

# Vitamins, minerals & their benefits

Vitamin A and beta carotene – Vitamin A is needed for growth and development and immunity, and healthy vision, hair, skin, nails, bones and teeth.

Vitamin C - An antioxidant which helps to protect against free radicals, fight infection, boost iron absorption, and maintain healthy skin, blood vessels, bones and gums.

Vitamin B1 - Works with other B vitamins to release the energy we get from food. It is also important for healthy nerve and muscle function.

Vitamin B6 - Helps to maintain a healthy nervous system and produce mood-regulating serotonin. Also needed for the formation of haemoglobin in red blood cells and antibodies that help fight infection.

Folate (or folic acid) - A type of B vitamin needed to form new cells. It reduces the risk of spina bifida during pregnancy and works with vitamin B12 to help keep the circulation healthy. Also important for healthy red blood cells and nerve function. Folate is the form of folic acid naturally found in foods.

Vitamin E - An antioxidant and important for the protection of cell membranes as well as maintaining healthy skin, immunity, nerves, muscles and red blood cells.

Vitamin K – Needed to make blood clot and so heal wounds. Also helps to build and maintain strong bones.

## MINERALS

Calcium - An essential nutrient needed to help muscles contract, blood to clot and nerves to carry messages. It also helps build bones and teeth and keep them strong. A poor calcium intake is a risk factor for osteoporosis, a crippling disease that affects one in three women and one in 12 men over the age of 50 in Britain.

Iodine – Its primary role is to produce thyroid hormones, which regulate the metabolic rate and vital bodily functions such as body temperature, growth and development in children, blood cell manufacture and nerve and muscle function.

Iron - Its main function is in haemoglobin, the part of red blood cells that carries oxygen from the lungs to all the cells of the body. Iron is also important for immunity. If the body runs short of iron, iron-deficiency anaemia develops with symptoms including tiredness, pallor, irritability and reduced resistance to infection. Women, in particular need to ensure enough iron in their diet.

Manganese – Assists a wide range of bodily functions, including the development of healthy bones, the way the body processes carbohydrates, and protective antioxidant activity in the body.

Phosphorus – Works with calcium and magnesium to build and maintain strong bones and teeth. It also plays a key role in releasing energy from food to fuel our body.

Potassium - An essential mineral, which helps regulate our blood pressure and nerve muscle functions.

Zinc - It helps keep the skin healthy, aids wound healing, regulates the sense of taste and is important for immune system strength. It is particularly important during pregnancy and for infant development. A deficiency in adulthood has been linked to increased risk of infection, skin and hair problems and a low sperm count.

Magnesium - Works with calcium to maintain healthy bones, it helps release energy from food and to absorb nutrients, as well as regulating mood, nerve and muscle function. Adequate levels are important to maintain a healthy heart.

**PHYTOCHEMICALS & THEIR BENEFITS** (natural plant compounds that are beneficial to health, but not essential in the way vitamins and minerals are)

Research has highlighted how different nutrients and phytochemicals ('phyto' meaning plant), including different carotenoids, work best as a team. For example, vitamins C and vitamin E, which also have an antioxidant role, help enhance the benefits of phytochemicals too. This is one very important reason why eating a variety of different fruit and vegetables is so beneficial to our health. It may also help to explain why regularly eating nutrient-packed green leafy vegetables, has been strongly linked with maintaining good health. There is now a great deal of interest in phytochemicals as research is discovering that the health benefits associated with fruit and vegetables are due to both the conventional nutrients and these phytochemicals working together to promote health.

Beta carotene – A type of carotenoid and a strong antioxidant. As well as being converted to vitamin A (see above), it may help to protect the body from potentially harmful free radicals.

Lutein and Zeaxanthin - Types of carotenoids that act as antioxidants, meaning they can mop up potentially damaging free radicals. They are found in high concentrations in the lens and retina (especially the macular) of the eye and studies suggest they may play a role in keeping these parts of the eye healthy.

Ongoing research is investigating flavonoids protective role against certain types of cancers, stroke and heart disease. Types of flavonoids include:-

Quercetin – A type of flavonol and a powerful antioxidant meaning it may help to protect the body against damaging free radicals. Studies also suggest it has anti-inflammatory effects.

Anthocyanins - Types of flavonoids that have strong antioxidant activity.

Kaempferol - A type of flavonol that has strong antioxidant activity.

Other non-flavonoid phytochemicals include:

Glucosinolate Family - What makes watercress unique is its high levels of a type of glucosinolate called phenylethyl isothiocyanate, or PEITC. PEITC gives the plant its unique peppery flavour and in scientific studies has been shown to increase the body's potential to resist certain carcinogenic (cancer causing) agents.

Hydroxycinnamates - A group of phenolic compounds that appear to have potent antioxidant properties in the laboratory and may block the formation of cancer causing agents. Further human studies are required before any conclusions can be made about their direct health effects once inside the body. One particular group of hydroxycinnamates includes 4-Coumaric Acid.