Vitamins, minerals and anti-oxidants for training and staying healthy

Strenuous bouts of prolonged exercise and heavy training, particularly aerobic exercise, stress the body. Adequate intakes of energy, protein, iron, copper, manganese, magnesium, selenium, sodium, zinc, and vitamins A, C, E, B6 and B12 are particularly important to health and performance. These nutrients, as well as others, are best when obtained from a varied diet based largely on nutrient-rich foods such as vegetables, fruits, beans, legumes, grains, lean meats, fish, dairy products and unsaturated oils. Dietary surveys show that most football players are able to meet the recommended intakes for most micronutrients, as well as protein, saturated fats and dietary fibre. However, surveys do identify that some people may be at risk of sub-optimal intakes of these micronutrients, and the following groups are particularly at risk:

- players who restrict their energy intake, especially over long periods, to meet weight loss goals
- players who follow eating patterns with restricted food variety and reliability on foods with a poor nutrient-density

The best way to correct this situation is to seek advice from a qualified sports nutrition expert such as a sports physician, sports scientist or sports nutritionist. It is especially important for footballers, elite athletes, children, adolescents, and the elderly with a restricted food intake, although targeted nutrient supplements may be necessary to correct an established nutrient deficiency (e.g. iron deficiency).

**Anti-oxidant nutrients**

Anti-oxidant nutrients are important in helping protect the body’s tissues against the stress of hard exercise. It is not known whether hard training increases the need for dietary anti-oxidants, as the body naturally develops an effective defence against free radicals. Supplementation with anti-oxidants cannot be recommended because there is little evidence of benefit while it is known that over-supplementation can diminish the body’s natural defence system.

**Ideas for promoting dietary variety and nutrient-rich eating**

Be open to trying new foods and new recipes
Make the most of foods in season
Explore all the varieties of different foods
Mix and match foods at meals
Think carefully before banning a food or group of foods from your eating plans

Include fruits and vegetables at every meal. The strong colours of many fruits and vegetables are a sign of a high content of antioxidants and other food anti-oxidants. Aim to fill your plate with highly coloured foods to ensure a good intake of the range of these health-promoting dietary compounds. It is good to ensure that you “eat a rainbow” each day by choosing fruits and vegetables from each of the following schemes:

- **White** – e.g. cauliflowers, bananas, onions, potatoes
- **Green** – e.g. broccoli, lettuce, green apples and grapes
- **Blue/purple** – e.g blueberries, plums, purple grapes, raisins
- **Orange/Yellow** – e.g. carrots, apricots, peaches, oranges, cantaloupe, mangoes
- **Red** – tomatoes, watermelon, cherries, berries, red apples, red peppers

**Special concerns**

**Iron.** Iron deficiency is the most common nutrient deficiency in the world. It may occur in athletes, including football players, and can impair training and match performance. Unexplained fatigue, especially in vegetarian eaters should be explored with a sports physician and sports nutrition expert. Routine use of iron supplements is not wise: too much is just as harmful as too little. Self-medication with iron supplements may not address the real problem that is causing fatigue, or solve the cause of poor iron status.

**Calcium.** Calcium is important for healthy bones. The best sources are dairy foods, including low fat varieties. Fortified soy foods may provide a useful substitute where players cannot consume dairy foods. Three servings a day are required by adults, with an increased requirement during growth spurts in childhood and adolescence, and for pregnancy and lactation.