

### Quick Facts

Vitamin D is a fat-soluble vitamin which is naturally present in few foods but is often added or fortified to some.

Our bodies can produce it when our skin is exposed to UV rays from the sun.



### Roles

#### Vitamin D is involved in many key processes of the body. Studies have shown...

It helps the gut absorb calcium and phosphorus.

It is needed for bone growth and remodelling and can help protect us from osteoporosis.

It plays a role in immune function and reducing inflammation.

It can regulate the expression of many genes.

It mediates the secretion of insulin and can improve insulin sensitivity.

Low levels have been associated with hypertension.

It has anti-inflammatory and immune regulating effects.

It may reduce the development of autoimmunity.

It can enhance the body's immune response to various infections, influenza and respiratory tract infections.

It may have a positive influence on mood, reducing depression.

**Groups at risk of low vitamin D include:** babies and young children, pregnant women and breastfeeding mothers, people over 65 years old, people with darker skin tones and also anyone who spends very little time outside during the summer – the housebound, shop or office workers, night shift workers.

### Food Sources of Vitamin D

\*oily fish such as salmon, sardines, pilchards, kippers, trout and herring

\*cod liver oil contains a lot of vitamin D (don't take this if you are pregnant)

\* egg yolk, meat, offal and milk contain small amounts but this varies during the seasons.

\*some foods like breakfast cereals and yoghurts have added or are 'fortified' with vitamin D

Our bodies can obtain two forms of vitamin D: D3 (from the sun and from animal food sources) and D2 (from plant food sources).

Once in the body vitamin D, whatever form, needs to be transformed into its active form. This happens firstly by the liver into calcidiol which is then activated by the kidneys into calcitriol which is the active form of vitamin D that can be used by the body.

Recent years have seen increasing awareness of the widespread prevalence of vitamin D deficiency. The UK population may be particularly prone to this, due to the combination of inadequate levels from the diet and lack of exposure to sunshine.

The Association of UK Dietitians recommend that all adults and children over the age of one should consider taking a daily supplement containing 10 micrograms (400IU) of Vitamin D. The US Food and Nutrition Board state the Upper Safe Levels for adults, older children and pregnancy are **4000iu (100mcg) per day**, especially during autumn and winter.