

Vitamin D

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Vitamin D

- A group of hormones whose role is well established in:
 - bone metabolism
 - calcium balance and
 - parathyroid gland secretion – which helps regulate the blood levels of calcium and phosphate
- Vitamin D receptors are located in many organ tissues including the:

brain, skin, heart, lungs, breast, male reproductive organs
- Research into its role in a range of other serious health conditions (in addition to bone health) are being explored (Chung et al, 2009)

Sun is needed for vitamin D synthesis



Vitamin D synthesis risk factors

- Winter season (& possibly Spring & Autumn)
- Skin exposure outside 11am-4pm
- Increasing distance from equator (coupled with NZ's temperate climate)
- Increased skin pigmentation (darker skinned ethnicities more at risk)
- Increased clothing coverage – cultural factors
- Routine and regular sun block usage
- Increased age (less active/more time spent indoors)

Vitamin D deficiency

Definition¹	Active form of vitamin D* (nmol/L)	Signs and symptoms include:
Insufficiency	25-50	increased parathyroid secretion & high bone turnover
Moderate deficiency	12.5-25	increased incidence low calcium (hypocalcaemia) & rickets
Severe deficiency	<12.5	Rickets in 70% and low calcium in 90%, of children. Bone softening (osteomalacia) in adults.

*where active form = 25-OHD₃ = 25-hydroxyvitamin D₃

¹ MJA 2005; 182 (6):281-285 & 2006; 185 (5):268-272

Our current recommendations

- Nutrient Reference Values (NHMRC 2006)
- Food and Nutrition Guidelines including:
 - 2009: Healthy Older People draft
"supplementation with 10 -25 $\mu\text{g}/\text{day}$ vitamin D per day may be necessary"
 - 2008: Healthy Infants and Toddlers (Aged 0-2)
"children at risk receive a 10 $\mu\text{g}/\text{day}$ vitamin D supplement"

- 2006: For Healthy Pregnancy and Breastfeeding Women:
 - *"women who have dark skin, who are housebound, who do not expose themselves to sunlight for religious reasons should also include oily fish, eggs and vitamin D fortified margarine in their diet and their children's diet. These women and their infants may need a 10 µg/day tablet under supervision of the LMC"*

Dietary sources of vitamin D



PHARMAC

Current vitamin D subsidised products are:

Alfacalcidol, Cholecalciferol & Calcitriol but none are as a 10 µg/day tablet

Refer to Pharmaceutical Schedule, November 2009 at:

<http://www.pharmac.govt.nz/Schedule?code=A0137>

Current status

- PHARMAC does not fund a 10 µg/day tablet
- Prescriber on-line information (for GPs/Nurse Practitioners) does not readily link to vitamin D options
- Lack of alignment between nutrition recommendations and prescriber information

Current National Screening Advisory Committee recommendations

www.nsu.govt.nz

Cancer Society Position Statement 2007

The Risks and Benefits of Sun Exposure in
New Zealand

<http://www.cancernz.org.nz/reducing-your-cancer-risk/sunsmart/vitamin-d/risks-and-benefits-of-sun-exposure-in-new-zealand/>

Key points from the Cancer Society's position statement

- There are both risks and benefits of sun exposure in New Zealand
- A balance between avoiding an individual's increased risk of skin cancer and a deficiency of Vitamin D is required
- Environmental complexities involve UVI variations
- Individual considerations involve skin colour, behaviour, and environmental exposure

Cancer Society key recommendations

- Sunburn should always be avoided
- Some sun exposure is recommended for Vitamin D synthesis
- Additional measures to achieve adequate Vitamin D may be needed for those at increased risk
- For those at high risk of skin cancer consultation with a health practitioner to discuss Vitamin D requirements is suggested
- Further research is needed in this area

Work to do includes:

1. Align nutrition recommendations with prescriber practice and what PHARMAC funds
2. Work across the lifecycle
3. Address gaps in current research and data

Useful links

- <http://www.moh.govt.nz/nutrition>
- <http://www.pharmac.govt.nz/Schedule?code=A0137>
- <http://www.cancernz.org.nz/health-professionals/>
- <http://www.foodstandards.gov.au>