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Do Athletes Maintaining Healthy, Well-Balanced Diets Really Need Nutritional Supplements

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As a child how many times did you hear: “eat your fruits and veggies!”? As an adult, particularly as an athlete, eating fruits and vegetables is one of the only significant ways to get some of what the body needs from its food. Why? Because organically grown, antioxidant-rich fruits and vegetables represent one of the only nutritious food sources readily available. Unfortunately, getting your well-balanced daily servings of nutrient-rich food is a difficult task as most commercially processed foods are stripped of nutritional value and, worse yet, potentially full of toxins due to overuse of fertilizers, pesticides, and herbicides. This combination of over-processing and contamination not only fills our restaurants but also our supermarkets with high-calorie and/or high-glycemic and low-nutrient food options. Therefore, you have to be more diligent than ever to make quality food choices. And, as an athlete, to ensure peak performance and to ward off chronic degenerative diseases, you need to appropriately supplement a well-balanced, whole food-based diet for optimal nutrient levels.

In the world of serious and professional sports, supplements are arguably one of the most misunderstood and overwhelming topics. Adding to the confusion is the constant influx of the “next best thing” products, making too-good-to-be-true claims. Because athletes are always looking for an edge, they are often easy prey for the billion-dollar supplement industry marketing gurus. So what exactly are supplements? Are they replacements for whole foods, as some manufacturers would have you believe? By design, supplements should supplement, filling in the nutritional gaps of a quality diet. Generally, these nutritional gaps are seen as a lack of vitamins, minerals, and antioxidants. However for athletes, a lack of foods that enhance metabolism and prevent catabolism are also viewed as deficiencies.

The RDA and Optimal Levels of Intake

When examining nutritional deficiencies you need to be aware of the void between the Recommended Dietary/Daily Allowance (RDA) and Optimal Levels of nutrient intake of vitamins, minerals, and antioxidants. The RDA suggests standard intake levels to meet the minimum nutrient requirements for the majority of healthy individuals. In contrast, optimal levels are generally much higher than the RDA, and are based on what your body needs to function relative to your activity level and to avoid chronic degenerative diseases, like heart disease and cancer. In some cases, optimal nutrient levels can be as much as thirty times greater than the RDA. Because of strenuous physical demands, athletes consistently require optimal levels of most nutrients. However, to meet the optimal nutrient levels in some cases would require eating a substantial amount of foods rich in the needed nutrients. This is just not possible in most situations. Consequently, adding a high-quality multi-vitamin and mineral complex to your diet can ensure optimal levels of nutrients for recovery from intense activities and to boost your body’s immune system.

Another obstacle to filling nutritional gaps is an athletes’ schedule. Many times fast food, caffeine, and long gaps between meals are the common daily routine. Athletes need foods that will sustain their energy over long periods, not create roller coasters of blood sugar highs and lows. As such, you should always try to avoid high-glycemic carbohydrates, regardless of the time of day. The glycemic index (GI) measures a food’s immediate effect on blood sugar (2). The GI is based on a 1 to 100-point scale with pure glucose at 100. Refer to the table 1 to view ratings on representative foods. High-GI foods of 70 or more, like white bread, potatoes, jelly

beans, and corn flakes are converted to glucose quickly (2). While low-GI foods of 55 or less, such as rolled oats, apples, pasta, and yogurt are converted slowly (1). Making good quality low-GI carbohydrate choices throughout the day can maintain your energy levels naturally and eliminate the need for caffeine and other stimulants.

In addition to the GI, athletes should be acutely aware of the importance of protein in the building and repair of muscle. High-quality protein sources contain at least twice as much protein as fat. For example, a meat source with 10 grams of fat and 20 grams of protein is considered high quality but another protein source with a 10 to 10 ratio is considered only moderate to low quality. So chunk light tuna in water with 15 grams of protein and less than one gram of fat is an excellent source. Conversely, your typical fast-food cheeseburger with 20 grams of protein and a whopping 50 grams of fat is a poor source.

Although whole foods should be your primary source of quality calories, due to the demands of your schedule combined with many of the obstacles outlined above, the right foods will not always be accessible. This makes nutritional supplements a necessary adjunct to your diet. There are many meal replacement shakes and nutrition bars marketed to athletes but they are not all alike. Look for products that are low GI, low fat, high fiber, and protein rich. Just keep in mind when supplementing your meals and snacks that you are striving to maintain a well-balanced diet that consists of quality proteins, low-glycemic carbohydrates and a multitude of fruits and vegetables.

The Use of Supplements by Athletes

Despite research and supporting evidence that supplementing a healthy diet is necessary to attain optimal nutrient levels for sports performance, many athletes still avoid supplements altogether or simply jump from one product to the next with marketing trends. There are three primary reasons for this phenomenon:

Representative Food	Glycemic Index Rating
Glucose	100
Sucrose (table sugar)	61
Fructose (fruit sugar)	19
Cake Doughnut	76
Bran Muffin	60
Corn flakes	92
Apple	38
Baked Potato	85
Spaghetti	44
Banana	52
Carrots	47
Orange Juice	52
Bagel, white	72
Skim Milk	32
Spinach, leafy greens	0
Peanuts	14

Table 1

Glycemic Index of Selected Foods

A high GI Value is 70 or more.

An intermediate GI value is 56 to 69.

A low GI value is 55 or less.

- Misconceptions about dietary needs.
- Fear of banned substances.
- Lack of sports-certified products.

As mentioned previously, many athletes are not aware of the difference between the Recommended Dietary/Daily Allowance (RDA) and optimal levels. Nor do they know the extent of over processing and its nutrient-depleting affect on foods. Also, safety is always a top concern for athletes. Among those who understand the need for supplementation, many are scared off by fear of banned substances. Unfortunately, this fear is not unwarranted as quality control in manufacturing of nutritional supplements has only been loosely regulated since the implementation of the US Dietary Supplementation and Health Education Act of 1994. As a result of the act, there are currently no US regulations

that enforce minimum standards of practice, no requirements for pre-market approval, no post-market surveillance, and no site licensing or product licensing required for the manufacturing of dietary supplements in the US (3). This leaves quality and content basically unregulated, resulting in a supplement market flooded with ineffective products due to lack of proper formulation & dissolution properties and products with contents that do not match labeled ingredients.

In December 2007 the results of a study overseen by Informed-Choice, a nonprofit coalition of dietary supplements, and conducted by HFL, a British company, were released to the press. (1), Of 52 supplements purchased and tested by HFL, a quarter of the supplements contained traces of steroids and 11.5% had banned stimulants. This study came out only five years after

the International Olympic Committee (IOC) sampled 240 supplements purchased in America, revealing 18.8% contained steroids.(1) We can never be sure if the companies are intentionally adding banned substances in hopes of boosting product effectiveness, or if the machinery is just not properly cleaned between different productions. Regardless, the results are products that unsuspecting athletes assume are safe additions to their training and recovery programs, but could cause positive banned-substance tests.

Over the last decade banned substance testing has increased at all levels of competition, including high school, collegiate, and professional sports. This elevated level of testing has made supplement use a “buyer-beware” business and prompted numerous sports organizations to institute certification standards. For example, the National Football League (NFL) and Major League Baseball (MLB) have both adopted a certification program for supplements that relies on the independent testing company NSF. NSF Certified for Sport™ nutritional supplements are tested for accuracy in labeling as well as banned substances. Under NFL and MLB policies, teams can not supply players with uncertified products; however, players are free to make individual purchases of uncertified products at their own risk.

Use of only certified products greatly eases athletes’ anxiety over choosing supplements but it also greatly limits supplement options. Currently, there are as few as 20 certified products listed on the MLB approved list and only three multivitamins. Ideally, athletes should not deviate from certified products; however, due to limited availability you might elect to take uncertified products. In that case, it is wise to consume only those products that have voluntarily followed the Good Manufacturing Process that reflects the pharmaceutical model and are considered pharmaceutical grade as opposed to merely FDA regulated.

Although athletes should always take a food-first approach to their diet, less than adequate food sources and demanding schedules have created a need for quality supplementation to enhance performance, speed recovery, and prevent chronic degenerative disease. Yet the quality and safety of nutritional products will continue to be a major concern until more stringent production standards are imposed across the supplement industry. Until then, you should make a concerted effort to use only those products from companies that are willing to self impose more stringent regulations and meet certification requirements to set themselves apart from the rest of the market. Nonetheless, you should always

closely monitor your diet and make whole food choices that consist of a balance of fruits and vegetables, low-glycemic carbohydrates, and high-quality protein. ■

Reference

1. Associated Press. *Study: Quarter of Dietary Supplements Tested Contain Steroids, Banned Stimulants.* [Press release] (Thursday, December 06, 2007).
2. Brand-Miller, J, Foster-Powell, K. *The New Glucose Revolution.* New York, NY: Marlow & Company. (2006).
3. MacWilliam, L. *Nutrisearch Comparative Guide to Nutritional Supplements.* Vernon, BC Canada: Northern Dimensions. (2007).