



# GOOD Bite

for childcare  
staff

## Vitamin D - Essential for children and parents

Vitamin D is a fat soluble Vitamin (along with vitamins A, E and K) and is known as the 'bone or sunshine' vitamin because of its function in building strong and healthy bones and the fact that we get most of our vitamin D from the sun.

Vitamin D is essential to enable absorption of calcium from food. Besides being vital for bone health, the other major function of Vitamin D is its role in maintaining the correct

calcium concentrations in the blood by increasing the absorption of dietary calcium from the small intestine.

There is evidence that low vitamin D is also linked to other health problems including: problems with immunity (how the body fights infections) and autoimmune diseases (including type 1 diabetes). Lack of vitamin D can eventually lead to rickets.

### Rickets

Deficiency of vitamin D results in calcium loss from the bones and inadequate calcium going back into the bones. This can lead to rickets in young children.

Rickets causes weak, soft bones which can bend and become an abnormal shape. Rickets only occurs in growing bones, so it mostly occurs in infants and young children. It is most common when children are growing quickly.

We get Vitamin D from food and from the sun making vitamin D in our skin. Sunlight is the most important source of vitamin D, and is estimated to provide 90% of our vitamin D.



X-ray of infant's legs with rickets

### More about Sunshine

The amount of sunlight available for vitamin D production in the skin varies with the climate, season, time of day and skin exposure. Window glass and sunscreen blocks the important vitamin D making ultraviolet (UV) rays.

To produce similar levels of vitamin D, people with dark skin require 2-7 times the amount of UV compared to people with light skin. This is because the melanin (pigment) in their skin absorbs the ultraviolet light.

Seasonal changes have been shown to have a significant effect on vitamin D production in the skin. In the winter months children spend less time outdoors and wear more clothing. For this reason, vitamin D deficiency is more common in the winter months.

To get sufficient vitamin D from sunlight alone, infants need 2 hours a week with just their face exposed or 30 minutes



a week with nothing but a nappy on. Obviously, they don't need to get this all at once, so about 5 minutes a day with only a nappy on or 20 minutes a day if only the face is exposed. Any longer than this, then sunscreen will be needed. In summer avoid the hottest part of the day between 10am and 3pm. In winter anytime of the day is fine. Infants with dark skin will need more than this.

# Vitamin D in foods

Vitamin D is found in only a few foods. It is almost impossible to obtain sufficient vitamin D from the diet alone which usually accounts for only about 10% of vitamin D. The best food sources of vitamin D are oily fish (e.g. herrings, salmon and sardines), fortified margarines, butter, eggs, liver and red meat. Breast milk contains almost no vitamin D. Infant formula is fortified with vitamin D.

In Australia, vitamin D fortification is required for margarine. It is allowed to be added to fat reduced and skim milks, powdered milk, yoghurts and cheese. Mushrooms that are left in direct sunlight for an hour will make a lot of vitamin D.

## Adequate intake of Vitamin D

Age	Adequate Intake
1-3 yr.	200 International Units
4-8 yr.	200 International Units



## The importance of Vitamin D in pregnancy

Vitamin D levels in pregnancy affect the level of vitamin D of the newborn infant for their first few months of life. If mum's vitamin D status is good during the last stages of pregnancy, then the newborn baby should have adequate vitamin D levels for the first few months after birth in the absence of significant input from the diet.

There is evidence in Australia of high rates of vitamin D deficiency in mothers from refugee communities who may have multiple risk factors for low vitamin D, i.e. dark skin, covering clothing and limited time outside. One study in a large teaching hospital found that 80% of pregnant dark-skinned, veiled women attending an antenatal clinic had low vitamin D levels.

Pregnant Women with vitamin D deficiency results in their baby having low vitamin D levels at birth. The vitamin D status of these infants is further compromised if exposure to sunlight is restricted especially as they have reduced ability to synthesize vitamin D due to skin pigmentation

For these women with little access to sunlight a vitamin D supplement of 400 international units (IU) would not be excessive. A GP could check their vitamin D levels and commence a supplement if needed.



## Vitamin D in babies

Breast milk has little vitamin D, so babies not exposed to sunlight are unlikely to obtain adequate vitamin D from mother's milk beyond early infancy. Breast milk substitutes (formula) do have some added vitamin D. With regular small doses of sunshine, breast or formula-fed infants do not require supplemental vitamin D.

If a child's diet is low in Vitamin D and they don't get adequate sunshine, there is a good chance they will become deficient and are likely to need a Vitamin D supplement. Some of us remember getting cod liver oil as kids each day. This horrible tasting supplement provided excellent amounts of vitamin D and also vitamin A. It was given to prevent rickets in European countries where sunshine hours were limited.

## Contact Us!

This fact sheet is produced by the Central Coast Public Health/Community Nutrition Team. If you have any suggestions or nutrition topics you would like covered please contact us by telephone on 4320 3691 or fax on 4320 2828.

