

# BRITISH SWIMMING WORLD CLASS PROGRAMME

## FACT SHEET

### The Basics Vitamins and Minerals

Vitamins and minerals are known as micronutrients and serve hundreds of functions in the body, including energy metabolism, cell growth and repair and nerve and muscle function.

#### Vitamins

Vitamins are compounds that are needed in small amounts in order to be healthy and perform at your best. Many vitamins, mainly the B-vitamins, have important roles in energy metabolism making them vital for athletic performance. Other vitamins help protect your body's cells from damage (antioxidants), help your immune system and build healthy bones and tissues.

Vitamins can be divided into two groups:

#### Fat-soluble (A, D, E and K):

- Do not need to eat foods containing these vitamins everyday as your body can store them for future use.
- If you consume much more than you need, fat soluble vitamins can be harmful.



#### Good sources include<sup>1</sup>:

- Nuts and seeds
- Green, orange and yellow fruits
- Green leafy vegetables
- Fish oils
- Eggs
- Dairy products
- Plant oils
- The SUN!!

#### Water-soluble (B vitamins and vitamin C):

- Cannot be stored in the body so need to be eaten more regularly.
- These dissolve or mix easily in water so if you consume more than you need, your body can easily get rid of them in your urine.



#### Good sources include:

##### B- Vitamins

- Cereals
- Breads
- Lean meats
- Dairy products

##### Vitamin C

- Citrus, tropical and berry fruits
- Tomatoes
- Green leafy vegetables

A deficiency in these vitamins will reduce bodily functions and health, and in athletes can impair their capacity for exercise. It is therefore essential you consume a full complement of vitamins.

#### Minerals

Minerals are nutrients that occur naturally in non living things, such as rocks, and are needed to sustain normal function of nerves, tissues and cells, fluid

balance and maintenance of energy systems. Many are only needed in small amounts (trace minerals such as iron zinc, selenium) but others are needed in slightly larger quantities (major minerals such as sodium, potassium, calcium).

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### Good sources of minerals:

- Dairy products (milk, cheese, yoghurt)
- Nuts and seeds
- Lean meats
- Fish
- Leafy green vegetables
- Potatoes
- Eggs
- Whole grains and cereals
- Legumes
- Tomatoes
- Bananas

### Are athletes at risk of micronutrient deficiencies?

Vitamin and mineral deficiencies are very rare in athletes and indeed the general population. Athletes may put themselves at risk of inadequate micronutrient intake by either restricting energy intake or failing to include a variety of nutrient rich foods in their diet.

### Do athletes need more?

Many athletes believe they need more vitamins and minerals than the average person and consuming more will further maximise their performance. For this reason athletes often take vitamin supplements as an insurance policy, even when there is no evidence of a deficiency they may take them 'just in case'. Athletes, who burn more calories, eat more food and this will increase vitamin and mineral intake anyway, without taking extra supplements. In general taking a multivitamin and mineral supplement is harmless; water soluble vitamins are just excreted out in urine if consumed in excess but fat-soluble vitamins can accumulate in the body's tissues and

may reach toxic levels causing illness<sup>1</sup>. There is also no evidence to show that increasing your consumption of micronutrients will improve athletic performance.

If you think you need to take a vitamin or mineral supplement it is best to go for a one-a-day type multivitamin rather than a single supplement, and ensure it does not contain more than 100% of your Recommended Nutrient Intake (RNI) of the vitamins and minerals. Also check it is produced by a reliable and registered manufacturer. If you are concerned about a potential deficiency or are considering starting to take a vitamin and mineral supplement it is best to seek further advice from a sports nutritionist.

### Ideas for promoting a varied and nutrient rich diet:

- Eat five servings of fruit and vegetables daily.
- Include fruit and vegetable at every meal. The strong colours of many fruits and vegetables are a sign of high vitamin and antioxidant content. "Eat a rainbow" to ensure good range of vitamins and antioxidants.
- Be open to trying new foods and recipes.
- Make the most of fresh foods in season.
- Think carefully before banishing a food or food groups from your eating plans
- Foods lose vitamins and minerals when they are cooked, so it is best to steam or poach vegetables



<sup>1</sup>Fogelholm M Vitamin, mineral & anti-oxidant needs of athletes. In In Burke LM & Deakin Clinical Sports Nutrition. Australia, The McGrae-Hill Companies, 2010:358-392.