A Guide to Sports Nutrition Supplements

Good eating and drinking practices along with talent, training, conditioning, motivation, dedication, adequate sleep and recovery are essential for optimal sports performance. Without these basic elements, no amount of sports supplements will turn you into a champion. However, more athletes are becoming distracted by the mind-boggling range of sports nutrition products out there in the hope of maximising their sports performance. This is understandable when you consider how athletes are bombarded by marketing hype from the sports supplement industry, much of it not based on sound scientific research.

Do Sports Nutrition Supplements Work?
There is sound evidence in the scientific literature to show that some nutritional supplements can indeed assist athletes to achieve peak performance in certain circumstances and under the direction of a suitably qualified professional such as a Sports Dietitian (MINDI). There are many, many more nutritional supplements for which there is no meaningful proof of benefit whatsoever.

The Australian Institute of Sport (AIS), world leader in the field of sports nutrition, uses a Sports Supplement Group Classification Scheme which has four categories – A, B, C and D. Group A supplements are supported for use in specific situations in sport and are provided to AIS athletes for evidence-based uses. This group includes sports drinks, sports bars, sports gels, whey protein, liquid meals, Caffeine, Creatine and Bicarbonate among others. Group B are those deserving of further research and are considered for provision to AIS athletes under a research protocol. This group includes B-alanine, Beetroot juice, Carnitine, Anti-oxidants C and E to name a few. Group C are thought to have no benefit and are not provided to AIS athletes. Examples include Ribose, Lactaway, Glucosamine, Inosine, Co-enzyme Q10, Ginseng among a long list of others. Finally, Group D are banned or at high risk of contamination.

For further information on the effectiveness (or ineffectiveness) of specific nutritional supplements, check out the following links. Both links provide detailed information in the form of fact sheets and technical documents and are a must read for anyone trying to make sense of this very confusing area.

- Australian Institute of Sport (AIS) Nutritional Supplements Classification

  http://www.instituteofsport.ie/new-page/
Risks Associated with taking Sports Nutrition Supplements

The World Anti-Doping Agency (WADA)

- The World Anti-Doping Agency (WADA) has developed a list of prohibited substances.
- This list is not definitive but rather defines classes of prohibited substances.
- The Irish Sports Council advises that screening of supplements against this list can’t guard against contamination by new unknown contaminants and is restricted by the limits of detection of the screening.
- If an athlete takes a supplement which contains a prohibited substance and this subsequently results in a positive drugs test, it is not an adequate defence to state that the athlete was unaware of the presence of the prohibited substance in the supplement in question.
- Under WADA’s strict liability rule, athletes are responsible for any positive doping test, regardless of how it got there.

Regulation of Sports Nutrition Supplements

- The production, marketing and sale of these supplements is a very large multi-million euro international business which up until recently was largely unregulated.
- Despite the entry into force in 2002 of EU regulations controlling supplements as foods, there are still a large number of sports supplements and sports foods which are not controlled and feature unsubstantiated or exaggerated claims on their efficacy.
- Due to the newness of regulation, industrial hygiene standards associated with the production of many supplements vary considerably whilst the accuracy of labelling of the ingredients of many supplements can’t be guaranteed (ISC, 2012).
- There is also a reasonable theory that at least some manufacturers deliberately add ingredients to their products to enhance the effects and improve sales (Burke, 2007). A range of studies have provided evidence of this problem.
- One well-quoted study from a laboratory in Cologne analysed 634 supplements from 215 suppliers in 13 countries, with products being sourced from retail outlets (91%), the internet (8%) and telephone sales (Geyer et al 2004). None of these supplements declared prohormones as ingredients. The supplements came from manufacturers who produced other supplements containing prohormones but also from companies who didn’t sell these products. 94 of the supplements (15% of the sample) were found to contain
hormones or prohormones that were not stated on the product label and a further 10% of the samples provided technical difficulties in analysis such that the absence of hormones could not be guaranteed. The brand names of the positive products were not provided in the study but they included amino acid supplements, protein powders and products containing creatine, carnitine, ribose, guarana, zinc, pyruvate, vitamins, minerals and herbal extracts among others.

- Vitamins and minerals produced by reputable pharmaceutical companies especially those with a marketing authorisation number such as a product authorisation (PA) number are less likely to be associated with health risks or inadvertent drug tests.
- There are a number of brands of vitamin/mineral supplements, which are safe to take. These are listed on the web-site www.eirpharm.com or Medication Checker App for smartphones (for products bought in the Republic of Ireland) or www.globaldro.com (for products bought in Northern Ireland).

**Does Informed Sport/Trusted by Sport Labelling have a role to play?**

- Many elite athletes, convinced by the scientific evidence choose to supplement their diet with drinks, protein powders, energy and protein bars. As already mentioned, there is no 100% guarantee of safety of any product. However, there are some strides being taken to reduce the risks for athletes as much as possible.
- In the UK, a company called HFL Sport Science tests sports supplements for banned substances. Their anti-doping laboratories analyse a huge range of supplements and those that are clean and contain what they say on the label are given a kitemark and are listed on the Informed Sport Web-site. HFL used to be a WADA-accredited laboratory but you can no longer hold this accreditation and test supplements for supplement companies so HFL gave up their WADA accreditation in 2007. They continue to run a quality assurance programme for sports nutrition supplements.
- HFL, since they have been running the Informed Sport Programme in 2008, have tested 2678 products and of those there have been two incidents of positive findings. Those incidents were also found prior to the supplement being released. HFL recently did a survey where they purchased 24 supplements from 12 major brands across Europe and over the internet with 114 samples from the 24 products. Out of the 114 samples, none of which had anything banned listed on the label, 11 of them were positive for at least one substance that would result in a ban. HFL released the results of this survey in June 2013. None of the products from the Informed Sport
Programme were included (Interview with David Walsh, Athletics Weekly, August 2013).

**Junior Athletes**

The Irish Sports Council recommends that it is inappropriate for any junior athlete or player to be taking supplements that could have an impact on their physical development.

**In Summary:**

- Don't underestimate the importance of getting the basics right. You need a sound food and fluid plan for training and competition to optimise sports performance. Sports Nutrition supplements will never make up for poor dietary choices.
- Seek advice from a qualified professional such as a Sports Dietitian & Member of the Irish Nutrition & Dietetic Institute (MINDI) before taking any supplement.
- Make sure that the professional is familiar with the WADA prohibited list.
- Athletes who compete in sports under an anti-doping code must recognise that supplement use exposes them to a risk of a positive doping outcome.
- Be aware that supplements claiming to be muscle-building or fat-burning are more likely to be associated with health risks or inadvertent drug tests.
- If it sounds too good to be true, it most likely is!!

**For more information:**

- Interview with David Walsh (August 5th 2013). UKA’s Anti-Doping Educator in Athletics Weekly
- Irish Sports Council - National Anti-Doping Programme
- Irish Sports Council/Irish Institute of Sport Nutrition Fact Sheets
- Australian Institute of Sport (AIS) Nutritional Supplements Classification
- World Anti-Doping Agency
- Informed Sport/Trusted by Sport

© 2016 Irish Nutrition and Dietetics Institute, INDI. All rights reserved. May be reproduced in its entirety provided the source is acknowledged. This information is not meant to replace advice from your medical doctor or individual counselling with a dietitian. It is intended for educational and informational purposes only.