mechanisms to become testosterone.
3. **Tribulus**, try 100 mg. before training to boost testosterone levels.
4. **Hydroxycut**, one or two tablets before training and each meal for maximum definition. This is one of the best fat burner formulas on the market.
6. **Whey protein powder** or **Lean Gainer**, use one or two scoops 3 times per day between meals for best results.
7. **Multivitamin - mineral**, take one tablet daily for good health. Everyone should be taking a multi-Vitamin/mineral anti-oxidant supplement, especially hard training athletes. Find it at a local health food store or search online for a quality brand.
8. **Desiccated Liver tablets**, take 5-10 tabs 1 hour before training for endurance. Before steroids, athletes used liver tabs to get big. They still work. To locate a source online, do a search on liver pills.

Of course, follow a high protein diet of about 1 gram of protein per pound of desired body weight to gain muscle, and reduce carbs to 200 grams per day to cut body fat levels. Anyone who follows this program should be able to pack on 10 pounds of muscle in 2 to 4 weeks, and lose 5 pounds of fat at the same time.

ATHLETE'S PROGRAMING WEIGHT OFF HANDOUT

Lifestyle is the stimulus that causes athlete's to gain weight, and athletics often provides a reason for losing weight. Weight problems are behavior related and must be solved through automatic sub-conscious changes and education about foods and their effects on body fat levels. At training camp, your coach orders you to drop twenty pounds. It went on without any effort on your part, but you did something on a consistent basis in order to gain the weight. It felt good to put on the weight, now through programming, it will feel even better to drop it. Get to the point in your life where something absolutely must change and you must change it, and you can change it.

Get leverage. Maybe you've been overweight all your life and now you are going to change all that. Perhaps your Doctor told you to lose some weight, without telling you how to lose it. Whatever the reason, once you've made the decision, how do you find the motivation to follow through? In my experience, it comes down to the habitual behavior that you follow each day, or your routine.

If you try to change only one thing, eating style, you will not be successful in the long run. If your morning starts with you eating a bowl of Honeycombs, then that's the first thing you must alter. If it starts with no breakfast, then its time to add a healthy meal instead. By looking at what it is you do in your daily routine, you can analyze what to change.

Dieting is really about altering those daily behaviors that have brought to the brink of frustration. By moving toward new habits that reinforce your new lifestyle changes, you will achieve your goals. It is also about gearing up for an intense offensive for at least eight weeks in order to put the plan into permanent effect. So step by step, you will alter the way you use food and situations that cause you to eat, and substitute new, uplifting habits that allow you to become the person you really want to be. By doing these things you may not be happy forever, but you'll be happy about the way you look, and comfortable with whom you are.

A low-calorie diet should be coupled with exercise and motivational techniques like charting your progress, or taping a photo of your ideal physique on the refrigerator. While the calorie deficit from exercise may be small compared with that of most diets, exercise can have quite an impact. If a person walks 15 minutes a day and does not take in any extra calories, they could lose at least 10 pounds in a year. The intangible fitness and health benefits would be substantial.

ATHLETE'S GOAL SETTING HANDOUT

All athletes must have goals. A goal can be a competition or event date and performance level that you would like to achieve. Goals are power. They're like a map. With them, you know exactly where you're going. Without goals, you have no idea where you're going. That may be the reason you've become dissatisfied with your body. You can let events control you, or you can start to control events this moment, by writing down your goals. Make a commitment to do something *right now* to take charge of your future. Take action this minute by writing down your goals and following through! Old actions and behaviors I want to replace (example: over eating, procrastination, pessimism, and negativity):

If I keep doing what I'm doing now, where will I be in one year?

In five years?

In ten years?

New, positive goals (think BIG). Think about: career; relationships; finances; environment; contribution; lifestyle; education; health.

If I change one thing in a positive way now, where will I be in one year?

In five years?

In ten years?

WATER - THE ATHLETE'S MOST IMPORTANT FOOD

Water is the most important dietary component on an athlete's menu. Proper hydration is especially necessary for hot weather exercise. Water consumption while training or at a contest is essential for all athletes and exercisers. A two percent or higher drop in body weight because of profuse sweating causes a corresponding drop in blood plasma volume, making the heart pump faster and reducing athletic performance. By having clients drink cold water or Gatorade™ drinks at least every 10 minutes during training

A sports drink like Gatorade™ is recommended for athletes, especially track & field athletes or football players who train in high temperature environments or for periods longer than one hour. Triathletes and Marathoners or other long endurance athletes require a beverage with containing electrolytes (minerals, salt and potassium). Drinking only water will cause a reduction blood serum electrolytes after about an hour of vigorous activity. Pickle juice is a popular beverage increasingly reached for by NFL players.

While caffeine is beneficial in enhancing athletic performance and weight loss, it is also a diuretic, which promotes fluid loss through urination, so sports drinks including caffeine should not be consumed during training or competitions.

SUMMARY

By analyzing the information you receive from the athlete client on the initial forms and feedback forms, you will be able to make appropriate adjustments to their program. Let those clients who are beginning a weight-training program for weight loss that they may actually gain weight initially as they regain atrophied muscle tissue. Express to them why adding muscle will help them reach their weight loss goal in the long run. This initial increase in weight lasts only two or three weeks and is followed by a steady reduction of body fat. In grossly obese individuals, this increased weight period is seldom encountered. Those people may see a steady weight loss of 5-10 pounds a week for six months or more! They will obviously be good advertisement for your business. If possible, take a non-invasive body fat composition test with an *Omron* hand held electronic fat tester. You may have to invest in one. The cost is about \$60. Also shoot a photo of the client when they begin the diet program and then at regular two to four week intervals for comparison. Have them stand in the same position each time and point out the improvements to each customer.

Counseling athletes on proper diet and nutrition principals is really very simple. When in hard training and trying to build muscle, they must consume more protein and good fats and carbohydrates. During the competition season, high calorie foods and carb sports drinks must be utilized. For wrestlers trying to make weight, the a lower calorie system can be utilized, but dehydration the day of the event is not recommended. If the athlete dehydrates, he must re-hydrate as soon as possible with cold Gatorade™.

You are going to be able to make positive, life changing improvements in your client's abilities. There is nothing so rewarding as seeing someone win a competition because of the advice you have provided. Don't put yourself into a compromising situation by promising more than you can deliver. Make the client realize that he or she is the person responsible for the following through for maximum results, and you are only there to coach and help them along.

You now have developed a nutritional and supplemental awareness that you can impart to your athlete clients, teaching them the right way to succeed. Good luck with your business. Take your time with the exam. It tests your practical ability to answer client's questions. Don't try to do a rush through the exam because there is a \$25 retest fee if you do not pass. I can't wait to hear from you about how your new business is doing!

God bless,

Gregory Ladd
President
American Muscle & Fitness

AMFPT SPORTS NUTRITIONIST FINAL EXAM

Please do not copy sections from the manual and submit them as your exam essay answers.

Your essays must be in your own words. You may quote from any source as long as you use footnotes, or clearly cite the source, and as long as your essays are not made up entirely of quotes, graphs and routines taken from other sources. Short quotes are usually used only to back up statements or conclusions that you make in your essay. You can make reference to the different handouts that your clients would receive from the manuals by name. Each essay answer must be at least one page in length. An "A" or higher score will be noted on your letter of recommendation.

In addition to having thorough and correct length essay answers, you must get all multiple choice answers correct to receive an "A." Each wrong multiple choice answer drops your score one full letter grade. Four answers wrong is automatic failure. The essay answers are there to provide you with three practical scripts that can help you in your nutrition counseling business.

NAME:

MAILING ADDRESS:

Place an X next to the correct multiple choice answer.

1. _____ is the main nutrient used in building muscle, organs and skin.

1. Carbohydrates 2. Fats 3. Protein 4. Riboflavin

2. The Glycemic index measures _____.

1. protein content 2. fat content 3. blood sugar response to carbohydrate intake
4. calories

3. Caffeine is a _____.

1. stimulant 2. depressant 3. vitamin 4. mineral

4. Carbohydrates become _____ in the body, which is stored in the liver and muscles.

1. lipids 2. sterols 3. amino acids 4. glucose

5. DHEA boosts _____ levels.

1. estrogen 2. thyroid 3. testosterone 4. growth hormone

6. Hydroxycitric acid (HCA) helps with _____.

1. weight gain 2. muscle building 3. fat loss 4. hair growth

7. _____ is toxic if more than the RDA is taken.

1. creatine
2. carbohydrates
3. magnesium
4. Vitamin A

8. The best way to lose weight is to _____.

1. eat at night
2. fast at night
3. eat more food
4. take more vitamins

9. All athletes and individuals should _____.

1. take amino acids
2. eat saturated fats
3. take a daily vitamin/mineral supplement
4. take a weight gainer

10. One of the best methods for gaining weight is to _____.

1. reduce carbohydrate intake
2. eat more protein
3. reduce protein intake
4. stop drinking water

11. Eggs and whey protein have the highest _____.

1. BV
2. SUV
3. temperature
4. blood pressure

12. Monosaccharides, disaccharides, and polysaccharides are all _____.

1. vitamins
2. proteins
3. carbohydrates
4. fats

13. Blood cholesterol levels are most affected by _____.

1. fat intake
2. protein intake
3. vitamin intake
4. carbohydrate intake

14. Extra doses of vitamins such as C and E may hinder some benefits of _____.

1. protein
2. minerals
3. cholesterol-lowering drugs
4. fats

15. _____, which is added to milk, helps absorption of Calcium and Phosphorous.

1. Vitamin K
2. Vitamin B-12
3. Vitamin D
4. Vitamin A

16. A common food source of sodium is _____.

1. sugar
2. table salt
3. water
4. vitamins

17. Lactose intolerant individuals can not consume _____.

1. carbohydrates
2. fats
3. protein
4. whey or dairy products

18. Lipotropic compounds help with _____.

1. weight gain
2. weight loss
3. eyesight
4. hearing

19. Riboflavin, the vitamin that makes urine a bright yellow color, is vitamin _____.

1. B-5
2. B-2
3. E
4. K

20. Crisco, butter, margarine, lard, bacon grease, chicken skin and pizza cheese are all _____.

1. Carbohydrates 2. Vitamins 3. Proteins 4. Fats

ESSAY QUESTIONS

For **each question write a 300 word or longer essay** based on the manual reading material outlining the supplement and diet schedule you would recommend for the athlete client. Check your grammar and spelling. E-mail or mail the answers back. **Do not include any exercise information in your answers.**

1. Design a menu and supplement program for an athlete who needs to lose 20 pounds. Include the exact diet and supplements that would work best for this individual. Add a complete weekly eating plan. Explain your reasons for making these recommendations.

2. Design a menu and supplement program for an athlete who needs to gain 20 pounds and build muscle for football. Include the exact diet and supplements that would work best for this individual. Add a complete weekly eating plan. Explain your reasons for making these recommendations.

3. Design a menu and supplement program for an athlete who needs to maintain current bodyweight and good health with minimal exercise during the off season. Include the exact diet and supplements that would work best for this individual. Add a complete weekly eating plan. Explain your reasons for making these recommendations.

If returning your exam, E-mail or mail finished exam along with name, mailing address, phone number and e-mail address to:

amfpt@aol.com and exams@amfpt.com

American Muscle & Fitness
102 Benedict Road
Pittsford, NY 14534

Please include your name and home mailing address.