

Important attributes to optimal performance not only include talent, but also an effective training programme and a range of psychological and cognitive characteristics and nutritional support. As training programmes become more demanding, the role of nutrition becomes ever more important to sustain a good training programme and optimize adaptations to training. The foods that an athlete chooses can make a difference between optimal training adaptation and performance and failure. Wise food choices will not make a champion out of the athlete who does not have the talent or will to success, but an inadequate diet can prevent the athlete of reaching his/her full potential.

A varied diet eaten in an amount sufficient to meet the energy needs of the athlete in training should provide all the essential nutrients in adequate amounts.



Sports Foods

Sports foods are generally manufactured to provide a convenient source of nutrients that are easy to consume when everyday foods are unavailable or impractical to eat. This is most often the case just prior to, during or after an exercise session. Examples of sports food include:

- Sports drinks (providing fluid, electrolytes and carbohydrate during exercise)
- Sports gels (additional carbohydrate intake, especially during exercise)
- Liquid meals (carbohydrate, protein, vitamins and minerals for a pre-event meal, post-exercise recovery or a high-energy diet)
- Sports bars (carbohydrate, protein, vitamins and minerals)

Although sports foods can contribute to the convenient and timely intake of nutrients, the cost of these products can be high and athletes should still consider the composition of these products to individualise the use thereof to their specific circumstances.



WHEN FOOD IS NOT ENOUGH

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Supplementation

Over the years a culture has developed that supplements can in some way compensate for poor food choices and the increases stresses of modern life. Supplements are often used for the following reasons:

- To compensate for an inadequate diet
- To meet abnormal demands of hard training or frequent competition
- To benefit performance
- To keep up with teammates or opponents
- Recommended by coach, parent or other influential individual

The aggressive marketing of supplements has led to large numbers of athletes willing to pay for and use supplements in the hope of increased energy levels and concentration, improved muscle mass and decreased fat mass with ultimate improvement in exercise capacity and sporting performance. The World Anti-Doping Agency (WADA) has although stated: *“Most supplement manufacturers make claims about their products that are not backed by valid scientific research, and they rarely advise the consumer about potential adverse effects. The supplement industry is a money-making venture and athletes should get proper help to distinguish marketing strategies from reality”*

What athletes should know about supplements ...

SAIDS define ‘Sports Supplements’ as sources of nutrients and/or other substances, marketed and sold as such in the field of amateur and/or professional sport, with a nutritional or physiological effect whose purpose it is to supplement the normal diet, directly or indirectly alter / enhance body composition, enhance sporting performance, and/or assist with recovery following sporting activity.

1 There is a lack of supplement manufacturing and marketing legislation, locally and globally.

This means that supplements can be marketed with very little control over the claims and messages they provide, and many companies take full advantage of this. There is therefore no way to ensure the safety or efficacy of sports supplements. Supplements can contain prohibited and harmful substances that are not disclosed on the label and what is written on the label cannot be seen as a guarantee for efficacy and safety.

2 The use of supplements may have damaging health effects and lead to positive doping tests

Health risks may include allergic reactions, toxic effects from self-medicating, over-dosing or poisoning

due to contaminants found in the products. Even the ingestion of some nutrients above levels naturally occurring in foods can pose toxicity and therefore be harmful. Toxic levels is difficult to achieve from dietary sources alone, but can be easily achieved through supplementation.

Contaminants, particularly anabolic steroids and other prohibited stimulants, have been found in many different supplements, even apparently “harmless” or legitimate dietary supplements. This means that the use of a sports supplement by an athlete has the potential to result in a positive doping test that can ruin a sporting career and discredit their reputation and that of the sporting code and country they represent.

3 Displacement of priorities

In reality, sports supplements make a very small contribution to sports performance. Many athletes put so much effort into finding a supplement in order to enhance their performance that they forget about the role of training, skills, equipment, adequate sleep and rest, good nutrition, and a positive mental attitude which have a much larger impact on improving sports performance.

First things first

Before contemplating supplement use ...

- Athletes should ensure having a healthy, balanced and sport specific diet.
- Individual nutritional assessment by a qualified sports nutrition professional is advised for implementation of appropriate dietary patterns.
- The intake of micronutrients provided through sports foods (various drinks and bars) should not be underestimated and can lead to an intake higher than the upper intake level.
- Supplements can be contaminated with illegal substances and can lead to a positive doping case.

Optimising Nutritional Intake

- Eat a variety of foods
- Eat 4-6 portions of (fresh) fruit and vegetables daily
- Choose whole-wheat products; limit refined carbohydrate intake
- Correct cooking methods
- Eat 5-6 smaller meals per day
- Plan ahead; have portable snacks available at all time to eat “on the run”



The usefulness of dietary supplements depends on individual circumstances and response to a supplement. Athletes that may benefit from supplementation:

- In situations where an unbalanced diet is followed
- With specific alimentary conditions, for example when following a vegan diet or in cases of lactose intolerance
- In periods of weight reduction or “making weight” where an energy restricted diet is advised
- In periods with strenuous exercise and limited recovery time for example during training camps
- While traveling in countries with limited food supply
- In some circumstances for some athletes, for example periodic use of creatine, caffeine and buffering agents



Guidelines to lower the risk associated with using sport supplements:

- An athlete should stay clear of supplement use as far as possible. In situations where a specific dietary deficiency is identified by a health profession expert, an individualised supplement protocol can be used in conjunction with dietary optimisation, for example a vitamin and mineral supplement or carbohydrate sports drink.
- Be aware that any supplement (including vitamin / mineral supplements) can be contaminated with banned substances. Vitamin and mineral supplements should therefore be case specific and should come from a reputable company.
- Caution should be taken with regards to supplements advertising “muscle building” and “fat burning” properties. These are likely to contain banned substances such as anabolic steroids or pro-hormones or stimulants.
- Investigate the manufacturing practices and history of the company and the range of products that it produces (e.g. company that does not produce other products containing banned substances). Request certification that verifies the ingredients within the product as well as the amounts, where these ingredients were sources as well as the manufacturing practice of the producer. Certification and testing should be done for each batch of the product that is produced.
- Always consider the risks and benefits of dietary supplements.

Risks and benefits of dietary supplements / sports foods

	Benefit	Risk
In general	<ul style="list-style-type: none"> • Psychological aid / placebo effect 	<ul style="list-style-type: none"> • Inadvertent doping cases and health risk
Sports drinks	<ul style="list-style-type: none"> • Delivers fluid and carbohydrates during exercise • Post exercise rehydration and refuelling 	<ul style="list-style-type: none"> • High energy density • Nutrient density low
Carbohydrate-rich products	<ul style="list-style-type: none"> • Training periods with high carbohydrate needs • Carbo-loading before competition • During and after exercise for refuelling 	<ul style="list-style-type: none"> • High energy density • Nutrient density low
Protein	<ul style="list-style-type: none"> • To meet protein needs in periods with low energy intake 	<ul style="list-style-type: none"> • Contamination
Vitamins, minerals, trace elements	<ul style="list-style-type: none"> • During restricted energy intake • In periods of an unbalanced diet (e.g. travelling, busy schedule) to meet daily micronutrient recommendations 	<ul style="list-style-type: none"> • Be aware of intakes higher than upper intake level (toxicity) • Possible contamination
Ergogenic aids	<ul style="list-style-type: none"> • For some athletes in some circumstances creatine, caffeine, buffering agents might be of benefit 	<ul style="list-style-type: none"> • Side effects are possible – check individual response • Possible contamination