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Position Statement on Dietary Supplementation in Canadian Sport

Contributors

Susan Boegman¹
Andrew Cochran²
Angela Dufour³
Kelly Anne Erdman⁴
François Allaire⁵
Josée Grand'Maître⁶
Trevor LaForce⁷
Amélie Soulard⁸
Nicole Springle²
Andy Van Neutegem⁹
Mike Wilkinson⁶
Allan Wrigley¹⁰

Expert Consultant

Trent Stellingwerff¹

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¹ Canadian Sport Institute Pacific

² Canadian Sport Institute Ontario

³ Canadian Sport Institute Atlantic

⁴ Canadian Sport Institute Calgary

⁵ Sport Canada

⁶ Canadian Olympic Committee

⁷ Canadian Centre for Ethics in Sport

⁸ Institut National du Sport du Québec

⁹ Own The Podium

¹⁰ Taekwondo Canada



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Background

We formally acknowledge and adopt the **IOC consensus statement: dietary supplements and the high performance athlete** (2018)¹. This document provides a comprehensive review and interpretation of the relevant literature in this area and is the foundational resource for this position statement for Canadian sports and athletes.

Optimal nutrition is a critical aspect of any athletic performance, especially for elite athletes where the margins of victory can be very slim. While it is well documented that nutritional supplementation is widespread throughout all levels of sport, it is rather difficult to ascertain what exactly that means as definitions of supplementation and the reasons for taking a supplement can vary greatly. Nonetheless, it is imperative that there is an overarching position and opinion about supplement use in Canadian sports that serves to provide clarity and concise messaging on key aspects of supplementation and human performance. This position statement was developed by the National Supplement Advisory Group, a national representative group convened to address supplement use in Canadian high-performance sport. It provides the foundation for the associated Operational Best Practices (OBP) for Dietary Supplementation in Canadian Sport.

Position Statement

We believe that the best nutrition strategy for any athlete is to ideally have a Registered Dietitian who specializes in sport, develop an individualized nutrition plan, and recommend sound dietary habits so that dietary supplementation is minimized or not required. No amount of supplementation can replace wholesome food and fluid choices, appropriate meal planning, and adequately scheduled rest and recovery. Eating food is the best way to fuel your training; with adequate rest and sleep as the best way to recover and stay healthy. Where an athlete has been identified as having a demonstrated deficiency of an essential nutrient, then a sport supplement may be indicated. While sport foods are a convenient source of nutrients, they do not compensate for poor food choices and inadequate dietary intake.

Based on scientific evidence there is a limited number of dietary supplements that have potential to enhance performance above and beyond a healthy diet. However, a thorough nutritional and medical assessment should be undertaken before decisions regarding supplement use are made. If athletes chose to use any form of supplement, they must ensure that it is from a safe, reliable, and tested source. The athlete is strictly liable (see WADA website: www.wada-ama.org) even when a positive test is due to inadvertent contamination. It is important to note that many supplements have been found to contain prohibited substances. More information can be found at <http://cces.ca/supplements>. Athletes wishing to check medication status (approved or prohibited) can go to: www.globaldro.com

Defining Dietary Supplementation

One of the most challenging aspects of creating a position statement on dietary supplementation in Canadian sports is creating clear definitions of what specifically constitutes a supplement. Dietary supplements can be described as any nutrient isolated from a food such as a vitamin, mineral, amino acid, etc.; or any substance that is added to food for the purpose of positively augmenting, from a health and/or performance perspective, the nutritional impact of a food or food product. The IOC consensus statement¹ defines supplements as, “A food, food component,



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nutrient, or non-food compound that is purposefully ingested in addition to the habitually-consumed diet with the aim of achieving a specific health and/or performance benefit.” For this document, the following definitions have been adopted from Garthe and Maughan (2018)². Accordingly, there are different sub-groups included in overall dietary supplementation, that include:

Sports Foods

Specialized products used to provide a practical source of nutrients when it is impractical to consume everyday foods. These can include sports drinks, gels, liquid meals, sports bars, protein powder, etc. Most sports foods, **but not all**, are considered low risk for contamination with prohibited substances.

Medical Supplements

Used to treat clinical issues including diagnosed nutrient deficiencies. These can include iron, calcium, vitamins, minerals, omega-3, probiotics, etc. Most medical supplements, **but not all**, purchased through a pharmacy are produced with strict pharmaceutical control and are considered low risk for contamination with prohibited substances.

Sports, Performance, or Ergogenic Supplements

Supplements intended to enhance performance when used in specific scenarios. These may include caffeine, bicarbonate, nitrate, creatine, beta-alanine, etc. Ergogenic supplements that are not on the WADA prohibited list are often concentrates of substances found in food. There is a risk of cross-contamination with prohibited substances, and/or ergogenic supplements containing undeclared WADA prohibited ingredients.

Functional Foods or Superfoods

Functional Foods are enriched with additional nutrients or components outside their typical nutrient composition. Superfoods are purported to optimize health and performance. These can include herbs, plant fibers, seeds, natural alkalizing fruits, extracts, etc. There is no guarantee of the amount of active biological content in these supplements and/or functional foods. Government regulations and policies differ between countries of origin and there is a lack of quality controls when it comes to functional foods and superfoods, so there may also be a risk for cross-contamination.

“Other” Supplements

Includes a wide range of herbal and botanical extracts and concentrates. These supplements may contain central nervous system stimulants and hormones or hormone precursors. They are considered high risk for adulteration due to the need for rapid and noticeable results by the consumer to promote continued use of the product. To achieve these results, potent pharmaceuticals are sometimes added by the manufacturers. Herbal or traditional products, including animal and plant materials, are also found principally in Chinese, Korean, and/or herbal medicine prescriptions. These can include supplements for weight loss, increased energy, increased libido, prevention of hair loss, etc. Accordingly, these supplements generally pose very high risk for cross-contamination, and lack of efficacy.

¹ Maughan et al. (2018). IOC Consensus Statement: Dietary Supplements and the High-Performance Athlete. *International Journal of Sport Nutrition and Exercise Metabolism*. 28(2), 104-125.

² Garthe, I. and Maughan, R.J. (2018). Athletes and Supplements: Prevalence and Perspectives. *International Journal of Sport Nutrition and Exercise Metabolism*. 28(2), 126-138.



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Rationale for Dietary Supplementation by Athletes

According to the IOC's consensus statement on dietary supplements and the high-performance athlete³, the rationale for dietary supplementation use by athletes can be categorized into four areas:

1. To correct or prevent identified deficiencies.
2. For convenience.
3. Direct performance enhancement.
4. Indirect performance enhancement.

To Correct or Prevent Identified Deficiencies

Any nutritional deficiency can impact on an athlete's ability to perform. As previously stated, appropriate nutrition is a critical aspect of any athletic performance, especially for elite athletes where the margins of victory can be very slim. Nutrient deficiency can inhibit an athlete's health, as well as their capacity to train, recover, adapt, and inevitably perform (e.g., anemia from iron deficiency).

For Convenience

For many athletes, the time demands for training, recovery, and everyday life often make it difficult to consume enough energy/calories/nutrition to meet the appropriate nutrient targets and energy availability. Dietary supplements are therefore used as a convenient way to provide specialized nutrition for supporting recovery, metabolism, and many other potential sport and physical health benefits.

To Directly Improve Sports Performance

Athletes may supplement their diet to enhance physical performance, stamina, and/or recovery. While not all ergogenic aids are banned in sport there is some research to show potential performance benefits from unique, perfectly legal ergogenic supplements. The intent of taking these supplements is to enhance the body's potential to achieve a better performance in training and/or competition.

To Indirectly Improve Sports Performance

Other aspects of athlete performance such as body composition, physical health, mental health, and immune function can often be supported and optimized through supplementation. Even when there has been no identified deficiency based on standard medical practice and guidelines for the public, athletes may benefit from having higher than normal intakes of certain supplemented nutrients, such as iron and electrolytes. An athlete's ability to perform optimally can be indirectly impacted by select supplementation to support the ability to train, avoid injury or illness, and tolerate soreness and fatigue.

³ Maughan et al. (2018). IOC Consensus Statement: Dietary Supplements and the High-Performance Athlete. *International Journal of Sport Nutrition and Exercise Metabolism*. 28(2), 104-125.



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Potential Adverse Effects of Dietary Supplementation

The IOC's consensus statement on dietary supplements and the high-performance athlete⁴ contains a substantive section on the potential adverse effects of supplement use. Key points and messages are highlighted here.

- Adverse effects may arise from relatively simple aspects of process and habits such as:
 - Poor practices around the indiscriminate mixing and matching of many products without regard to total doses of some ingredients and/or problematic interactions between ingredients.
 - Lack of awareness and consideration for negative side effects, even in commonly used products.
 - Poor practices around the manufacturing and marketing of supplements.
- The greatest concern for athletes regarding dietary supplements should be the contamination of a supplement with a prohibited substance that may result in an anti-doping rule violation.
 - The most challenging scenario is when an adverse analytical finding stems from the use of supplements that intentionally contain a prohibited substance as an undeclared ingredient.
- Ironically, contaminated supplements with an extremely small amount of a prohibited substance are extremely unlikely to have any ergogenic effect but may still result in an adverse analytical finding for the athlete.

Nutritional Development of Athletes

It is important for aspiring athletes to acknowledge that dietary supplements are not a short cut to the hard work and sound nutrition practices essential for sport success. The fundamentals with optimal nutrition are critical to support growth and development as well as natural progression with training and competing. As the athlete gains knowledge and responsibility for their training and nutrition they can improve their sport performances in the absence of supplementation. As previously described, there is a time and place when specific dietary supplements may be warranted, however, in most cases dietary supplementation should be discouraged with young, developing athletes.

⁴ Maughan et al. (2018). IOC Consensus Statement: Dietary Supplements and the High-Performance Athlete. *International Journal of Sport Nutrition and Exercise Metabolism*. 28(2), 104-125.

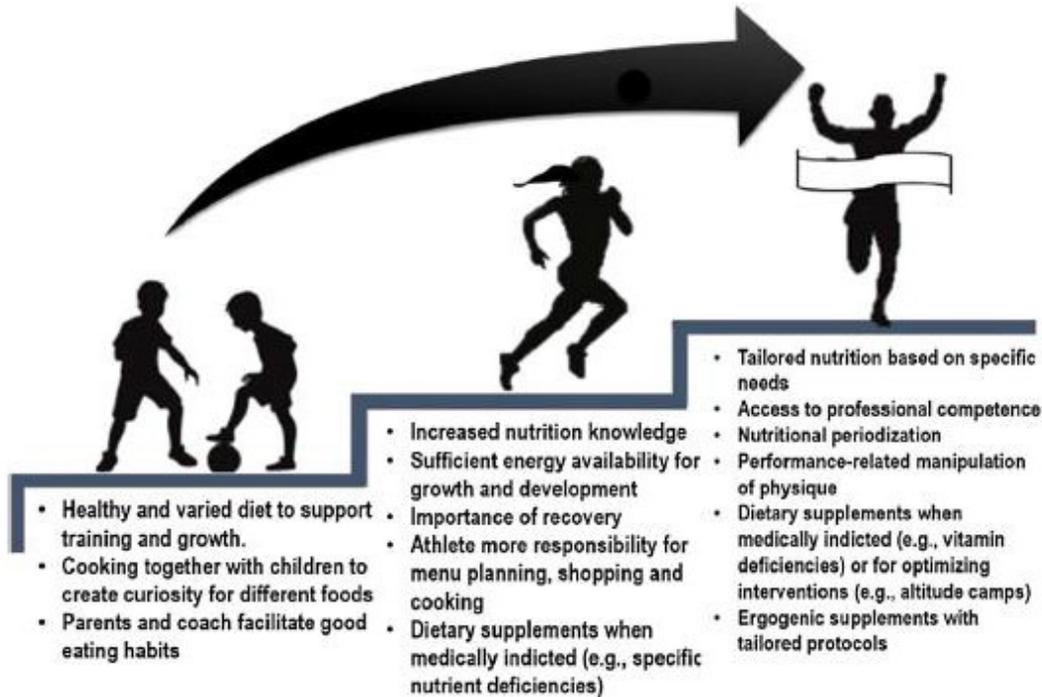


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Adopted from, "Athletes and Supplements: Prevalence and Perspectives" Garthe, I. & Maughan, R.J., *International Journal of Sport Nutrition & Exercise Metabolism*. 28 (2), 2017.

Decision Making and Risk Assessment for Supplement Use

The following decision tree outlines the pertinent flow of considerations that should be implemented when an athlete is questioning whether to take a dietary supplement. This process begins with a nutritional, medical, and possibly a physiological assessment to determine unique concerns for each athlete when determining if a dietary supplement is warranted. As the athlete follows this step-by-step process, they can make informed decisions regarding the final choice to take a particular supplement. Several factors need to be considered from nutritional deficiency and health concerns to supplement screening, side-effects, and efficacy. In the end if the athlete chooses to take a dietary supplement this should always be trialed in training prior to competition.



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SAFE SUPPLEMENT USE

RED & GREEN FLAGS

WHEN CONSIDERING SUPPLEMENTS

Q. Have you first consulted one of these practitioners?

- SPORT MEDICINE PHYSICIAN
- REGISTERED DIETITIAN
- PHYSIOLOGIST

Q. Was the supplement recommended by one of the practitioners listed above?

If yes, consider the following before taking ANY supplement to help you make an informed decision.



IT IS SAFE, TESTED, AND EFFECTIVE?

- ✓ The supplement is safe to combine with your current supplement/medication regimen.
- ✓ There is enough evidence to support its use in your sport or event.
- ✓ It is 3rd party tested for WADA banned substances. Check the Canadian App for Supplement Tracking (CAST).
- ✓ You have considered all whole food options that can provide the same benefit.

YOU HAVE A PLAN.

- ✓ You know the protocol that will best support your performance.
- ✓ The protocol will change around and during competition.



IT IS NOT SAFE, TESTED, OR EFFECTIVE.

- ✗ If the supplement does not meet all the safe, tested, and effective criteria, then **STOP** taking the supplement and speak to your dietitian, sports medicine physician, or physiologist.

YOU DON'T HAVE A PLAN.

- ✗ **STOP**, ask for help. Speak to your sport dietitian or physician to discuss your specific protocol.



No supplement is 100% risk free.

You can minimize your risk of accidental cross contamination by only choosing supplements that are third party tested for WADA banned substances. Check on the CAST for options that meet these criteria.

Track all sports supplements (not medications) including brand, dose, and expiry dates. Sports drinks and sport foods do not need to be tracked.



LOG IT ON THE CAST.

- Product name
- Batch or lot number
- Usage start and end dates
- You can upload a photo of the product too!



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