

## Dietary Supplements: A PTS Advisory

The use of dietary supplements in North American society has become a common practice among athletes and people looking to lead healthier lifestyles. The motivation that typically drives this behaviour is layered in either the assumption that nutritional supplements can enhance physical performance or the effects of training, and / or this is an effective method of nutrient consumption.

The reality, for the exception of in certain medical conditions that require some method or form of nutritional supplementation, is that nutritional supplements are no replacement for a whole food diet and that there is much debate over the efficacy of nutritional supplementation and enhanced sport performance.

The aim of this advisory is to inform the athletic training community of the risks inherent to the consumption of nutritional supplements, and to promote a sport nutritional strategy that is based on the concepts of nutritional timing, and a high quality, nutrient dense whole food diet.

The International Olympic Committee's Medical Commission, FIFA, the Canadian Centre for Ethics in Sport, the United States Anti-Doping Agency, the American College of Sport Medicine, and a growing volume of scientific literature share and promote a common recommendation to athletes – that they should avoid nutritional supplements. The reason for this advocacy is due to the 'spiked' nature of many supplements available over the counter at nutritional stores or over on-line distributors (3). The nutritional supplement industry in North America is largely unregulated (1). What this means to the consumer is that there is no guarantee that what they are buying is what the product says what it is – there is no guarantee that what's written on the label is in the product, or that the ingredient concentrations are what they say they are, or that there is not some other substance not listed on the label in the final product.

The multi-billion dollar per year nutritional supplement industry is based on 2 things – 1) promoting the idea that a certain supplement will deliver a specific result, and 2) delivering that result. Often, the research claimed by manufacturers of certain supplement products are examples of 'in-direct' research (1); research that is conducted under different conditions, dosages, and situations that the manufacturers promote for their product. For example,

due to the difficulty (financial and policy) in conducting experiments on human subjects, many nutritional supplement claims are made from research conducted on animals or are synthesized from applications of other biochemical research. This situation should be cause for concern for all athletes and recreationally active nutritional supplement users, especially those who may be subject to doping controls.

Because of the fallacy of much of the claims of 'sport performance' nutritional supplements, manufacturers are inclined to either promote their products as effective in the face of indirect research, or spike their supplements with agents they fail to list on their product labels.

For example, in 2002 the IOC accredited laboratory at the Sport University in Cologne Germany (Sporthochschule Köln) Prof. Dr. Wilhelm Schänzer carried out an international study of 634 readily available nutritional supplements obtained from 13 different countries (4). The study was funded by the International Olympic Committee's Medical Commission. It was found that 14.8% (94) contained ingredients not listed on any label, and that 24% of these contained the precursors for nandralone and testosterone, 68% of these contained the precursors for testosterone alone and that 7.4% contained the precursors for nandralone alone (4). The risk here for the competing athlete and the ethically conscious recreationally active nutritional supplement user, is that both nandralone and testosterone are anabolic agents and are prohibited in the World Anti-Doping Agency's (WADA) Anti-Doping Code.

This example is not to suggest that all nutritional supplements are spiked with, or contain derivatives of anabolic steroids, but it does illustrate that the situation does exist, and that the consumer is basically unaware.

The WADA Anti-Doping Code includes a provision which states that all athletes and Their individual entourages are ultimately responsible for what is in their body at all times, in all situations, no exceptions. While there may be examples in the media



of athletes, particularly in cycling, who claim positive drug tests on contaminated foods, this is not a very credible defence and rarely leads to a successful defence. In fact, the 2007 Canadian example of bobsleigh athlete Serge Despres is a case in point (2). Mr. Despres tested positive for nandralone, and was given a sanction of 20-months sport ineligibility, in what was ultimately determined to be from a contaminated supplement.

Further, in many nutritional supplements, particularly those which promote muscle and strength gains and are protein or creatine based, include dosages that are not supported in the sport / exercise or nutrition science. For obvious reasons, higher dosages, lead to faster container emptying rates, and quicker repeat sales. However, for the athlete, high and / or unnatural consumption volumes of amino acids, and various electrolytes are not only not any more effective than lower doses, they can be harmful to one's health, putting excessive strain on the body's natural protective mechanisms.

All athletes must recognize and understand that there is no substitute for well planned, hard training and effective recovery strategies that include a balance whole food diet rich in fruits and vegetables, grains and other carbohydrates, and high biologically available proteins.



It is for these reasons that Performance Training Systems (PTS) strongly advises our athletes, clients, and partners to avoid nutritional supplements in all situations. An personalized nutritional strategy that incorporates pre-, and post-training / competition nutrition, calculated nutritional requirements, and contains a range of fresh produce, meats, carbohydrates and dairy products is healthier and is guaranteed to avoid a reverse analytical finding for a prohibited substance.

For a personalized sport nutritional program contact PTS Director of Performance Nutrition [here](#)  
For athletes who insist that their schedules and / or limited access to high quality whole foods requires them to consume nutritional supplements, PTS encourages them to seek supplements with the NSF for Sport marking. NSF International (Vol. 1, No.1) has developed the NSF American National Standard for Dietary Supplements (NSF / ANSI Standard 173), which includes;

- a toxicology and label review to verify product verification;
- a formulation review to identify and quantify dietary ingredients declared on product labels;
- a Good Manufacturing Practices inspection and;
- a containment review, which involves testing to ensure there are no ingredients present that have not been declared on the label nor are there unsafe levels of contaminants. (3)

NSF International developed the standard with participation from: U.S. Food and Drug Administration (FDA), National Institutes of Health (NIH), other federal agencies, state regulatory agencies, manufacturers, product retailers and consumer groups.

The NSF Certified for Sport® Program additionally screens for prohibited substances on the following sport organization's lists: WADA, NSF Annex A, the National Football League (NFL), Major League Baseball (MLB), Professional Golf Association (PGA), Ladies Professional Golf Association, the Canadian Centre for Ethics in Sport (CCES), and the National Collegiate Athletics Association (NCAA). NSF utilizes product testing as well as facilities inspection to ensure that an athlete's supplements and sports nutrition products are free of prohibited / banned substances. Classes of compounds screened during testing and inspection are stimulants, narcotics, steroids, diuretics, beta-2-agonists, beta blockers, masking agents as well as other substances on various lists. This

process helps ensure that an athlete's supplements are free of prohibited / banned substances (3). Using ISO 17025 accredited methods, NSF screens for the presence of substances using the latest technologies in mass spectrometry coupled with gas chromatography and liquid chromatography (3).  
In a 2010 letter to manufacturers of dietary supplements, the FDA asserted that the problem of 'spiked' supplements has grown significantly in recent years and now constitutes 'a significant public health problem' (3).  
Market sampling and independent testing of 'suspect' products by NSF International confirms the FDA's findings that illegal supplements spiked with steroids, erectile dysfunction drugs and stimulants are, unfortunately, readily available from both retail stores and internet merchants (3).

For more information on NSF International's Certified for Sport® Program visit the web page [www.nsf-sport.com](http://www.nsf-sport.com)

#### Resources:

1. Burke, M. Positive Drug Tests from Supplements. *Sports Science* 4(3), Sportsci.org/jour/0003/lmb.html, 2000.
2. Canadian Centre for Ethics in Sport – Media Release. Contaminated Supplement Likely Cause of Failed Drug Test. 19 February 2008.
3. Houlahan, G. NSF International Helps Athletes Identify Nutritional Products Free of Banned Substances and Steroids. *Professionals Against Doping in Sport ENEWS*, Issue 2, August 2011.
4. Schänzer, W. Analysis of Non-Hormonal Nutritional Supplements for Anabolic-Androgenic Steroids – An International Study - ; An investigation of the IOC accredited doping laboratory Cologne, Germany. The investigation was funded by the IOC.

#### **Supplement Advisories Available for Download from**

[www.performancetrainingsystems.net](http://www.performancetrainingsystems.net)

- FIFA – Supplements and Sports Foods
- United States Anti-Doping Agency – [Athlete Advisory: “Approved” or “Verified” Supplements](#)
- [IOC Consensus Statement on Sports Nutrition 2010.](#)
- [Canadian Centre for Ethics in Sport – Ethical Challenges to Sport Supplements.](#)
- [Nutritional Supplements and Doping](#) – (Pipe & Ayotte, 2002)
- [Performance Training Systems' Position Stand on Creatine Use](#)

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