



Nutritional Supplement Position Statement



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Introduction

Research indicates the use of nutritional supplements is commonplace amongst elite athletes. Analysis from the FIFA 2006 World cup stated 57% of players reported using supplements (Tscholl et al. 2008). One study stated that 85% of elite track and field athletes use supplements (Maughan et al. 2007) and at the London 2012 Olympics, 82% of Japanese athletes reported using supplements in the year before the games (Sato et al. 2015). More recently, 64% of Spanish athletes reported using at least one supplement (Baltazar-Martins et al. 2019), while 97% of Dutch athletes have used supplements at least once in their career (Wardenaar et al. 2018). These data suggest that the majority of elite athletes use supplements and it is therefore necessary to ensure that the staff supporting them are sufficiently educated in the efficacy and management of nutritional supplement use.

To protect the rights of athletes to participate in doping free sport, British athletes are governed by [UK anti-doping rules](#) which are administered by the [UK Anti-Doping Association](#) (UKAD). UKAD is responsible for ensuring sports bodies in the UK are compliant with the [World Anti-Doping Code](#) through implementation and management of the UK's Anti-Doping Policy. An important principle of the code is Strict Liability, which means that athletes are solely responsible for any prohibited substances in their system, regardless of how it got there and if there was an intention to cheat. The principle of Strict Liability is particularly relevant where nutritional supplements are concerned, as the risk of inadvertently consuming prohibited substances is higher compared with consuming food.

Research suggests that the rate of contamination with WADA prohibited substances within supplements available to purchase in the UK, Europe and USA is between 12 and 58% (Martinez-Sanz et al. 2017). Presence of banned substances was detected in 19% of supplements in Australia (LGC, 2016). Meanwhile in the UK 21 of 28 “pre-workout” and “fat-burning” supplements were shown to contain banned substances (LGC, 2021).

Parallel to this, nutritional supplements are often initially reported by athletes as the cause of inadvertent doping. However, this needs careful consideration as the argument may be used by the innocent and guilty. Recent analysis suggests a range from 6.4-19% of positive doping cases were due to prohibited substance consumption via a nutritional supplement(s). (Outram et al. 2015, Lauritzen 2022).

Taken together (the prevalence of nutritional supplement use, the rate of contamination and the number of positive tests attributed to supplement consumption), this highlights the need for support staff and athletes to understand the efficacy and safety of the products being consumed.

The decreased risk of inadvertent doping is one of the reasons that a food first ethos is widely promoted by Performance Nutritionists. A strong nutrition foundation based on the consumption of a wide variety of foods can often meet an athlete's macro and micronutrient requirements. Furthermore, athletes also benefit from the other nutrients and nutrient interactions that food contains which may be diluted or filtered out in a supplement form.

However, we acknowledge that food first does not mean food only, and when used effectively and safely, some supplements may contribute towards improvements in health and/or performance. Typically, supplement use by athletes falls into one of four categories; to prevent or treat nutrient deficiencies, to provide a practical form of energy and nutrients, to directly improve sports performance or to indirectly improve sports performance. However, due to the nature of the supplement industry, there are potential risks, which may lead to an anti-doping violation, such as inconsistencies in production standards or poor sourcing of ingredients. The result being that some products available for everyday purchase may contain prohibited substances which could subsequently lead to an Anti-Doping Rule Violation (ADRV).

Purpose

The aim of this position statement is to provide Performance Nutritionists (PN) and other Athlete Support Personnel (ASP) with a guide to appropriately assess the need for supplementation and reduce the risk of an ADRV. It will provide the practical guidelines and tools to support athletes, PN and ASP.

This document should be read in conjunction with the [SENRC Clean Sport Commitment Statement](#).

Legislation & WADA Code

[WADA Athletes & Support Personnel](#)

[UKAD Athlete Support Personnel Hub](#)

All ASP need to know the essential anti-doping practices and tools available, to help ensure athletes remain clean. ASP are encouraged to use their influence positively, help develop ethical behaviour, strong values and foster anti-doping attitudes amongst the athletes that they work with.

PN's registered by SENR in the UK must annually complete the UKAD Introduction to Clean Sport e-learning module as a requirement of their registration.

The World Anti-Doping Code states the roles and responsibilities that ASP have in relation to anti-doping.

This means you must:

- Know and comply with the Anti-Doping Rules, policies and practices that apply to you as well as those that apply to the athletes you support
- Co-operate with the testing programme for athletes
- Use your influence on athletes positively to foster clean sport values and behaviours
- Tell UKAD and your International Federation if you have committed an ADRV in the last 10 years
- Co-operate with any doping investigation when asked to do so
- Not use or possess any prohibited substance or prohibited method without a valid and justifiable reason
- Take the opportunity to be educated on anti-doping matters either through UKAD, your National Governing Body, Sports Institution or Professional Association
- Have conversations within your sporting environment on anti-doping and encourage regular engagement in clean sport activities and events
- Familiarise yourself with the universal rights available to athletes within anti-doping, which are set out in the WADA Athletes' Anti-Doping Rights Act

What this means for ASP:

Anti-doping is complex and needs attention from all who are bound by the Anti-Doping Rules. ASP could face a ban from sport, not just athletes. This in most cases is career ending. Take your responsibilities towards anti-doping seriously and help those around you do the same.

There is no sympathy for ignorance or carelessness in anti-doping. If an athlete tests positive for a prohibited substance, it will be for them to prove how the banned substance entered their system. The Code makes a provision for contaminated products (supplements), so athletes are advised to make sure they can prove that they have taken all reasonable steps to manage the risks associated with supplement use.

Thus, whilst the legal responsibility falls to the athlete themselves, a key role of the ASP is to ensure that comprehensive and up to date advice is provided to the athlete and the wider support team. It is therefore imperative that the ASP is up to date with everything they need to know to protect themselves and their athletes.

PRACTITIONER SUMMARY POINTS:

- ASP must remain up-to-date with National and International Anti-Doping education and expectations
- ASP must not only provide the best possible support and care to their athlete, but also protect themselves and their employer through anti-doping education and actions
- ASP are not impervious to bans and ignorance is not an excuse
- Honesty and transparency are valued by anti-doping agencies – the ASP can play a large part in this through their advice and actions.

Food First but Not Always Food Only

As highlighted above, it is recognised that nutritional supplements carry a risk of inadvertent consumption of prohibited substances. Typically, this risk presents through four different sources:

- The product contains a prohibited substance (whether listed on the ingredient label or not)
- The product lists a prohibited substance on the ingredient label under a different name
- The product has been contaminated during the manufacturing process
- The product is a counterfeit product and does not contain the ingredients stated on the label

Therefore, in order to minimise risk, the role of the PN is to consider the strategic use of appropriate nutritional supplements. Adopting a 'Performance Backwards' approach by addressing specific performance and/or health questions empowers strategies to be relevant, specific and individualised. It is proposed that the most suitable personnel to advise on nutritional supplement use are those registered with an appropriate accreditation body (e.g. SENR). Such practitioners have had to demonstrate an understanding of appropriate supplement usage and safety as part of their registration process and be up to date with relevant ASP UKAD training.

Recently the term "Food first, not food only" (FFNFO) has been proposed by Close (2021). The term represents a positive movement away from the commonly used but restrictive term "Food First" with regards to prioritising the consumption of food over nutritional supplements.

The authors suggest six reasons why a food only approach may not be optimal for athletes:

1. Some nutrients are difficult to obtain in sufficient quantities in the diet, or may require excessive energy intake and/or consumption of other nutrients
2. Some nutrients are abundant only in foods athletes do not eat or like
3. The nutrient content of some foods with established ergogenic benefits is highly variable
4. Concentrated doses of some nutrients are required to correct deficiencies and/or promote immune tolerance
5. Some foods may be difficult to consume immediately before, during or immediately after exercise
6. Batch-tested supplements could help where there are concerns about food hygiene or contamination.

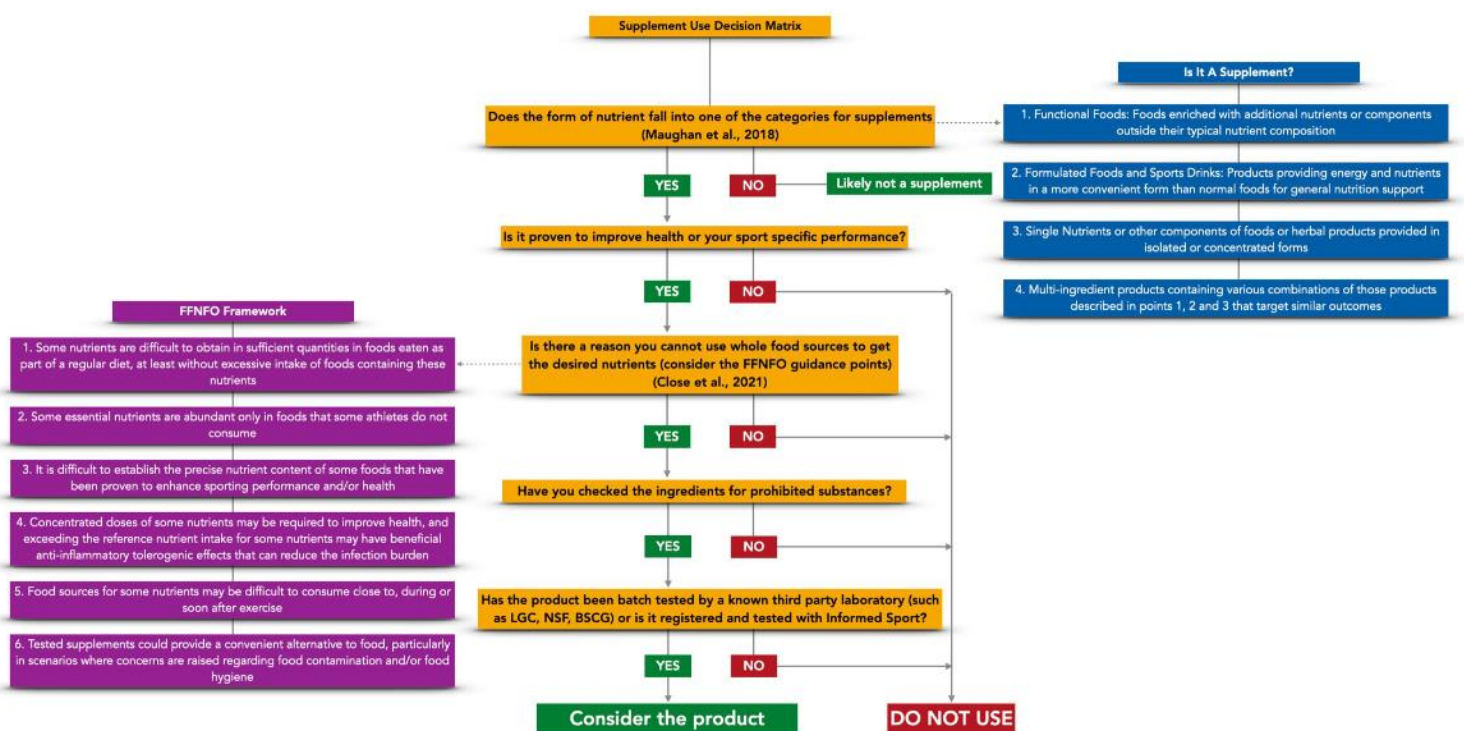
Acknowledging that a food first approach may be the preferred strategy to minimise inadvertent consumption of banned substances, it should also be stated that there are

occasions when a food only approach could be detrimental to the athlete’s health or performance.

Whilst there remains no universally accepted definition of a nutritional supplement, the most widely accepted definition has been proposed by Maughan (2018):

“A food, food component, 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”

Using this definition and the FFNFO approach, the following decision tree model has been proposed to help PN and ASP make decisions on appropriate strategic and safe use of nutritional supplements.



The PN will play a critical role in supporting the athlete through this decision making process. SENR practitioners are reminded that they should maintain suitable records of such discussions and recommendations.

PRACTITIONER SUMMARY POINTS:

- *By understanding the sources of supplement risk the ASP can better incorporate strategies to minimise this risk*
- *A Performance Backwards approach can be used to understand and rationalise the potential use for nutritional supplements*
- *The FFNFO model proposes scenarios which the ASP can incorporate into the Performance Backwards approach to help consider the strategic and evidence-informed approach to nutritional supplement use.*

Fortified and Functional Foods v. Supplements

Food fortification involves the addition of vitamins and minerals to foods as part of manufacture or processing. In some cases it is required by law, in others it is voluntary. It can play an important part in improving the micronutrient intake of a population as a whole. In the UK, food fortification has been commonplace for many years, such as the fortification of white flour with calcium, iron, thiamine and niacin, or more recently with the fortification of calcium and iodine in plant-based milk-alternatives.

However, recently, food fortification has grown to incorporate an increase in the demand for 'functional foods', a very broad range of products which deliver additional or enhanced benefits over and above their basic nutritional value. Functional foods can be similar to everyday foods such as yoghurts or low-fat spreads but with added functional ingredients such as probiotics or stanols/sterols. Within a sports nutrition context, functional foods are often marketed as containing extra protein or key vitamins and minerals. Rarely is this market driven by athletic performance but instead by general health or beauty.

There is value in having a clear definition of a nutritional supplement because it allows for clarification in identifying which products are considered nutritional supplements and which are fortified or functional foods. This clarification then allows the PN/ASP to identify if the product is expected to undergo further testing for the presence of banned substances (e.g. batch-testing).

As noted above, the current favoured definition of a nutritional supplement comes from Maughan (2018):

“A food, food component, 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”

The first part of the definition, *“food, food component, nutrient, or non-food compound”*, is open-ended and thus provides little clarity in identifying if a product is a supplement or not. The latter part of the definition refers to *“purposefully ingested”*, *“in addition”* and *“specific health and/or performance benefit”*. These elements indicate that a supplement is consumed with clear and direct intention which helps us to differentiate the supplement from the habitually consumed diet.

Therefore, we propose the following **considerations** to help clarify if a product should be identified as a nutritional supplement:

- **Intent** - Is it intentionally consumed for a specific health and/or performance benefit and not part of the routine habitual diet?
 - *E.g. purposefully consumed for a specific reason*

- *Supplement Example: Creatine Monohydrate*
- **Ingredients** – Does the product contain a concentrated source of ingredients which have been incorporated for a specific health and/or performance benefit?
 - *E.g. single nutrient product, multiple nutrient product of concentrated sources*
 - *Supplement Example: Protein powder*
- **Manufacturing** – Is the product manufactured at a site or by a company which produces nutritional supplements and its form does not represent a food product?
 - *E.g. the product is a encapsulated or powdered*
 - *Supplement Example: Multivitamin*
- **Marketing** - Does the product make specific claims about health and/or performance benefits? Is there guidance on the products intended use?
 - *E.g. claims for improved athletic performance, dosage guidance*
 - *Supplement Example: Caffeine tablets*

If the answers to the above considerations are predominantly yes then the product should be considered a nutritional supplement and therefore subject to further banned substance testing.

If the answers are no, it is unlikely that the product is a nutritional supplement and **more likely** to be defined as a food, fortified food or functional food and therefore should not **automatically** be considered necessary for further testing.

The PN/ASP are urged to use their clinical reasoning and judgement when navigating these considerations.

Fundamental to the considerations above is an understanding of the manufacturing processes a product has undergone and the risks associated with this. As noted earlier, a risk with nutritional supplements is contamination with prohibited substances during manufacturing. This is because few nutritional supplement companies will manufacture their own products, instead they outsource to large contract manufacturers who may also produce multiple products for non-athletic populations containing a wide variety of ingredients, including potentially WADA prohibited substances. In this circumstance, the nutritional supplement may become contaminated with a prohibited substance which is part of the formulation of an entirely different product aimed at an entirely different market.

In contrast, food production facilities have no reason for prohibited substances to be present on their site and food products are subject to rigorous quality control and assurance checks throughout the manufacturing process with regulatory standards pre-release to market. Therefore, risk of contamination in food manufacturing sites is significantly reduced.

ASP and PN should also be aware of vendors utilising nutritional supplements in fresh or made-to-order foods. For example, the inclusion of protein powder in a protein ball/cake in a cafe or the use of botanical ingredients such as Maca powder in a fresh juice or smoothie. In such environments, the athlete and ASP are encouraged to enquire about the source of key ingredients to help inform decision making. It is noted that most vendors will likely use a

consumer final product nutritional supplement for their products (i.e. not a raw ingredient as would be utilised in the food manufacturing industry) and may be unaware of the ADRV risk associated with their practices

PRACTITIONER SUMMARY POINTS:

- *It is recognised that the boundaries between food and nutritional supplements can be blurred and that current legislation makes it challenging to classify 'borderline' products*
- *ASP are encouraged to carefully apply the adopted definition of a supplement and considerations when helping athletes make decisions in this area*
- *Maintaining suitable records and justifying decision making is an important component of transparency and risk minimisation*
- *Where there is a choice between similar batch-tested and non-batch-tested products then ASP should always look to promote the batch-tested product*
- *Caution is advised when athletes are faced with products in cafes which may incorporate nutritional supplements into their fresh and made-to-order foods.*

Understanding “Batch-Testing” and Risk Minimisation Programmes

Nutritional supplements are commonly produced in large batches (or production units) with each batch given a unique code. “Batch-testing” is a term which refers to the screening of a sample from a batch for the presence of prohibited substances.

As a minimum, batch-testing should be undertaken on the final product intended for the consumer. Therefore, it is separate to any individual ingredient traceability or certificates of analysis. The batch-testing process does not exist to quantify the levels of ingredients within a product nor review product efficacy, it simply highlights the presence of banned substances as listed in the WADA Prohibited List. Testing is undertaken by accredited laboratories with extensive ingredient analytic capabilities and are independent from any anti-doping authorities. The supplement manufacturer pays the laboratory for this process and often will use the results to market their products towards elite athletes and those subject to the WADA code. The unique codes for each tested batch are often published on the manufacturer or batch-testing company’s website – this allows the consumer to cross-check the code on their product with those listed on the register.

Central to the Supplement Use Decision Matrix is the requirement that all supplements are batch tested by a known third party laboratory. As such, recommending products which have not been batch tested goes against these best practice guidelines.

Numerous companies provide batch-testing services with five common programmes highlighted below. It is important to understand and research the process and standards involved with each of these companies as differences do exist which may impact decision making. Furthermore, different National Anti-Doping Agencies and Governing Bodies recognise different testing programmes, thus the ASP must be aware of the legislation applicable to their athlete.

Informed Sport (LGC), UK

- 4-stage process for certification involving; Product and manufacturing review, Pre-certification sample testing, Product certification, logo use and web listing, Post-certification requirements and testing.
- Requires every product batch (including all flavour variants) to be tested before release to the marketplace. Regular blind testing of final products purchased on the open market is also undertaken.
- Tested products branded with the Informed-Sport logo are listed on their website and app.
- Note that there is a difference between the Informed-Sport and Informed-Choice programmes. Whilst both use the same testing procedures, the frequency of testing through Informed-Choice is lesser as it operates through monthly blind sampling.

National Sanitation Foundation (NSF), USA

- Assesses products and ingredients for the presence of contaminants that impact health and substances banned by major sporting organisations. In addition, NSF also evaluates the composition of nutritional supplements and ingredients to verify the products contents.
- The Certified for Sport programme is the only independent, third-party certification programme recognised by the United States Anti-Doping Agency (USADA).
- Certified products are listed on the NSF database and app.

Banned Substance Control Group (BSCG), USA

- Offers an array of services for different users. “Certified Drug Free” seal indicates the batch has been tested for the presence of WADA prohibited substances as well as over the counter and illicit drugs.
- Lists certified products on their website database.
- Note that other BSCG services may only audit product label claims and/or manufacturing compliance so check the level of certification you require.

Cologne List, Germany

- Analyses products for selected anabolic-androgenic steroids and stimulants (the contaminants which are most often found in nutritional supplements).
- Prior to analysis a label quality control check is undertaken.
- Approved products are listed on their website and app.

Human and Supplement Testing Australia (HASTA), Australia

- Batch tests for a comprehensive range of WADA prohibited substances, developed specifically for the Australian market.
- Approved products are listed on their website.

Further to these differences between batch-testing services, the supplement manufacturer may not choose to batch-test every batch or product within their portfolio. Therefore, it is imperative that the ASP or PN discussing supplement use with an athlete checks the final product and does not assume that a product tested once will remain tested in the future.

It should be clear that batch-testing is not a 100% guarantee that a product is free of contamination. The batch-testing process takes a sample from a batch for analysis, it assumes that any contaminants are equally distributed throughout the batch and present in levels detectable by their laboratory. Furthermore, no organisation can test for every substance on the WADA Prohibited List, this is because some substances cannot be tested for (e.g. S0 Non-Approved Substances or insufficient detection technology).

Ultimately, nobody will ever test the portion that is consumed by the athlete. Therefore, these programmes must be viewed as **risk minimisation** rather than risk elimination schemes.

PRACTITIONER SUMMARY POINTS:

- *Batch-testing programmes primarily exist to highlight the presence of prohibited substances – they are not a marker of product efficacy or quality, ASP must undertake their own research on product efficacy*
- *The Supplement Use Decision Matrix highlights the need for products which have been suitably batch-tested*
- *Each testing programme operates differently so ASP must be aware of how this may affect supplement use decision making*
- *Batch-testing programmes are risk minimisation schemes.*

Practical Advice

Recognising that athletes will seek advice on supplements, ASP should take caution when offering advice, taking steps to protect athletes and themselves. SENR registrants should be considered a vehicle of information given their understanding and practical experience in this field.

If after careful consideration (incorporating the decision tree above) the athlete wishes to use a nutritional supplement the following points should be considered:

ASP Responsibility:

- Is the athlete suitably ready to use the product?
 - E.g. Age, experience, compatibility with health/performance goals
- Is the product practical to use?
 - E.g. Availability, affordability, tolerance, practicality in training / competition
- Provide evidence of the performance or health benefits of the product
 - E.g. Best available published research
 - If published research is lacking specificity to the athlete then consider collecting evidence through a case study or research project
- Be aware of and discuss any adverse effects of the product
- Consideration should be made for when the product is used in isolation or conjunction with other products and/or medication
- Reinforce the importance of using only batch-tested products. Highlighting that these are risk minimisation programmes which cannot provide a guarantee that a product is free of prohibited substances.
- Advise the athlete (and support where required) to check final product batch numbers correspond to those listed on the appropriate register/certificates and not to rely solely on logos for assurance.
- Ensure the athlete is sufficiently knowledgeable about the appropriate protocols to use the product and place boundaries in and around the products use. For some products personalised doses or protocols may need to be established.
- Advise that any products should be trialled in training that mimics competition prior to use in a competition setting. Repeated trials are advised.
- Make a record of the discussion that was had with the athlete regarding supplement use and actions arising.
 - This could form part of their defence should an ADRV occur.
 - SENR recommends records are kept for a minimum of 10 years in line with retrospective anti-doping testing protocols.
 - Refer to the SENR guidance on [Record Keeping](#).
- Consider the use of a disclaimer with athletes to ensure that “strict liability” is fully understood by the athlete.

Athletes' Responsibility (to be encouraged by the ASP):

- The athlete should keep a record of any research carried out prior to using the supplement
 - E.g. Internet research around supplement efficacy
 - E.g. Checking the product is part of a batch-testing risk minimisation scheme
- Check final product batch numbers correspond to those listed on the appropriate register/certificates.
- The athlete should keep the batch testing certificate as a paper or electronic copy for at least 10 years.
- The athlete should consider retaining a sample of the product. Bearing in mind that retrospective anti-doping testing of blood or urine can be carried out for a period of up to 10 years post collection.

Additional Responsibilities if ASP is Working with a Nutrition Partner (or directly providing or handling supplements):

- Reinforce the principles of strict liability and remind athletes that before taking any product they must assess the need, risk and consequences of supplement use.
- Nutrition partners should be assessed based on product efficacy, good manufacturing practice (GMP) and quality assurance. Nutrition partners should be able to:
 - Provide information on quality and traceability of ingredients / products;
 - Highlight safety controls and audit frequency; and
 - Batch-test final products for prohibited substances through a recognised third-party programme and provide full certification and transparency of this process
- Batch testing certificates must be obtained and stored for any product provided and should be checked that the batch number of the product corresponds to the batch testing certificate.
 - Batch testing certificates should be stored as a paper or electronic copy for at least 10 years.
- A product database may be useful to set up to manage products supplied through a nutrition partner.
 - Example information to be stored: product name, flavour, batch number, pack size, expiry date
 - PN's working with a nutrition partner should be expected to provide strong records of products being handled by them and/or the organisation
- Products should be stored in a controlled access location with consideration for HACCP storage guidance
 - Secured lockable location with controlled access and not accessible to the public
 - Products should be stored in their original packaging whenever possible
 - Inspected upon receipt for damage or tampering
 - Not left accessible whilst unattended for extended periods of time or overnight

- Regular stock checks
- Products no longer suitable for use should be disposed of appropriately
 - E.g. Outdoor bin which minimises chances of the product re-entering circulation and avoids rodent attention.
- When distributing products directly to athletes, the ASP should keep detailed records including:
 - Date of provision
 - Product provided along with details on flavour, dose/pack size and batch number
 - Any advice provided regarding usage
 - Provide or signpost towards the relevant batch-testing certification.
- When transporting products between sites, the ASP should consider:
 - Recording details of which products have been moved from their secure location
 - Transport products in original sealed packaging whenever possible
 - Transport in appropriate containers to avoid spoilage, damage or contamination
 - Ensure products are in locked containers whilst left unattended (e.g. air travel)

Further Reading

Maughan et al (2018) IOC consensus statement: dietary supplements and the high-performance athlete <https://pubmed.ncbi.nlm.nih.gov/29589768/>

Close et al (2021) “Food First but Not Always Food Only” Recommendations for Using Dietary Supplements in Sport <https://pubmed.ncbi.nlm.nih.gov/35279015/>

2021 SENR Record Keeping Guidance <https://www.bda.uk.com/uploads/assets/bc5edaf1-28b7-45f8-a232eb9607148735/a76fdb92-4cb4-4536-a2de5fdfef8010ae/SENR-Record-Keeping-2021-final.pdf>

2015 HASTA report on supplement contamination frequency in Australia https://hasta.org.au/wp-content/uploads/2017/10/hasta-survey-of-supps-in-aus_oct15.pdf

2015 report from Anti-Doping Authority Netherlands in collaboration with LGC which identified the prevalence of banned substances in non-batch-tested nutritional supplements https://www.dopingautoriteit.nl/media/files/2015/Upper_limit_of_the_doping_risk_linked_to_sports_supplements_20151120_DEF.pdf