

## Department of Nutrition and Dietetics

# Vitamin D

Vitamin D is an essential vitamin for health. Deficiencies of vitamin D can lead to impaired absorption of the two important dietary minerals calcium and phosphorus. This can lead to rickets in children, bone tenderness or pain, muscle weakness, and thinner bones with ageing, which increases the risk of fractures.

Vitamin D is also essential to keep your immune system healthy. In addition it may reduce inflammation and the risk of some cancers.

There are two main dietary forms of vitamin D; D2 (known as ergocalciferol) and D3 (cholecalciferol). Either form can be taken to help maintain or improve your body's level of vitamin D.

## How much vitamin D do you need?

Age	Recommended daily amount (mcg)
0 – 12 months	8.5 - 10
Children from one year and adults (including pregnant women and at risk groups)	10

## At risk groups:

Certain groups of the population are more at risk of vitamin D deficiency. These are:

- All pregnant and breastfeeding women
- Babies from birth and young children under the age of five
- People aged 65 years and over
- People who are not exposed to much sun – such as people who cover up their skin when outdoors, or those who are housebound or confined indoors for long periods of time
- People who have darker skin, such as those of African, African-Caribbean and South Asian origin

## There are three sources of vitamin D:

1. Sunlight
2. Vitamin D Supplements
3. Foods



## Sunlight

Your skin makes vitamin D when it is exposed to sunlight. Short **daily** periods (e.g. 20 minutes) of sun exposure without sunscreen during the summer months (April to end of September) are enough for most people to make enough vitamin D. Evidence suggests that the most effective time of day for vitamin D production is between 11.00am and 3.00pm.

**At risk population groups, including people with sun sensitive skin or people avoiding regular skin sun exposure during the summer months for any reason, should consider taking a vitamin D supplement all year round.**

During the autumn and winter the sun is not strong enough for the skin to make vitamin D. Because it is difficult to get enough vitamin D from food **everyone should consider taking a daily vitamin D supplement from October to the end of March.**

## Vitamin D Supplements

The Department of Health recommends that:

- Breastfed babies from birth to 12 months should be given a daily vitamin D supplement containing 8.5-10mcg
- Formula-fed babies shouldn't need a vitamin D supplement unless they're having less than 500ml of infant formula a day
- Children aged 1-4 years old should be given a daily vitamin D supplement containing 10mcg
- People considered to be in at 'at risk' group should take a daily vitamin D supplement containing 10mcg throughout the year
- Everyone should consider taking a daily supplement containing 10mcg of vitamin D during the autumn and winter.
- From April to the end of September, the majority of people should be able to get all the vitamin D they need from sunlight.

## Foods

Vitamin D is found in a small number of foods:

- Oily fish – such as salmon, sardines and mackerel, all contain a reasonable amount of vitamin D
- Fortified breakfast cereals (amount of vitamin D varies with the best sources having at least 1.5mcg per portion)
- Fortified fat spreads (average of 0.75mcg per 10g portion)
- Eggs, meat and milk contain small amounts but this varies during the seasons
- Cod liver oil contains a lot of vitamin D – the amount of vitamin D varies between products **(avoid taking this if you are pregnant, have kidney problems, or any other medical condition where too much vitamin A may be harmful).**

## Vitamin D dose conversion

Vitamin D supplement doses can be described as micrograms (mcg) or International units (units). The following table provides information on the conversion;

Micrograms (mcg)	International units (units)
1	40
8.5	340
10	400

## Useful websites for further information:

- British Dietetic Association (Fact sheet):  
<http://www.bda.uk.com/foodfacts/VitaminD.pdf>
- NHS Choices: Vitamins and Minerals – Vitamin D:  
<https://www.nhs.uk/conditions/vitamins-and-minerals/vitamin-d/>

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