

“Nutritional Supplements for Athletes”

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The National Athletic Trainers Association (NATA) just held its annual meeting in Dallas. These trainers spend several years pursuing their education and certification as serious advocates of professional physical training for athletes at all stages of development. Indeed, many states now require by law that a certified trainer be in residence for all high school athletic programs. The use of trainers for athletes at higher levels has been in place for years. Not surprisingly, several parts of the national convention focused on good nutrition for physical well-being, as well as on nutritional supplements.

Using diet and dietary supplements to enhance athletic performance has been going on for over 5,000 years of recorded history. The ancient Chinese, Egyptians, and Babylonians used various concoctions and special diets in an attempt to gain a competitive edge. At times their endeavors to gain an advantage took on mythical proportions.

It is recorded that the great Greek wrestler, Milo of Croton, for instance, consumed 20 pounds of meat and 20 pounds of bread each day. To increase his strength, Milo lifted a calf daily over his head until it matured. When the bull had reached maturity, Milo carried it once around the stadium, holding it high over his head. He then sacrificed the animal and devoured all of its meat in one sitting!

Greek and Roman athletes, especially the gladiators, were particularly fond of devouring various organs for strength. Consuming the heart of a lion, for example, was believed to endow courage. It should be noted more than in passing that even in Olympic times athletes were disqualified from performing for consuming certain supplements for athletic enhancement, such as reproductive animal proteins or mushrooms.

The use of most supplements was delegated to the realm of folklore and mysticism until well into the last century. By the 1920s, scientists at good universities were studying the issues academically. The first systematic use of dietary supplements in a sustained way was probably by the power weight lifters. Robert Hoffman (1899-1985) and Joseph Weider (1923-) developed popular magazines to promote their nutritional supplements, especially protein products among strength and muscle development enthusiasts. Until the late 1980s and the 1990s, this movement was generally confined mostly to weight trainers. Indeed, using supplements became an integral part of their

culture. Then, matters began to change. Good scientific studies from Scandinavia demonstrated that physical performance could be enhanced, especially in endurance athletes, if nutritional supplements and dietary manipulations were incorporated into their training programs.

It took only a few studies to widely stoke the fire for use of supplements not only by professional and amateur athletes, but by casual athletes and non-athlete individuals who were pursuing vigorously, or in many cases not all that vigorously, a physically active lifestyle. A multibillion dollar industry was born and has been growing exponentially ever since.

Unfortunately, the extensive marketing of this industry has been too frequently fraught with unchecked fraud. The laws that govern these matters are unique to this country and provide little protection for the trusting consumer.

In 1992, the national Nutritional Labeling and Education Act went into effect. This law required that all foods and nutritional supplements be labeled specifically.

In 1994, after they had been inundated with more correspondence that they had received on the topics of the national deficit, healthcare reform and abortion combined, Congress unanimously approved the Dietary Supplement Health and Education Act (DSHEA). This law permits manufacturers to produce and market nutritional supplements without prior approval by the Food and Drug Administration. In essence, this negated the rule of the FDA in assuring premarketing safety and restricted the FDA's jurisdiction primarily to postmarketing policing only when some adverse event(s) occurred.

Where does all this leave us? About 80 percent of Americans, in general, purchase dietary supplements for regular or intermittent use. In their quest for a competitive edge, athletes are even more vigorous in the use of these products.

The current law places the burden of safety primarily in the hands of the individual consumer, not on the manufacturer and not on the federal regulators. Unfortunately, many marketing strategies prey on the vulnerability of trusting consumers. We are barraged with endless claims, ever-present advertisements, complex terminologies and "promises" that can never be filled. As long as promotional materials are not actually physically attached to the nutritional supplement product, and as long as

the products are not marketed with specific drug-like disease treating claims, this marketing is legal. First Amendment freedom of speech allows such claims, even if they cannot be substantiated.

The ultimate best “drug” to enhance athletic performance is simply good food. Enormous amounts of energy can be expended during sustained intensive exercise. The “fuel” required to meet this energy need is primarily carbohydrate. If adequate carbohydrates are not available, the body will generate glucose by breaking down both bodily stores of protein and some fat. Breaking down muscle protein to meet energy needs is not a desirable avenue.

Methods to induce “carbohydrate loading,” including preloading carbohydrate depletion especially for endurance athletes, have received a lot of attention over the years. Capacity for endurance exertion of over an hour in duration may be increased, but for most other athletes carbohydrate loading probably carries more risks than benefits. A daily intake of 60 percent of calories from carbohydrate is recommended for optimal safety.

Many athletes believe that dietary protein supplementation enhances muscle mass and increases strength. Actually, consuming adequate carbohydrate to prevent muscle breakdown is probably far more important. A safe level of intake is 2 g (grams) of protein per kg (kilogram) of body weight (1 kg equals 2.2 lbs). An intake of greater than 4 g/kg is considered excessive and potentially harmful.

Another essential “supplement” for optimizing performance is simply water. Fluid losses during athletic performance can be quite significant. Preperformance loading with at least half a liter of water is recommended, followed by at least one liter per hour of active athletic performance.

What should athletes do beyond “good food” and adequate hydration? There is an old adage about human behavior that individuals “become only more so” as they age, and perhaps the same can be said for the behaviors of society in general. Since ancient times, athletes have always tried to gain an edge by consuming something special.

The vast array of seemingly countless supplemental products available to athletes did not happen by chance. Athletes, as well nonathletes, have “become only more so” as

highly profitable supplement industries capitalized on opportunities to exploit further age-old practices.

Most such products will not enhance athletic performance and most of those products that will do so are unsafe or untested. A consumer of these products would be well advised to remember that just because it is written down does not mean it is true. Most of the claims for their products can not be validated.