



# Vitamin D – further information

## The importance of vitamin D

Vitamin D is essential to the growth and strength of our bones. This is particularly important for children when their bones are developing. Children deficient in vitamin D can develop rickets, a bone disease which results in bow legs and shortened stature. Also, vitamin D can help to maintain a healthy immune system. There is some evidence that a lack of vitamin D may play a part in a number of serious conditions such as cancer, heart disease, high blood pressure, diabetes, MS and arthritis.

## HOW IS **vitamin D** PRODUCED?

We get most of the nutrients we need from the food we eat. However, for vitamin D the main source is sunlight. Usually, about 90% of our requirement of vitamin D is made by the body from the effect of sunlight on the skin. Food is a more important source of vitamin D when people have limited access to sunlight.

## IS THERE **a problem** WITH VITAMIN D?

It seems that the number of children with rickets is increasing, in the UK and elsewhere. During and after the Second World War, because of food rationing, children's diets were supplemented by cod liver oil, a good source of vitamin D. The NHS does not provide this service now, but it is evident that some children need a supplement.

There is also concern that in the UK population generally, people are often deficient in vitamin D. People at greatest risk are pregnant women, breast-fed babies, children under five, the elderly, dark skinned people and those who consistently cover their skin (for example, for religious reasons).

## **Factors affecting access to sunlight**

- **Where you live.** Sun rays are weaker, the further you are from the equator. In the UK, most people will get enough daylight to provide sufficient vitamin D; only a small amount of exposure (20 – 30 minutes a day, two or three times a week) is needed.

- **Skin colour.** Pale skin produces vitamin D ten times quicker than darker skin.
- **Exposure of skin to the sun.** People in the UK are generally less exposed to the sun's rays because of applying sunscreens and covering up the skin to avoid sunburn and skin cancer. This factor particularly affects people with vitiligo.
- **More people work and socialise indoors.** Travel is generally 'indoors', by car, train etc.

## Individual factors affecting the production of vitamin D

- **Obesity.** This has an effect on the body's ability to store vitamin D.
- **Use of sun protection creams.** Vitamin D production will be reduced by 98% if a cream containing a sun protection factor (SPF) of 15 is used. (For people with vitiligo, a higher SPF of 30 is recommended).
- **Age.** In particular, babies and children up to 3 years old need a good level of vitamin D for bone formation.
- **Pregnancy.** Pregnant and lactating women need a higher level of vitamin D than the general adult population.

## Food sources of vitamin D

Few foods contain high levels of vitamin D, the best source being oily fish:

- salmon, especially wild fresh salmon,
- sardines, including canned sardines,
- mackerel,
- tuna, including canned tuna.

Other foods, containing lower levels of vitamin D are:

- shitake mushrooms, especially sun-dried,
- milk, some milk powders and yoghurts,
- eggs, especially the yolks,
- fortified breakfast cereals,
- fortified margarine and spreads,
- liver and beef (lowest level).

Remember that how you cook the food affects the vitamin D content; frying fish can reduce it by 50% but baking has no effect on vitamin content.

## Taking supplements

There has been concern that if people with vitiligo continuously use sunblock and cover up in the sun, this may prevent the body producing enough vitamin D. If you are eating healthily and have some exposure to daylight in the summer, you are probably getting all the vitamin D you need. However, if you have little exposure to the sun, it may be sensible to consider taking a supplement, especially if you are in an 'at risk group' - pregnant, breast-feeding, elderly or dark skinned. Parents / carers also need to be particularly careful that children under five have sufficient vitamin D.

There are two forms of vitamin D. D2 is the synthetic form, used for fortifying food products. D3 is the natural form, which dieticians consider may be more effective. You need to check the label of any product to make sure of its vitamin D content, but cod liver oil liquid or capsules are the best source of vitamin D. Some people prefer to take vitamin D as part of a multi-vitamin supplement because the body needs a balance of calcium and magnesium with the vitamin D.

Much of the information has been taken from an article published by the British Dietetic Association's Centre for Education and Development, *Vitamin D and the impact on the health of the UK*, November 2011.

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