

▶ A PLAY BY THE RULES MAGAZINE SPECIAL ISSUE



**Get informed**  
your frequently asked  
questions about supplements in  
grassroots sport

//SAFE/FAIR/INCLUSIVE/SPORT//

Thanks for downloading this ebook. The purpose of the ebook is pretty simple - to help you 'get informed' about the use of supplements in sport. The format of the ebook is simple too - we answer a series of frequently asked questions about the use of supplements in sport.

Throughout this ebook you'll find links to further resources and videos. If you want to help others in your sport get informed about supplements then [send them to this link](#). They'll get this ebook but also get opportunities to take part in online seminars and other initiatives in the future. It's a great way to help your sport get informed about supplements.

Finally, we will be in touch with any further resources developed in this area - all geared to help you and your sport get informed about supplements.

**A production of Play by the Rules - [www.playbytherules.net.au](http://www.playbytherules.net.au)**

Play by the Rules would like to thank Sharon Phillips, Dr Gary Slater and all supporting partners for their expertise and assistance with compiling this ebook.

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# 1

## What exactly are supplements?

“Supplements” is the short-form phrase that people often use for “dietary supplements” or “nutritional supplements”. **People generally use supplements in an effort to enhance health and or boost exercise performance.** Supplements cover a broad range of products including vitamins, minerals, herbs, meal replacement formulations, sports nutrition products, natural food concentrates, and other related products. The marketplace supplies thousands of supplements claiming to provide nutritional support for athletes. Some of these consist of high-protein products, such as amino acid supplements, while other products contain nutrients that support metabolism, energy, and athletic performance and recovery. **Supplements can be found in pill, tablet, capsule, powder or liquid form.**

Watch the video - <https://vimeo.com/162320255>



# 2

## As an athlete why do i need to be careful about taking supplements?

**Anyone considering taking a supplement needs to be aware that there can be problems with their supply, manufacture or labelling.**

Products like herbs may sometimes be tainted with germs, pesticides or toxic heavy metals. Herbal growers may mix or substitute their crops when they are unable to fill supply quotas; or 'rogue' plants may grow in with others. This may lead manufacturers to unknowingly purchase contaminated products.

**As an athlete you need to be careful about everything that goes into your body.** It is well recognised that what you eat can impact on your performance and the same can be said for supplements. These are not inert substances, and while there is clear evidence of health and or performance benefits from the strategic use of specific supplements, there are also numerous examples of adverse outcomes... from impaired fitness after a period of training, to inadvertent doping in sport, right through to individuals presenting to the emergency department of a hospital as a consequence of supplement use. **Accordingly, supplements and their prescription should be managed by**

**suitably qualified experts to ensure you are using the right product, in the right amounts when a need is identified.**

Other supplements may contain ingredients not listed on the label; or they may have more or less of the ingredients specified on labels. In some cases they may not even contain what's listed on the label and could contain other compounds, some of which may be intentionally added or which have unintentionally been introduced from residue left on equipment from other production runs. This may cause health issues for some people because they don't know what they are taking. **For athletes, this can also mean committing inadvertent doping offences by consuming supplements containing prohibited substances that are not included on the label.**

Watch the video - <https://vimeo.com/164536324>



# 3

*i don't have time to eat a meal in between workouts or just before a game so a supplement is a good alternative isn't it?*

Sports foods described within the AIS Sports Supplement Framework have primarily been designed for use within the exercise environment, providing nutrients in similar amounts to food but made in a way that's easier to drink or eat before, during or after exercise. Suitable choices include liquid meal supplements, sports drinks, gels and bars. Before using these products a cost versus benefit assessment is recommended to confirm the convenience of the supplement warrants the financial investment. **While nutritional support of exercise is paramount, it's important to remember that the energy reserves in your muscles are a reflection of diet and training over the last 1-2 days, not just the last 1-2 hours.**

# 4

I was reading about the 'latest scientific breakthrough' and the 'secret formula' the other day - my friends tell me you've got to keep ahead of the pack - so I'm tempted to try these out, especially if there's a money back guarantee!

The range of evidence-based supplements available for use in sport has changed very little over the past 5-10 years, despite an ever expanding sports supplement research database. The biggest breakthrough in the sports supplement area in recent years has literally been a better understanding of the application of a small range of supplements to specific sports and the protocols of use. That is the specific frequency, dose and timing of a supplement to maximise the benefits while minimising any potential side effects. Given the maturity of our understanding of sports supplements, it's unlikely there will be any 'scientific breakthroughs' into the immediate future either. **Your focus should remain with a food first philosophy, investing in a well-considered meal plan to support your training, and if appropriate, the strategic use of a small range of evidence-based supplements. Whenever**

**considering the use of a specific supplement, always seek the guidance of a sports dietitian who can offer independent expertise on both your meal plan and supplementation.** Supplement advice always needs to be considered with an understanding of the athlete's current training and diet, plus his or her short and long term goals.

Watch the video - <https://vimeo.com/165100905>



# 5

Everyone else in our club is taking supplements so something must be of benefit?

**Supplements should only be prescribed for individuals to meet their specific nutritional need.** With this in mind, there needs to be an understanding of the training an athlete is undertaking but especially their current dietary intake and goals they are working towards. Given this, two athletes can have very different nutritional needs, even when doing the same training. As such, their food and fluid needs will be different and so should consideration of any potential supplementation.

Now watch the video - <https://vimeo.com/164372446>



# 6

i recognise that supplements are marketed very effectively - there are top sports stars endorsing them so they've not done them any harm!

It is important to recognise that endorsement of a supplement is merely a business arrangement between the athlete and supplement company. Typically this association is only established after the athlete has become successful so the connection made by some between the athlete's success and use of the supplement is really inappropriate. **There is no shortcut to athletic success ...** strategic planned training, implementation of appropriate recovery practices, including a well-considered meal plan (that may or may not include a small range of evidence based supplements), and great genetics.

# 7

## What can i take after a workout instead of a supplement?

The period immediately after exercise is when your muscles are most sensitive to nutritional support, promoting restoration of energy reserves while also facilitating muscle repair and rebuilding. The nutrients most important during this time are carbs (aiming for ~ 1g/kg body mass) for energy, as well as protein (15–30g, depending on your body size) for muscle remodelling. Replacing body fluids and lost electrolytes is also key during this time if rehydration is to be fast tracked. **Consuming a snack or meal soon after exercise should be a priority, especially on heavy loading days when you have more than one training session.** Given this, it's critical to arrive at training with a suitable recovery snack. Failing to do so may limit your adaptations to training and/or can mean you'll be carrying some residual fatigue into your next training session.

**Nutrition experts encourage a food first philosophy, recognising that whole foods provide a wider range of nutrients to help an athlete achieve their daily needs, including nutrients we know about, as well as those we are still to identify.** Basing your meal plan on whole foods will help to achieve your overall recovery needs. This may be complemented with a small number of supplements to further fortify your recovery meal or snack. An example

would be the addition of a small serve (say 10–20g) of a rapidly digested protein supplement (e.g. whey protein isolate) to a milk shake or smoothie to help achieve key nutrient needs after exercise, including fluid and electrolytes, protein and carbohydrate. Other suitable recovery choices after exercise follow below. The preferred choice will depend on individual taste preferences, as well as the type of exercise undertaken and specific goals the athlete is trying to achieve plus logistical issues like where the snack will be consumed.

- low fat milk on cereal + tub of yoghurt or eggs on toast at breakfast
- low fat yoghurt, milk-based shake or tuna/ cheese on crackers at mid meal snacks
- trimmed cold meats (e.g. ham, pastrami, corned beef, tinned fish, skinless chicken) on sandwiches at lunch and/or low fat cheese
- a fist full (average hand size) of fat trimmed meat, skinless poultry or seafood, a fist full of carbohydrate rich food (rice, pasta, noodles, potato) plus a double fist of vegetables (cooked or salad) with dinner.

# 8

## Don't Australia's laws protect us from potentially harmful supplements?

**While you might expect that companies producing such supplements are legally responsible for ensuring that their claims are clear and scientifically accurate, and their ingredients are safe and fully listed, that is not always the case.**

In Australia, the laws around sports food supplements such as sports bars and drinks allow manufacturing companies to voluntarily make food-health claims. While some of these may be linked to more than 200 scientifically identified food-health relationships, others can simply be publicly listed, and not require validation.

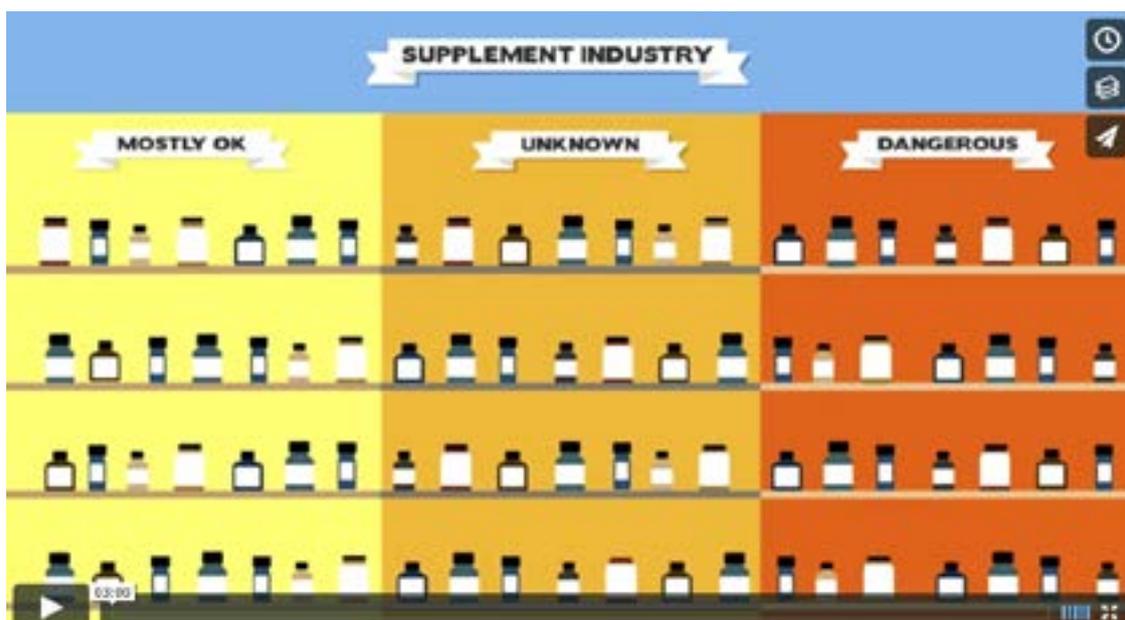
The laws on supplements produced as pills, tablets, powders, capsules and liquids require manufacturers only to provide proof that they don't contain ingredients banned by our customs laws. Manufacturers of these supplement categories are not required to provide proof of supplement benefits.

Different countries have different laws governing supplement manufacture,

labelling and advertising. For example, in America dietary supplements are treated like foods and are not put through the same safety and effectiveness requirements that drugs are. Since dietary supplements are often self-prescribed, there's no controlled system for reporting bad reactions and side effects.

**The availability of dietary supplements over the internet mean athletes are potentially exposed to products and ingredients not approved for sale in their home country.** Of course, the importation of ingredients/products that are considered supplements in one country may be prohibited by customs laws in another, but breaches of these laws are not always identified.

Watch the video - <https://vimeo.com/162320255>



# 9

## What's the difference between a supplement and a performance and image enhancing substance?

**Performance and Image Enhancing Drugs (PIEDs) refer to substances that are generally used to enhance muscle growth ('anabolic' effects) or to reduce body fat.** The expected benefits of using these types of substances range from increasing the size and definition of muscles, reducing water retention and body fat, to increasing physical strength and endurance. The major substances of concern, that are most likely to be used or abused, are human and veterinary anabolic androgenic steroids (AAS), growth hormone, other reproductive hormones, diuretics, stimulants, beta-2 agonists and hormones such as insulin and thyroxine. The most commonly used PIEDs are AAS.

Several Australian reports have identified that the use of AAS and related substances affect not only the sporting sector, but also a wider cross-section of the Australian community. Although athletes might be the most visible group they are likely the smallest group of PIEDs users. Other groups of PIEDs users include those being treated for specific medical conditions, but also individuals trying to enhance their body image and or work capacity. Use of PIEDs often occurs without medical supervision, and in amounts that

greatly exceed recommended therapeutic doses. Assessing the health risks can be difficult as users often take complex combinations of drugs. While a small proportion of PIEDs are prescribed by a doctor for therapeutic reasons, many of the substances used in Australia are believed to be obtained and used illicitly, and there is an active black market for PIEDs.

While some dietary supplements may make claims similar to those of PIEDs, their mechanism of action (if any) is dramatically different. PIEDs directly impact on circulating levels of hormones while dietary supplements merely provide nutrients that may or may not indirectly influence these hormones. In general, dietary supplements provide a source of nutrients similar to that which can be found in food and may impact on outcomes by merely influencing overall nutritional status of the individual.

**The issue of supplement contamination with PIEDs is very real, with numerous athletes currently serving bans from competition because of such doping.**



## Are there any particular supplements considered high risk of containing banned substances?

**Research commissioned by the International Olympic Committee has shown that supplement companies that include pro-hormones (or supplements claimed to influence anabolic androgenic hormones like testosterone and growth hormone) in their range are more likely to contain anabolic androgenic steroids not declared on the label.** Given this, athletes are advised to avoid supplements from these companies. Aside from pro-hormone supplements, multi-ingredient pre-trainers are a particular range of popular supplements that are more likely to contain banned stimulants. Given that the primary ingredient in pre-trainers with evidence to favourably influence exercise performance is caffeine, there are low risk alternatives readily available. More recently, pre-trainers are available that have been verified by independent third party analysis laboratories to be free of doping contaminants.



## The labels on supplements don't tell me much. How can I find out about what the labels really mean?

Sports foods are specially formulated to help people achieve specific nutritional or sporting performance goals. They are intended to supplement the diet rather than be the only or main source of nutrition. These products are regulated as formulated supplementary sports foods under Standard 2.9.4 in the Australia New Zealand Food Standards Code. To meet the specific dietary requirements of sports people, this standard allows the addition of substances that are not permitted or are restricted in other foods as well as higher levels of some vitamins and minerals. This means that these foods are not suitable for children.

### **The labels of sports foods must:**

- **say 'formulated supplementary sports food'**
- **indicate that they are not a sole source of nutrition and should be consumed in conjunction with a nutritious diet and an appropriate physical training or exercise program**
- **provide directions stating the recommended quantity and frequency of intake of the food and state the recommended consumption of the food in one day**

- **state that that they are ‘not suitable for children under 15 years of age or pregnant women: should only be used under medical or dietetic supervision’.**

The labels of sports foods must also provide the same information required on nearly all packaged foods. For example, a nutrition information panel and a list of the ingredients must be provided on the labels of most sports foods.

Within the USA, supplements are able to use the term ‘proprietary blend’, a term which allows producers to not disclose the exact quantity of ingredients included in the formulation. Legally these imported supplements should be re-labeled prior to sale but this is rarely the case. Unfortunately this means the consumer has no idea how much of each ingredient is included in a serve, ensuring they may not be obtaining an ideal quantity of a specific ingredient.

Now watch the video - <https://vimeo.com/162320975>



# 12

## What evidence is there on the use of supplements to enhance performance?

Making an informed decision about the potential value of a supplement can be very confusing. **The use of supplements and sports foods by Australian athletes involves a balance between potential benefits (for example, contribution to an evidence-based sports nutrition program) and potential risks (for example, waste of resources, distraction, poor role modelling, anti-doping rule violations).**

The Australian Institute of Sport (AIS) Sports Supplement Framework provides the expertise and resources developed during the implementation of the AIS Sports Supplement Program (2000–13) to assist individuals (and sporting organisations) in making an informed opinion about a supplement. The AIS Sports Supplement panel provides oversight of the framework and reports directly to the Australian Sports Commission. Australian sporting organisations are invited to use the components of this framework and integrate its elements of provision, education, research and governance into their own sports supplement programs and guidelines.

The framework includes:

- The ABCD classification system. This provides a simple education tool to rank sports foods and supplement ingredients according to the scientific evidence – allowing them to safely and practically contribute to an athlete's performance goals.
- An open-access website for public education on supplements and sports foods that

provides a simplified version of the framework.

- Fact sheets and research summaries on individual sports foods and supplement ingredients, particularly for products within the A (supported for use in specific situations in sport using evidence-based protocols) and B (deserving of further research and could be considered for provision to athletes under a research protocol or case-managed monitoring situation) categories.
- Proactive research programs to continue to evolve best practice protocols for the use of supplements and sports foods within the A and B categories.
- Facilitation of third-party auditing programs for supplements and sports foods used or provided to Australian athletes as part of their sports supplement programs. These will minimise the risk of anti-doping rule violations.
- Access to the AIS Sports Supplement panel to provide feedback or audit the development of sports supplement programs and guidelines.

Now watch the video - <https://vimeo.com/164377353>



# 13

## Can I check if it is legal to use a supplement using Australian Sports Anti-Doping Authority's (ASADA) 'Check Your Substances Tool'?

The [ASADA 'Check Your Substances' tool](#) allows you to search the name of Australian pharmaceutical products and it will advise you if you can take them and when. It's the best way to athletes to check for themselves if something they want to take is permitted in sport. The search results page acts as a confirmation with a receipt number and date as proof that you checked the substance.

ASADA's primary role is to implement the World Anti-Doping Code in Australia and it works towards protecting the health of athletes and the integrity of sport. It achieves this through the implementation of a comprehensive anti-doping programme, encompassing engagement, deterrence, detection and enforcement activities. It is NOT the responsibility of ASADA to independently assess the safety, effectiveness or legality of a supplement. ASADA is not involved in any certification process regarding supplements and therefore does not certify or endorse manufacturers or their products.

# 14

## i checked the ingredients on the label and there is nothing on the banned list?

Unfortunately there have been numerous cases of athletes committing inadvertent doping offences (and facing subsequent bans from sport) through the use of supplements that contain prohibited substances which are NOT included in the ingredient list. **Inadvertent doping may occur as a consequence of sourcing raw ingredients that contain a banned substance, cross contamination during the manufacturing process or on occasion, because the banned substance is intentionally added during production.** Under the World Anti-Doping Code's strict liability principle, athletes are ultimately responsible for any substance found in their body, regardless of how it got there.

# 15

if a product is 'guaranteed steroid free' does that mean it's safe to use?

This will depend on the source of the guarantee. If it is from an independent third party testing facility that undertakes batch analysis like Informed Sport or HASTA, then there is a degree of assurance that this product has a very low risk profile. However **claims made by supplement companies themselves offer no assurances.**

Now watch the video - <https://vimeo.com/162305941>



# 16

I've got advice from a sports dietitian and they recommended creatine. The guy at the supplement store talked me into buying a product that had other ingredients which he said would add to my overall gains - it cost a lot more but I guess it's worth it!

**Retail staff at supplement stores do not require any recognised training in nutrition. Providing appropriate supplement advice demands an understanding of an individual's current training and diet, plus their short and long term athletic goals.** This requires a detailed discussion to better understand the individual athlete's needs.

Individuals are advised to consult with an accredited sports dietitian prior to considering the use of a sports supplement. They have the expertise to ensure you are able to make an informed opinion about supplementation, and if deemed appropriate, provide specific advice relating to the supplement and

other dietary strategies to assist in achieving the desired outcome.. To find a sports dietitian near you, follow this link...

<https://www.sportsdietitians.com.au/FindASportsDietitian/>



# 17

## Are there any supplements which are guaranteed to be free of World Anti-Doping Agency (WADA) banned substances?

**In recent years several independent testing laboratories have been established to offer just that... batch testing of supplements to confirm they are free of WADA banned substances.** There are several groups who offer this internationally including National Sanitation Foundation International, The Netherlands Security System Nutritional Supplements Elite Sports Sport Protect and Cologne List. The primary group providing this service for Australian manufactured supplements is LGC and its associated certification programs for supplements (Informed Sport, Informed Choice) and production facilities (Informed Sport Facility Registration). Informed Sport is a certification programme for sports supplements, ingredients and manufacturing facilities, which assures athletes that products carrying the Informed Sport mark have been regularly tested for substances considered prohibited in sport. In addition, Informed Sport also ensures that products have been manufactured to high quality standards. The Informed Sport registration process requires both a manufacturing quality system audit and pre-registration product testing. A thorough review of quality assurance systems, raw materials and supply chain is carried out to ensure there is little risk of contamination in the finished product.

This includes, but is not limited to:

- product evaluation including formulation, label claims, nutritional labelling, contaminant testing, etc.
- raw material evaluation at each production site
- review of accreditations held by the manufacturing/packing facility (such as Good Manufacturing Practice, etc.)
- quality system and Standard Operating Procedure (SOP) review for raw material storage and handling, review of SOPs for production and packaging, equipment cleaning, staff training, product traceability, etc.
- raw material supplier assessment
- finished goods storage and distribution evaluation

Pre-registration product testing is also required prior to acceptance onto the Informed Sport programme. This includes testing of five samples from different production runs to establish a history of testing. Only after the audit is satisfactory and the product testing has shown no contamination issues can the product be registered into the programme and carry the Informed Sport mark. Once the product is registered, every single production run of that product is then tested prior to release for sale. This way, if a contamination issue does arise, it can be dealt with before it reaches the market. All tested batches of product are listed on [www.informed-sport.com](http://www.informed-sport.com), they can be found on the registered products page or by simply typing in the name of the supplement in the search bar marked “Find your supplement”. In addition to testing each batch of product, Informed Sport will

also purchase registered products randomly from retail outlets and test them for banned substances. This serves as an independent integrity check on the product and provides additional assurance to athletes.

**More recently, an Australian company (Human and Supplement Testing Australia or HASTA - <http://www.hasta.org.au/>) with many years of experience in the equine industry, has emerged as an alternative for the independent, third party testing of dietary supplements.**



## FURTHER RESOURCES

### **Play by the Rules -**

<http://www.playbytherules.net.au/news-centre/projects-sport-integrity/1446-safeguarding-integrity>

You can watch a video of Dr Gary Slater talking about the use of supplements in sport delivered during the Safeguarding the Integrity of Sport forum held in Sydney in 2014. You can also download the full transcript from the presentation.

### **Sports Dietitians Australia -**

<https://www.sportsdietitians.com.au/FindASportsDietitian/>

You can search for an accredited Sports Dietitian in your region.

### **Australian Sports Anti-Doping Authority (ASADA) -**

<http://elearning.asada.gov.au/>

ASADA has free online training and resources on anti-doping in their education section.

<https://www.asada.gov.au/substances/supplements>

### **HASTA - Human and Supplement Testing Australia**

<http://hasta.org.au>

HASTA was created to provide industry, sport administrators and athletes with independent leadership and direction for the certification of sport supplements.

## **Exercise and Sports Science Australia (ESSA)**

<https://www.essa.org.au>

An excellent resource for people interested in exercise physiology, exercise science and sport science generally. They also run an exercise information website called Exercise Right - <http://exerciseright.com.au>

## **The AIS Sports Supplements Framework**

<http://www.ausport.gov.au/ais/nutrition/supplements>

The Framework contains the ABCD classification system - an education tool to rank sports foods and supplement ingredients according to the scientific evidence.

## **Dietitians Association of Australia**

<http://daa.asn.au>

The DDA is the peak body of dietetic and nutrition professionals. There is some excellent information on 'smart eating'.

## **Informed Sport**

<http://www.informed-sport.com>

A quality assurance programme for sports nutrition products, suppliers to the sports nutrition industry, and supplement manufacturing facilities.

## **U.S. Anti-Doping Agency**

<http://www.usada.org/substances/supplement-411/>

Visit USADA's dietary supplement safety education and awareness resource.

# SUPPLEMENTS - KNOW WHAT YOU'RE DOING

Get informed - your frequently asked  
questions about supplements in  
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