Immune Function Immune Supplements

Consuming a well balanced diet, with sufficient carbohydrates, protein, appropriate fats (e.g. omega 3's) and vitamins and minerals to support your energy needs, is the most important step to maintaining immune function. If you are regularly ill, talk to a nutritionist to assess your diet.

If your diet is sufficient but you are still regularly ill, there are a few supplements that may help boost your immune system. Always consult your coach and nutritionist before taking any supplement and check information at www.ukad.org.uk/supplements.

English Institute of Sport (EIS) Supplement Grading System

The EIS use a supplement grading system to help identify which supplements are effective.

Gold – Proven performance benefit
Silver – Proven Physiological benefit
Bronze – Theoretical benefit, yet to be proven.

Antioxidants

Antioxidants scavenge up all the harmful products produced during exercise that can damage the body's cells and tissues. Your body produces some antioxidants but you can get others from your diet including vitamin C, vitamin E, carotenoids (mainly β-carotene found in pumpkins, carrots, mangos), polyphenols (group of chemicals found in many fruits and vegetables) and selenium.

Flavonoids

There are thousands of different flavonoids, a type of polyphenol, found in many fruits, vegetables, grains, herbs and beverages such as tea and fruit juices. Their roles in the body include They all have various different roles within the body including protecting cells from damage, acting as an anti-inflammatory and fighting against germs[1].

Quercetin (Bronze)

One flavonoid, Quercetin has the potential to support athletic performance by improving immune function, reducing illness rates, and acting as an anti-inflammatory and antioxidant. It is found in lots of foods and drinks like apples, various berries, broccoli and tea. There is currently minimal evidence of physiological or performance benefits of Quercetin supplementation alone, but combining with other polyphenols may be more effective[2]. However, more research is needed.

The most optimally effective way to increase antioxidants intake is to consume a diet rich in antioxidants and 'super' foods

- Fresh fruit, vegetables and wholegrains, including rich coloured fruits (red, purples and blacks), are excellent sources of polyphenols
- The antioxidants and other compounds in these foods will all work together to protect your health more than just taking a single supplement

Refer to *The Basics Antioxidants* for more information.

[1] Nieman D et al (2010) A-Z of nutritional supplements: dietary supplements, sports nutrition foods and ergogenic aids for health and performance: part 15. BJSM, 44:1202-1205.

[2] Nieman et al. (2012) A-Z of nutritional supplements: dietary supplements, sports nutrition foods and ergogenic aids for health and performance - Part 33. BJSM, 46, 618-620.

FACT SHEET

Fish oil supplementation (Silver)[3]

- Omega 3 and Omega 6 fatty acids are polyunsaturated fatty acids (PUFA) that cannot be made by the body so we must get from our diet.
- Fish oils are the best sources of essential Omega 3 including eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). EPA and DHA are anti inflammatory and may help protect against certain diseases.
- Omega 6 fatty acids have the opposite effect; too much Omega 6 can increase inflammation that occurs during high intensity exercise.
- Most diets contain too much Omega 6; try to eat an equal balance of the two. Increase the amount of Omega 3's, found in oily fish such as mackerel and salmon, and reduce the amount of Omega 6's by eating a diet lower in saturated fats and replacing oils such as sunflower and soy bean for olive and canola oil instead.
- If you are still prone to illness discuss taking a supplement with a nutritionist. A supplement providing fish oils EPA and DHA of about1/2g/day in ratio of EPA to DHA of 2:1 may be beneficial.

Probiotics (Gold)

- Probiotics are food supplements that contain "friendly" gut bacteria that with regular consumption can enhance gut health and immune function.

- Probiotics are a good addition to your diet if you regularly feel tired, run down with colds or have regular gastrointestinal discomfort.
- Take every day for at least two weeks for the benefits to be seen.
- The most positive research results have used Yakult consumed twice a day. Other options, such as Danone Actimel, are also available.

Glutamine (Silver)[4]

- Glutamine is one of the most abundant amino acids (building blocks for protein) in the body and helps your immune system function.
- You can usually get enough glutamine without a supplement as your body makes it and you get some from your diet (in foods like beef, pork, poultry, milk, spinach and cottage cheese).
- During exercise, levels of glutamine are reduced. Supplementation has been associated with reduced self-reported incidence of upper respiratory illness, but has been difficult to attribute this to a specific aspect of the immune system so more research is required.
- A glutamine supplement (5g per session) after exercise may help maintain immune function.

Colostrum (Silver)[5]

- Colostrum is the first milk produced after giving birth, and is rich in essential nutrients, vitamins and minerals and proteins that help fight disease.
- Research has found bovine colostrum (from cows) improved recovery of the immune system or prevented the usual reduction in immune function after exercise. It may therefore be useful if you are regularly ill. However it is expensive and may not be necessary so seek advice first.

[3] McAnulty SR et al. (2010) Effect of n-3 Fatty Acids and antioxidants on Oxidative Stress after Exercise. Med Sci Sports Exerc, 42 (9) 1704-1711.

[4] Newsholme et al. (2011) A-Z of nutritional supplements: dietary supplements, sports nutrition foods & erogogenic aids for health and performance –Part 18. BJSM, 45, 230-232.

[5] Crooks et al. (2010) Effect of Bovine Colostrum Supplementation on Respiratory Tract Muscosal Defenses in Swimmers. International Journal of Sports Nutrition & Exercise Metabolism, 20, 224-235.

ENGLISH INSTITUTE OF SPORT

BRITISH SWIMMING British Gas