



# Why do we need Vitamins and Minerals - March 2010

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Most of us take our food for granted and actually don't question what vitamins and minerals are present or even their function. Do you know for example what is the function of Vitamin C or E or all the different B groups?

Vitamins and minerals are most affective when they work together with each other, bit like a cog in a wheel, so if you are deficient in some of your essential vitamins/minerals this can have an affect on the function of others.

'Vita' means life, and it has been known for a long time that specific nutrients can treat disease. In the 18th century, a Scottish naval surgeon discovered the curative effect of citrus fruit on his sailors' scurvy. Hence the British being called 'Limeys', named after the limes used to treat scurvy at sea. It was not until the early 1900s that this was attributed specifically to vitamin C.

Similarly, vitamin B1 was discovered at this time through the restorative effect of unpolished rice, a rich source of vitamin B1, on sufferers of beriberi, a wasting disease.

Vitamin D was then found to cure rickets, a bone deformity disease, and so it went on until the 1930s when all thirteen of today's vitamins had been identified.

## What are Vitamins and Minerals?

Vitamins are divided into two types:

- Water-soluble
- Fat-soluble

Neither is more important than the other, but they are very different in terms of what they do and where they are found.

The majority of vitamins are water-soluble, namely all the B vitamins and vitamin C. Because water-soluble vitamins are dissolved in our body fluids, we are unable to store these vitamins, making it necessary to have a regular supply essential to our needs.

In contrast, fat-soluble vitamins, A, D, E and K, can be stored in the body's fat deposits, in which they are both transported and stored.

Most vitamins have two names - example:

- Vitamin C is also known as ascorbic acid.
- Vitamin B1 - Thiamin
- Folate - Folic acid

To name a few!

The majority of vitamins/minerals are found in our food, apart from vitamin D, which we can be made from the action of sunlight on our skin. Some of Vitamin B (biotin) and vitamin K, are made by the beneficial bacteria in our gut.

What are the function and food sources of each vitamin & mineral?

Vitamins work together with enzymes and release energy from digested food and regulate the billions of chemical activities that occur in the body every minute of every day.

There are thirteen main vitamin types and several unofficial type vitamins that may be added to the list someday.

A balanced diet that includes a wide variety of the main food groups: proteins, carbohydrates and fats generally provide all the vitamins and minerals that your body needs. However due to modern day farming our soil (see Soil Association) maybe deficient in these precious nutrients, therefore it is better to buy local, home grown produce or organic where possible.

## Water-Soluble Vitamins

What does it do?

- Vitamin B1 - Releases energy from carbohydrates. Food source - Liver, yeast, rice, whole meal products, peanuts, pork, milk.
- Vitamin B2 - Releases energy from protein, fat and carbohydrate Promotes healthy skin and eyes. Food sources - milk, liver, yeast, cheese, green leafy veg. fish.
- Vitamin B3 - Releases energy from protein, fat and carbohydrate Involved in cholesterol production. Food sources - chicken, fish, lamb, veg, wholewheat.
- Vitamin B5 - Releases energy from carbohydrate, fat and protein. Food sources - veg, pulses, eggs, wholewheat, avocado, strawberries.
- Vitamin B6 - Breaks down protein, helps to make red blood cells. Food sources - veg, bananas, pulses, nuts/seeds.

- Vitamin B12 - Helps to make red blood cells, nerve cells and genetic material (DNA) breaks down carbohydrate and fats. Food sources - Fish, white meat, lamb, eggs, shellfish, cheese, milk.
- Folate (folic acid) - Helps to make red blood cells, enzymes and prevents neural tube defects. Breaks down DNA material and reduces levels of homocysteine (high levels are a risk factor for cardiovascular disease). Food sources - wheatgerm, veg, nuts/seeds
- Biotin - Breaks down fat and protein. Promotes growth and healthy nerve cells. Food sources - veg, fruit, fish, milk, eggs, nuts.
- Vitamin C - Forms collagen (an essential component of the skin, blood vessels, bone and teeth) acts as an antioxidant, providing resistance to infections and promoting wound healing Improves non-haem iron absorption. Food sources - fruits & vegs.

## Fat-Soluble vitamins

### What does it do?

- Vitamin A\* (retinol) Maintains healthy skin and eyes, improving vision at night and in dim light Acts as an antioxidant, having a role in cancer prevention.
- Food sources - Liver, fish-liver oil, carrots, green leafy vegetables, egg yolks, enriched margarine, milk products, yellow fruits.
- Vitamin D (cholecalciferol) promotes strong bones and teeth.
- Food sources - cod-liver oil, sardines, herring, salmon, tuna, milk and milk products. Sunlight (the action of sunlight on the skin allows our bodies to manufacture vitamin D),
- Vitamin E (tocopherols) maintains healthy cell membranes, acts as an antioxidant.
- Food sources - Nuts, soya beans, vegetable oil, broccoli, sprouts, spinach, whole meal products, and eggs.
- Vitamin K (phylloquinone) needed for normal blood clotting
- Vitamin A also occurs as beta-carotene in our food, being converted into retinol in the body.

### Minerals what does it do?

- Calcium - Bones, teeth, nerve function, muscle contraction, blood clotting
- Food sources - Nuts, soya, vegetables, whole meal products, and dairy.
- Iron - Red blood cells, muscle function, white blood cells, immune system
- Food sources - red meat, fish, eggs, green veg, nuts, wholegrain & wheat.
- Magnesium - Converting energy from food, cell repair, building strong bones/teeth and muscles, regulating body temperature.
- Food sources - Green veg, wholegrains & nuts.
- Zinc - Immune system, the breakdown of protein, fat and carbohydrate
- Food source - Meat, shellfish, milk, brown rice, wholegrains.
- Selenium - Antioxidant. Reduces inflammation, stimulates immune system,
- Helps with Vit. E action, required for male reproduction. Metabolism.
- Food sources - Fish, chicken, veg, cottage cheese.

"Are YOU getting enough Vitamins & Minerals?"