

# A PRACTICAL GUIDE TO THE USE OF NUTRITIONAL SUPPLEMENTS IN SOUTH AFRICA

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Sportspersons should ensure that the decision to use a dietary supplement is a safe one. Unlike medicines, which are regulated by the Medicines Control Council, there is no governing body to control and regulate the supplement industry in South Africa. As a result many supplements may contain banned substances and there is a chance that not all the ingredients are accurately listed on the label of a supplement product. National and international sporting bodies place the responsibility of using supplements on the sportsperson. The legal clause 'strict liability' means that the sportsperson is responsible for any and all substances appearing in their urine and blood. Thus to protect

sportspersons from using banned substances and to help them in the correct use of nutritional supplements, this practical article can be used to aid the athlete to make decisions about nutritional supplements.

**SUPPLEMENTS IN PERSPECTIVE**

Supplement use should be individual- and sport-specific. Certain nutritional supplements, if used correctly, can

play a small but important role in enhancing sports performance. However, it is important that the use of nutritional supplements be based on a solid foundation incorporating other factors vital in achieving peak per-

Table I. **Classification system of nutritional supplements**

Supplement grouping	Definition
Group A	<p>This group includes supplements and sports foods that provide a performance benefit in sport-specific and individual-specific situations or provide a useful and timely source of energy and nutrients in an athletes diet or are of medical/therapeutic benefit:</p> <p>Bicarbonate, beta-hydroxy-beta-methylbutyrate (HMB), creatine, calcium, carbohydrate powders and gels, glucosamine and chondroitin, intramuscular iron, intramuscular vitamin B12, liquid meal replacements, melatonin, recovery formulas, sports energy bars, skim milk powder, sports drinks, specific vitamins and minerals.</p> <p><b>A full document on specific use of these supplements is available from SA Institute for Drug-free Sport and SA rugby</b></p>
Group B	<p>This group includes supplements currently lacking substantial proof of beneficial effects or have no proof of beneficial effects in sportspersons. This group contains the majority of supplements including many herbs and herbal extracts* promoted to sportspersons. These supplements enjoy a cyclical pattern of popularity and use, but have not been proven to enhance sport performance. In some cases these supplements may impair sports performance or health:</p> <p>Arginine, bee pollen, branched chain amino acids (BCAAs), colostrum, CLA (conjugated linoleic acid), carnitine, cordyceps, cytochrome C, coenzyme Q10, chromium picolinate, choline, Echinacea, ferulic acid, ginseng, glycerol, glutamine, ginkgo biloba, gamma-oryzanol, intravenous iron, inosine, lysine, network marketing supplements, ornithine, pro-biotics, Protivity (Microhydrin), pyruvate, ribose, vitamin B12 injections, spirulina.</p>
Group C	<p>Supplements that are prohibited for use by the International Olympic Committee (IOC) and World Anti-Doping Agency (WADA). This list includes prohormone supplements (testosterone precursors such as DHEA, androstenedione, androstenediol, boldenone and nandrolone precursors) and stimulants such as ephedrine and strychnine, all of which have negative side-effects. Supplements and herbal products may contain these banned substances (e.g. Ma Huang is Chinese Ephedra and Sida herbs may contain ephedrine alkaloids) or inadvertently (via contamination). The effect of tribulus terrestris, herbal testosterone supplements, zinc magnesium antioxidant (ZMA), ecdysterone (suma) on drug testing results are unknown.</p> <ul style="list-style-type: none"> <li>• Caffeine has recently been removed from the banned IOC/WADA lists. However, it is still advisable to be familiar with the wide range of caffeine-containing foods, beverages (e.g. energy drinks, sports drinks, tea and coffee), sports gels and drugs to avoid any undesirable side-effects. Individuals respond differently to caffeine. Performance-enhancing effects may be found at doses as low as 1 - 3 mg/kg (50 - 200 mg caffeine). There is no additional benefit from taking a larger caffeine dose and larger doses are associated with greater risks of side-effects such as nervousness, anxiety, palpitations, headaches and dehydration which may negatively affect performance.</li> <li>• Note that many herbals contain unstated ingredients on labels and may inadvertently contain ephedra or other alkaloid stimulants.</li> </ul>

formance. If any of these factors are lacking, then any potential performance benefit from nutritional supplements will be lost.

**CLASSIFICATION SYSTEM**

(Table I)

Sportpersons can make use of a classification system to establish the benefit or risk to be gained from a nutritional supplement. This system is based on the weight of scientific evidence supporting that particular supplement and has been adapted from that currently used at the Australian Institute of Sport.

Note: new scientific evidence may emerge which could shift supplements between groups.

**CONCLUSIONS AND RECOMMENDATIONS**

Supplements should only be taken when there is proof that the diet cannot provide the quantities of nutrients needed. A nutritional evaluation by a dietician (with sports nutrition experience) should determine if any deficiencies are present in the diet and supplements can be supplied accordingly. This evaluation should take into account body composition goals, dietary and medical history, food

practices and preferences, training and competition nutrition requirements and budgetary constraints.

Dosages of supplements need to be calculated to avoid overdose. Individuals may respond differently to supplements and this must be taken into consideration. For example, 30% of athletes may not respond to creatine supplementation and different persons may tolerate supplements differently. Try and test diet and supplement changes well before a major competition.

Supplements required in clinical situations need a proper medical diagnosis and again should only be prescribed, in writing, by the sports physician and dietician. Athletes are also reminded to request written prescriptions for supplements. **Fitness coaches and conditioning staff should not prescribe any supplements.**

No persons under the age of 18 should take any sport-specific supplements without the advice of a sports physician or dietician.

All supplement labels should be carefully studied and the ingredients noted. Look for hidden relationships between ingredients (e.g. caffeine and

guarana), unstated ingredients (e.g. fat-burning supplements that may contain hidden banned stimulant products) and avoid the prohormone supplements that are banned by sporting federations.

It is recommended that for every supplement purchased the athlete request the supplier to provide a quality control certificate (this should demonstrate that the product has been tested at an independent IOC-accredited laboratory and has been shown to be free of prohibited substances) as well as with legally binding documentation listing all contents of all the different products that they produce and that the company accepts full liability for a positive doping test as a result of the use thereof. This guarantee document should:

- be on a company letterhead
- be signed by management and dated
- include contact details for the person responsible for issuing the guarantee
- address the athlete directly by name, and not be addressed generally, e.g. 'To whom it may concern'.

**SINGLE SUTURE**

**LIFE AFTER THE TITANIC**

An interesting paper in the Christmas edition of the *BMJ* asked the question — do people live to normal ages after a disaster? The authors say that studies have looked at post-traumatic stress in those surviving disasters, but none have looked at longevity. Looking at available information for survivors of the Titanic they found that their lives were not shortened when compared with those for whom 14 and 15 April 1912 were somewhat less memorable. Five of the woman survivors lived past 100, and the 3 survivors still alive are in their 90s. This is not simply a factor of socio-economic class either, since not all the survivors travelled in first and second class.

(Hanley JA, et al. *BMJ* 2003; **327**: 1457-1458.)