

NUTRITIONAL SUPPLEMENTS

Patient Resource Courtesy of [SportsMedToday.com](https://www.sportsmedtoday.com).

What is it?

Nutritional supplements are any commercially available substance that an athlete takes as an addition to his or her regular diet. They include vitamins, herbs, amino acids, electrolytes, and minerals, and are used by a number of athletes competing in a wide variety of sports. Many athletes use these products for health maintenance purposes such as losing weight, maintaining energy, or increasing nutrient levels. Others use them to improve their performance in competition by increasing focus, building muscle bulk, or speeding up recovery after exercise. While some products claim many of these results and more, it is important for the user to have a good understanding of the ingredients in a supplement, the potential side effects, and the interactions between the supplement and other medications that an athlete may be taking. If an athlete is considering starting a supplement, he or she should take some time to discuss the risks, benefits, and alternatives with a physician who is familiar with the medical history and training regimen.

Risks

Using supplements inappropriately can have unintended effects on an athlete's health and competition status. Nutritional supplements are not regulated through the same process as standard medications, and there is considerable variation in the quality, purity, and effect of the active ingredients among different products. According to some studies, about 10-15% of supplements tested demonstrated contamination with other ingredients, and about 7% of supplements are estimated to be mislabeled. Depending on the ingredients, the reported consequences from supplement use range from the uncomfortable (i.e. heart palpitations or diarrhea) to the life-threatening (i.e. organ failure leading to death). While the US Food and Drug Administration does not regularly conduct tests on supplements, it does maintain a partial database of tainted substances which is available [online](#).

There have also been reports of supplements containing ingredients which are on the World Anti-Doping Association list of prohibited substances, and the use of these supplements might result in the user's disqualification from competition. It is a good idea to check with the administration or governing body for the athlete's specific sport to obtain a list of prohibited substances prior to starting a supplement, and may help the athlete avoid an unintentional violation which could lead to disqualification. The World Anti-Doping Association prohibited list is also available [online](#).



Sports Medicine Evaluation & Treatment

When an athlete meets with a physician to discuss nutritional supplementation, the visit should include a comprehensive interview regarding the athlete's medical, developmental, and sporting history. Common topics discussed in this process may include a review of allergies, medications, training habits, current diet, hydration strategies, sleep habits, history of prior supplement use, concern about body image, and family medical history. The physician may then perform a physical examination of the major organ systems and extremities. Occasionally, the physician might order some lab tests of the blood or urine. If the athlete is considering a specific supplement, it can be helpful to bring some information such as a package insert or bottle for the physician to review.

Injury Prevention

The lack of standardized testing, uniform quality controls, and reporting of ingredients can make it difficult for athletes to know how to safely use a nutritional supplement. The athlete will benefit from finding a physician that they trust and who makes them feel comfortable discussing these topics. A complete examination of the risks and benefits of taking a supplement along with regular communication about changes in health or training status will go a long way toward preventing dangerous outcomes. A counseling visit with a physician who understands the athlete's medical history, the demands of the sport, and the landscape of available nutritional supplements can help the athlete determine a safe and appropriate regimen. Nutritional supplements should not be considered a replacement for consuming a balanced diet, maintaining adequate hydration, and allowing for appropriate rest and recovery time after exercise.

Return to Play

Participating in practices and competition while taking a nutritional supplement requires an understanding of the ingredients in the supplement, and a knowledge of whether these ingredients are allowed or prohibited by the administration or governing body of the sport in question. Safe and appropriate use of the supplement is also important to ensure that the athlete can perform at the highest level without risk to his or her overall health.

AMSSM Member Authors: Asad Siddiqi, DO and Irfan Asif, MD

References

1. Knapik J, et al. Prevalence of Dietary Supplement Use by Athletes: A Systematic Review and Meta-Analysis. *Sports Medicine*. 2016; 46:103-123.
2. Outram S, Stewart B. Doping Through Supplement Use: A Review of the Available Empirical Data. *International Journal of Sports Nutrition and Exercise Metabolism*. 2015; 25:54-59.
3. Cohen P. Hazards of hindsight – monitoring the safety of nutritional supplements. *New England Journal of Medicine*. 2014; 370:1277-1280.
4. Tainted Products Marketed as Dietary Supplements. US Food and Drug Administration web site. 2016. Available at http://www.accessdata.fda.gov/scripts/sda/sdNavigation.cfm?filter=&sortColumn=1d&sd=tainted_supplements_cder&page=1. Accessed January 15, 2016
5. WADA 2016 List of Prohibited Substances and Methods. World Anti-Doping Agency web site. 2016. Available at <http://list.wada-ama.org>. Accessed January 15, 2016.