Additional Supplements

The following additional supplements are included here because they are the most popular at this time. This section is not intended as an endorsement to take these products, but merely to acquaint the trainer with the effects of that these supplements might have on the client that they are training. The trainer needs to make an assessment as to whether they want to accept clients who are taking controversial supplements. Should something occur, the trainer will certainly have to accept some of the moral if not legal responsibility.

It is not our policy to promote supplements. Even aspirin and acetaminophen taken over long periods of time can affect bodily functions in less desirable ways. Use your brain filter before you use your liver and kidney filters. It is not worth a temporary increase in muscle size as a trade for a permanently blown liver or kidney. A product potent enough to help will be potent enough to cause side effects. Long-term effects of supplements have never been studied. Would you eat an arbitrary quantity of anything everyday (ice cream, beef, etc.) The best nutrition plans alternate foods to provide a distribution of various food groups, which provide all the body needs for growth and maintenance. Read the ingredients of all products carefully. Many "Complex Formula" type diet supplements contain various ingredients; some of which may be stimulants or laxatives. Weight loss results may only be temporary and due to the diuretic effect of the supplement.

We provide both the pros and cons here. You are free to make your own informed decision for yourself and your clients. There is no conclusive evidence as to the long-term effects of these supplements nor is there conclusive evidence that they shouldn't be taken. The FDA and USDA leave it up to you as we do.

- Do not take supplements without your doctor’s advice if you are pregnant or could become pregnant.
- Do not take supplements without your doctor’s advice if you are breast-feeding a baby.
- Do not give any supplement to a child without first talking to the child's doctor.
- Do not take supplements if you are taking any prescribed drugs.

Androstenedione (Androstene)

Androstenedione is a hormone that is synthesized into Testosterone. Claims include a temporary boost in Testosterone levels allowing greater performance and

enhanced recovery and a heightened sexual function. There is some indication that this supplement may decrease the natural production of testosterone at higher intake levels. It is legal in some countries and not in others without a prescription. For a reference, DHEA, with the assistance of enzymes, is converted to Androstenedione, which is then converted to Testosterone. There is a move to reclassify this supplement as a drug. Maintaining proper levels of testosterone is vital to overall body growth and maintenance. However, most people's levels are adequate. Too much testosterone can cause a host of problems including kidney, liver, heart failures as well as personality changes. Manufacturers of this supplement recommend a minimum of 1.5 grams of protein per pound of body weight. Androstenedione may decrease natural testosterone production.

Possible Health Hazards: Personality changes, impotence.

Chromium

Chromium helps to lower blood sugar, reduce body fat and cholesterol levels. It is also used to suppress the appetite. In diabetic and overweight individuals, chromium reduces Triglyceride levels by almost 20%, improves glucose tolerance and normalizes insulin levels. Deficiencies can result in insulin resistance. Typical dosage is 50-200 mcg daily. An ounce of brewer's yeast provides approximately 100-200 mcg of chromium.

Possible Health Hazards: In picolinate form, may cause DNA damage, which can result in genetic mutations and cancer. Possible anemia, blood abnormalities, liver dysfunction, and renal failure.

Choline

Choline regulates body fat and cholesterol. It is used to promote proper kidney, liver and gallbladder function. It also enhances muscle tone. In addition, it is used to produce acetylcholine, a chemical used in neuromuscular interaction. Choline naturally occurs in liver, cauliflower, soybeans, spinach, lettuce, nuts, and eggs. In capsule form, the recommended dosage is 550 mg daily or about 2.5 grams before an event.

Possible Health Hazards: Possible Diarrhea and Flatulence.

Creatine Monohydrate

The recommended daily dosage of Creatine is 5g. Food sources of Creatine are: Salmon, Pork, Beef, and Tuna. However, you would have to eat about 2 ½ pounds of beef per day in order to meet the recommended dosage of Creatine. Each person's capacity for Creatine storage is different. Most of the body's Creatine is stored within the skeletal muscles. The body cannot utilize excess stores and excretes it through urination. If you are genetically predisposed to store larger amounts, then you will not benefit from additional Creatine supplements. The body can synthesize Creatine from Amino Acid stores if needed but not in any appreciable amounts.

Creatine works by assisting in the regeneration of Adenosine Triphosphate (ATP). This allows the muscles to perform contractions for longer periods before becoming fatigued. ATP is used mostly in short burst type muscle contractions. A common

practice is called "loading" as recommended by the manufacturers of Creatine. This involves taking large doses (20 g/day for a about a week) and then reducing the dosage to 2 to 5 g/day.

Possible Health Hazards: dehydration, muscle cramps and muscles injuries.

DHEA

Dehydroepiandrosterone (DHEA) is a steroid hormone and chemically related to testosterone and estrogen. It is manufactured by the adrenal glands from cholesterol. DHEA production increases up until the mid-20s. A steady decline in DHEA production occurs as a person ages until only about 20% is produced by age 75 as was produced during the peak period in the 20s. There are varying studies with varying results. Some studies show an increase in muscle mass and attribute this supplement to an increased longevity. However, other studies show the opposite results and show an increase in body fat and estrogen levels.

Possible Health Hazards: Increased testosterone level (women), increased estrogen level (men), altered hormone levels, liver dysfunction, increased prostate/breast cancer risk and other steroid-like effects (facial hair, acne, personality changes).

Ephedra (Ma Huang)

Ephedra (Ma Huang) is a decongestant, diuretic, and Central Nervous System (CNS) stimulant. It stimulates the adrenal glands and increases energy level. It is also used to reduce bronchial spasms as in asthma and allergy related illnesses. Claims also include appetite suppressant, weight-loss and anti-depression properties. As a stimulant, it increases the metabolism through thermogenic (heat production) means and thereby burns fat. It contains Ephedrine, a stimulant used in over-the-counter bronchodilators. Promotes urination and reduces edema. Recommended dosage is 100 mg daily one hour before a meal.

FDA has reported over 40 deaths and over 1000 serious side effects linked to Ephedrine. Manufacturers warn against the use of Ephedra if you are under the age of 18 or have a family history of heart disease, thyroid disease, diabetes, high blood pressure, headaches, depression or other psychiatric condition, glaucoma, difficulty urinating, prostate enlargement, or seizure disorder. They also recommend consulting a doctor or licensed healthcare professional before using Ephedra.

It is also warned that exceeding the recommended dose may cause serious adverse health effects including heart attack and stroke. Ephedra should not be used by those with anxiety disorders such as panic attacks, or by those with glaucoma, heart disease, or high blood pressure. Not to be taken with depression drugs, caffeine, decongestants, or other stimulants, monoamine oxidase inhibitor (MOI) or any other dietary supplement, prescription drug or over-the-counter drug containing ephedrine, pseudoephedrine or phenylpropanolamine (ingredients found in certain allergy, asthma, cough/cold, and weight control products).

Possible Health Hazards: Hypertension, dizziness, shortness of breath, sleeplessness, palpitations, tachycardia, arrhythmia, nerve damage, tremor, headache, seizure, stroke, heart attack, kidney stones

GABA

GABA (Gamma Amino Butyric Acid), a non-essential amino acid, is claimed to decrease body fat levels while increasing lean muscle tissue. GABA functions by crossing the blood-brain barrier and acting as a pituitary stimulant thereby increasing the secretion of the Human Growth Hormone (HgH). It also acts as an inhibitory neurotransmitter in the central nervous system (decreases neuron activity). It is believed that increased levels of HgH promote a decrease in body fat and an increase in muscle growth. The recommended dosage is one or two capsules (200mg) with a meal twice daily. For further reading on this, visit the National Institute on Drug Abuse's website and search for GHB/GABA.

Possible Health Hazards: Bradycardia (slow heart rate), coma, death, nausea, loss of coordination, vomiting.

L-Glutamine

L-Glutamine provides an important contribution in muscle growth through protein synthesis and increased growth hormone levels. In a recent study by the American Journal of Clinical Nutrition, a single 2-gram dose of Glutamine elevated circulating growth hormone (GH) levels by over 430%. GH is responsible for glucose and amino acid uptake within the body, muscle growth due to protein synthesis and the utilization of fat stores for energy. Glutamine, the most abundant amino acid in muscle tissue, is partly responsible for the transport of Nitrogen into the cell for muscle growth and the extraction of ammonia away from the muscle tissue. Glutamine levels drop after a workout and remain at lower levels until after a complete recovery period. The reduction of Glutamine levels in muscle tissue is destructive to muscle tissue or catabolic. The theory is that this Training Paradox is overcome by supplementing the diet with L-Glutamine before and after a workout. Supplementation of L-Glutamine before and after a workout is believed to overcome this Training Paradox. The recommended dosage is one or more capsules (500 mg) with meals.

Possible Health Hazards: None known at this time. Studies continue.

Synephrine

Synephrine is similar to caffeine and ephedrine, it provides an energy boost, suppresses appetite and increasing metabolic rate. It does not appear to have the same negative central nervous effects of Ma Huang (ephedra). Through its stimulation of specific adrenergic receptors (beta-3), it appears to stimulate fat metabolism without the negative cardiovascular side effects of Ma Huang (which stimulates all beta-adrenergic receptors). In capsule form, the dosage is 4-20 mg of synephrine per day, which is a typical dose found in products providing 200-600 mg of a standardized citrus aurantium extract (3-6% synephrine).

Possible Health Hazards: Until more studies are done, regard it as a stimulant and therefore should not be taken with other stimulants.

Yohimbe

Yohimbe increase levels of the neurotransmitter, Norepinephrine and is a central nervous system stimulator. It may increase energy levels, muscle mass and promote fat oxidation by blocking specific receptors (alpha-2 adrenergic receptors). It also dilates blood vessels and relieves depression. In capsule form, the recommended dosage is 10-30mg daily.

Possible Health Hazards: headaches, anxiety, high blood pressure, elevated heart rate, heart palpitations, and hallucinations. It should be avoided by those with high blood pressure or kidney disease.