

# Vitamin D in pregnancy, infancy, childhood and adolescence

## Consumer Leaflet



Building strong, healthy bones early in life is the best way to protect yourself from osteoporosis as you get older. Vitamin D has a crucial role in this process. This factsheet is about the importance of vitamin D in pregnancy and early life, the ways in which you can ensure that you, your baby or your child get enough vitamin D, and what to do if you think you or your child is at risk of vitamin D deficiency.

### Why is vitamin D important?

Vitamin D plays an essential role in health at all stages of life. By improving the absorption of bone-building calcium from the intestine, vitamin D is crucial to the growth and maintenance of a strong skeleton. Vitamin D is also important for muscle strength, and helps to control calcium levels in the blood, essential for the proper functioning of the body's nervous and immune systems.

Research has shown that low vitamin D in pregnancy, infants, children and adolescents is associated with a wide range of health problems, sometimes extending into adulthood<sup>1</sup>.

### Pregnancy

During pregnancy, the mother's body adapts naturally to cope with the requirements of the growing baby. If you have normal levels of vitamin D during your pregnancy, you will be able to provide the right amount both for your own health, and for your baby's needs. If your vitamin D levels are low during pregnancy, your baby is also likely to be vitamin D deficient.

### Infants, children and adolescents

Infancy, childhood and adolescence are periods of rapid bone development and growth, so adequate vitamin D is essential at these times. Severe vitamin D deficiency in infants and young children can lead to rickets, a disease that causes weak and deformed bones ('bow-legs') that are prone to fracture<sup>2</sup>. Children with vitamin D deficiency can also suffer pain in the bones and

muscles, and muscle tiredness and weakness. Deficient children may not grow and develop at the normal rate, and may be late teething. They are also more likely to get chest infections and suffer from other health problems.

### What are the best sources of vitamin D?

Sunlight is the most important source of vitamin D for Australians of all ages, including breast-fed babies and infants. The amount of sun exposure needed will depend on skin colour, the time of year, time of day, whether the skin is covered (with clothing or sunscreen) and location. In summer, protecting the skin with a hat, clothing and sunscreen is recommended to avoid sunburn and skin damage. This is particularly important for babies, infants and children.

Food is a poor source of vitamin D for most Australians. Some types of oily fish, including salmon and mackerel, naturally contain vitamin D, as do eggs, meat and liver. Margarine and some brands of milk have small amounts of vitamin D added to them.

### Pregnancy

Being outside for 5-10 minutes on most days in summer with your arms exposed at mid-morning or mid-afternoon will maintain your vitamin D at normal adult levels during pregnancy. In winter, up to 40 minutes exposure at mid-day may be required, depending on your skin type and where in Australia you live<sup>3</sup>. More information on safe sun exposure for optimal vitamin D in adults is available on the



Osteoporosis Australia website:  
[www.osteoporosis.org.au](http://www.osteoporosis.org.au)

### Infants, children and adolescents

Although breast-milk is highly beneficial, it contains very little vitamin D. Breast-fed infants rely almost entirely on safe sun exposure for their vitamin D requirements. Infants who are fed only with formula should get all of the vitamin D that they need from formula milk. Older infants who are on a mainly solid food diet, as well as children and adolescents, are dependent on sunlight for most of their vitamin D needs.

It isn't possible to make a single recommendation for safe sun exposure that is suitable for all Australian infants, children and adolescents, so some general advice has been developed<sup>1</sup>. Outdoor play and physical activity throughout the year is recommended for these age groups. In summer, a hat and sunscreen should be worn, and most outdoor time should be spent in the shade. In winter, infants, children and adolescents living in the northern half of Australia will still need some degree of protection from the sun.

### Who is most at risk of vitamin D deficiency?

Vitamin D deficiency is possible if you or child:

- Deliberately avoids sunlight
- Wears clothing that covers most of the skin
- Spends long periods indoors because of disability or illness
- Lives in Victoria or Tasmania
- Has naturally dark skin
- Has a medical condition or takes medication that affects vitamin D levels, such as obesity, liver or kidney disease, cystic fibrosis, celiac disease or inflammatory bowel disease

An infant, child or adolescent with at least one of these risk factors may need a test to check vitamin D levels – your doctor will know whether the risk is high enough to necessitate a test. If you are pregnant with at least one risk factor, you should ask about a vitamin D test at your first antenatal visit.

If you had at least one risk factor during your pregnancy AND your baby is fed only with breast-milk, your baby

may need vitamin D drops. Around 400IU of vitamin D (10mcg) a day is usually sufficient. In some cases, your doctor may also recommend that your baby has a blood test for vitamin D.

### Can vitamin D deficiency be treated?

Regular outdoor play or exercise for infants, children and adolescents and pregnant women (with sun protection if the UV index is high) is the best way to correct mild vitamin D deficiency. Your doctor may also recommend a daily vitamin D supplement. Severe deficiency may need treatment with a high dose of vitamin D to begin with, followed by a regular lower dose to maintain normal levels.

It is important that you discuss with your doctor anything about your own or your child's lifestyle or health that may have caused vitamin D deficiency, and ways in which these might be changed to prevent deficiency occurring again.

### References:

1. Paxton GA, Teale GR, Nowson CA, et al. Vitamin D and health in pregnancy, infants, children and adolescents in Australia and New Zealand: a position statement. *Med J Australia* 2013; 198:1-8
2. Wharton B, Bishop N. Rickets. *Lancet* 2003; 362: 1389-1400
3. Nowson CA, McGrath JJ, Ebeling PR, et al. Vitamin D and health in adults in Australia and New Zealand: a position statement. *Med J Australia* 2012; 196:686-687