



Vitamin D



Are you getting enough D in your day?

The message is clear; too much sun can cause skin cancer and we already have the highest rate of skin cancer in the world. Yet the sun is also the main source of bone-building vitamin D and a sizeable number of us in Australia and New Zealand are low on this vital nutrient. Confused? You're not alone!

Unique D

Vitamin D is a fat-soluble vitamin (which means it can be stored in the body) and it is unique because unlike most vitamins which we get from foods and drinks, most of our vitamin D is produced when a fatty substance in the skin reacts with sunshine. The body then converts this into vitamin D and stores it for when we need it.

Around 90 per cent of our vitamin D is produced in this way and the remaining 10 per cent or so comes from foods.

Are you getting enough?

Getting enough vitamin D is important for many reasons

Healthy bones – vitamin D is essential for bone health because it aids the absorption of calcium and other minerals needed for strong bones and teeth. Over time, low vitamin D levels can lead to conditions such as rickets in children and osteomalacia (soft bones) in adults. Low levels in the adult years also increases the risk of osteoporosis, a condition that's characterised by porous bones which in turn increases the risk of fractures and falls.

A healthy immune system – low blood levels of vitamin D have been linked with a wide range of health problems including polycystic ovary disease, multiple sclerosis, rheumatoid arthritis, muscle weakness, memory loss and some cancers.

Skin health – while it is well known that too much sun exposure can trigger skin cancer, vitamin D and related compounds in skin may actually protect against damage from UV radiation according to Professor Rebecca Mason from the University of Sydney's current research. This is because vitamin D compounds in skin reduce DNA damage after UV exposure.



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Surprisingly low levels in Australasia

Low vitamin D levels used to be a problem for people living in dark and/or wintery climates without much access to sunshine – particularly in the northern hemisphere. Yet low vitamin D levels are a proven problem here, even in the sun-drenched southern hemisphere. Generally there are few symptoms of deficiency except general aches, pains and tiredness. More extreme symptoms are only seen when the deficiency is severe; these include bone deformities and intense pain.

Immediate Past-President of the Australian and New Zealand Bone and Mineral Society, Professor Rebecca Mason estimates that around a third of the population is deficient in vitamin D.

‘From a large Australian study (AusDiab), over 40 per cent of females have low levels in summer-autumn and 27 per cent of males and this figure rises to 58 per cent of females not having enough vitamin D in winter-spring, and 35% males at that time,’ she says.

So why the deficiency?

Professor Mason explains, ‘Now, we use a target value for vitamin D based on a concentration of vitamin D where most bone and muscle function is close to normal. This is a bit higher than the figure we used to use.’

Other reasons include that there are more people in higher risk groups such as more older people (who don’t go out in the sun much and may not be able to make vitamin D quite so effectively); more people with naturally dark skin (melanin absorbs the UVB that converts a compound in skin to vitamin D) and/or who cover up with clothing; more obese people (vitamin D gets into fat, but doesn’t get out again until you break down the fat); more people working indoors and being entertained indoors (computers, video games, etc).

People with osteoporosis and babies of mothers who are low in vitamin D especially if they are being breast-fed also fall into the high risk group for vitamin D deficiency.

The United States recently increased the recommended daily intake of vitamin D in order to reach optimum blood levels of the vitamin. Our last NHMRC recommendations were made around a decade ago and are currently being looked at and it looks like the recommended daily levels of vitamin D are set to rise.

According to Professor Mason, ‘Most people agree that the minimum acceptable vitamin D level is 50 nmol/L (this is what is recommended on the basis that at this level, bone and muscle function is close to normal and so is the handling of calcium by the body).

‘It is also the minimum level recommended by the AustNZ Bone and Mineral Society, the Endocrine Society of Australia, the Endocrine Society (USA) and the Institute of Medicine USA. Some groups recommend even higher levels, with some, though not conclusive evidence.’

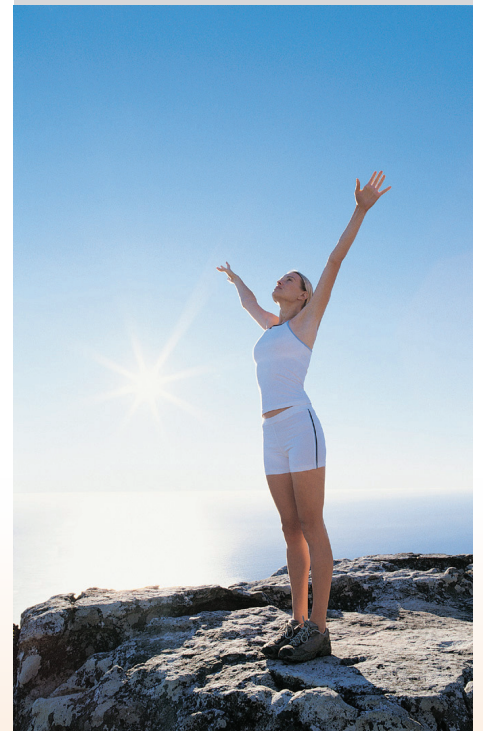
The revised US Recommended Daily Allowances (RDA) for vitamin D are based on the amounts of vitamin D needed to maintain serum levels > 50 nmol/L of blood with minimal exposure to sunlight.

**Boys and girls 1-18yrs
15 µg (micrograms) day
(600) (IU/day)**

**Adults (male and female) 19-70yrs
15 µg (micrograms) day
(600) (IU/day)**

**Adults (male and female) 71+yrs
20 µg (micrograms) day
(800) (IU/day)**

Note: Upper limit is 100 µg (micrograms) day (4000 IU/day) and adverse events can be seen above this level.





Food and safe sun

Although the sun is our major natural source of vitamin D, you'll also find it in foods such as oily fish (salmon, sardines and swordfish) cod liver oil, fortified breakfast cereals, eggs, butter, fortified milk, meat and UV-exposed mushrooms.

Getting all your vitamin D needs from foods is virtually impossible so a combination of safe sun and vitamin D-containing foods is wise. Professor Mason advises, **'Any old sunlight won't do. The energetic UVB-rays that make vitamin D are around for most of the day in summer, but only around noon in winter, particularly in southern parts of Australia.'**

For most people exposing the arms and hands or equivalent area of skin on either side of the peak UV periods (10am-3pm) for six to eight minutes on most days of the week should be enough for the body to produce the vitamin D it requires.

'In winter, the sun exposure to arms or equivalent needs to be around noon and for from seven minutes (Cairns) to 30-40mins (Hobart) most days, hands, or equivalent area of skin exposed, spread over a week to maintain adequate vitamin D levels.'

'The energetic UV that produces vitamin D is not around in early morning or late afternoon. In summer, you risk too much UVA exposure for the amount of vitamin D you make and in winter, in most of Australia you won't make any vitamin D early morning or late afternoon' ends Professor Mason.

So what about supplements?

More research is being done on the optimal level of circulating vitamin D says Professor Rebecca Mason. 'While Australia currently advises 50nmol/L of blood, or higher to allow for a 10-20 nmol/L decrease over winter, similar to official policy in the US, some groups in US are suggesting closer to 80 nmol/L.

'Vitamin D supplements are suitable for people who are advised not to go outside people with sun-sensitive skin and people who are immunosuppressed,' says Professor Mason.

Also, people with naturally very dark skin may need three to six times this amount of exposure and so it may not be possible to maintain vitamin D levels and a supplement may be needed.

People taking medications which interfere with vitamin D metabolism or have difficulty absorbing nutrients plus people taking medicines that affect vitamin D metabolism may be also be at risk of D deficiency.

USANA's Vitamin D

Commenting on USANA's **Vitamin D** supplement, Professor Mason said, 'Vitamin D3 supplements as cholecalciferol provide the same form of vitamin D as we make in the skin and supplements are a reasonable way to improve vitamin D status if more sun exposure is not practical (if you do too much indoors, if you have dark skin, if it is culturally inappropriate and for older people who don't want to go out or can't do so).' But, she adds, 'you need to take them for about three months to raise vitamin D levels to a plateau. And for those who are more than mildly deficient in vitamin D, more than 1000IU a day might be required.'



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Product
of the
Month

The science behind the supplements

Biochemist Lyle MacWilliam has focused a great deal of research into the subject of vitamins and minerals and recently launched the latest edition of the 2012 *Comparative Guide to Nutritional Supplements*, which included recent scientific findings on vitamin D.

Mr MacWilliam says, 'USANA was one of the first global manufacturers to respond to the emerging evidence on vitamin D by dramatically increasing the levels of D in its formulations. 'This includes its multivitamin formulations for adults, teenagers, and young children. This is proof that USANA is led by science and not by market hype,' he ends.

- **Mega Antioxidant™** – vitamin D increased from 150IU to 200IU per tablet
- **BodyRox™** – vitamin D increased from 133IU to 333IU per tablet
- **Usanimals™** – vitamin D increased from 200IU to 400IU per tablet

Note: anyone with a vitamin D deficiency should discuss intake levels with his or her physician.

USANA Vitamin D; each tablet contains vitamin D3 (cholecalciferol) 1000 IU/25 micrograms

Suggested dose: take one tablet daily preferably with meals.

Vitamin supplements should not replace a balanced diet.

USE ONLY AS DIRECTED. ALWAYS READ THE LABEL.

For more information:

The vitamin D deficiency Guide: <http://www.vitamindeficiencyguide.com/>

Institute of Medicine of the National Academies (US): Dietary Reference Intakes for Calcium and Vitamin D

Cancer Council: <http://www.cancer.org.au/cancersmartlifestyle/SunSmart/VitaminD.htm>

Sun Smart app for iPhones and iPad: <http://itunes.apple.com/au/app/sunsmart/id402707467?mt=8>

Please note:

1. Professor Mason and Mr MacWilliam are not paid by USANA and not associated with USANA, in any way.
2. The information provided in the article is strictly educational. It should not be used to as medical advice. For diagnosis and treatment of medical conditions, please consult your health care professional.

References

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