



Information sheet on

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VITAMIN D

What is vitamin D?

Vitamin D is a fat soluble vitamin necessary for bone health. It controls the absorption of calcium from the intestines and its use in bone mineralisation. Lack of vitamin D leads to impaired mineralisation of bone and the development of rickets in children or osteomalacia (soft bones) in adults. Too much vitamin D is toxic and may cause high levels of calcium in the blood and urine, kidney stones and loss of bone density.

How do we obtain vitamin D?

About 90% of the daily recommended intake of 10 mcgms or 400 i μ is obtained from the action of sunlight on the skin. The sun's ultraviolet rays cause an inactive form of vitamin D (cholecalciferol) to be formed in the skin. This is then taken, by the bloodstream, to be stored in the muscles and body fat or passes through the liver and kidneys and becomes an active form of vitamin D which is used in the body. The body's ability to store vitamin D is very important as it can only be synthesised by the skin during the summer months. It is impossible for the body to make too much vitamin D this way.

The remaining 10% of our vitamin D is supplied by diet. Good sources of vitamin D include fortified margarine and cereal, egg yolk and oily fish. A normal diet alone cannot supply the recommended daily vitamin D intake without exposure to sunlight.

Who is at risk of vitamin D deficiency?

There are five main groups of people who may be at risk of vitamin D deficiency. Elderly people are less able to make and use vitamin D efficiently and, if housebound, have little exposure to sunlight. They may also have a poor diet. Younger housebound people may also be at risk. Some sections of the Asian community may be at risk due to heavy skin pigmentation (melanin blocks the action of ultraviolet light in the skin), seclusion and traditional dress in women which

restricts exposure to sunlight and restrictive dietary practices. Some anti-epileptic medication may alter the way vitamin D is activated in the liver. Patients with severe liver or kidney disease or malabsorption problems may be at risk of vitamin D deficiency.

Vitamin D deficiency can result in osteomalacia, the adult form of rickets. Bones become softened leading to bone pain and deformity. Osteomalacia can occur in elderly and Asian communities where exposure to sunlight is limited.

Should I take a supplement?

If you go out during the summer with bare arms, face and legs for approximately 20 - 30 minutes a day and eat a reasonably well balanced diet, you should not need a supplement.

If you think you may be at risk of vitamin D deficiency (see above), please do discuss supplements with your GP.

There is good evidence that a daily calcium (1200 mgs) and vitamin D (800 i μ) supplement may be a useful treatment for osteoporosis in older sufferers (over 75). Please see the NOS *Treatments* booklet. Research is being conducted into the effectiveness of a yearly vitamin D injection for the elderly.

What about sunbeds, sunblocks and sunscreens?

As the production of vitamin D is dependent on ultraviolet light on the skin, the use of sunbeds during the winter months might be thought to be helpful for bone health. There have been concerns, however, about the safety of sunbeds, particularly with regard to the possibility of increased skins cancer risks. If someone needs extra vitamin D, it is recommended that supplements rather than sunbeds should be used.

If sunblocks or high factor sunscreens are used on exposed skin all through the summer, this will lower the vitamin D production. Most people use sunblocks or sunscreens if they know they will be in strong sunshine for some time e.g. on the beach, gardening, or for outdoor sports and would not apply if going outside for short periods e.g. hanging out washing, shopping, school playtimes. These short periods of time in the sunlight, without sunblock or sunscreen, should give adequate exposure to synthesise vitamin D. If someone uses sunblock for medical reasons at all times, they need vitamin D supplements.

Factors which can help to maintain healthy bones are a well balanced diet with adequate calcium rich foods, regular exercise, avoiding smoking and keeping alcohol consumption within the recommended limits. Further details are contained within the NOS booklets - see *Membership and Publication* leaflet.