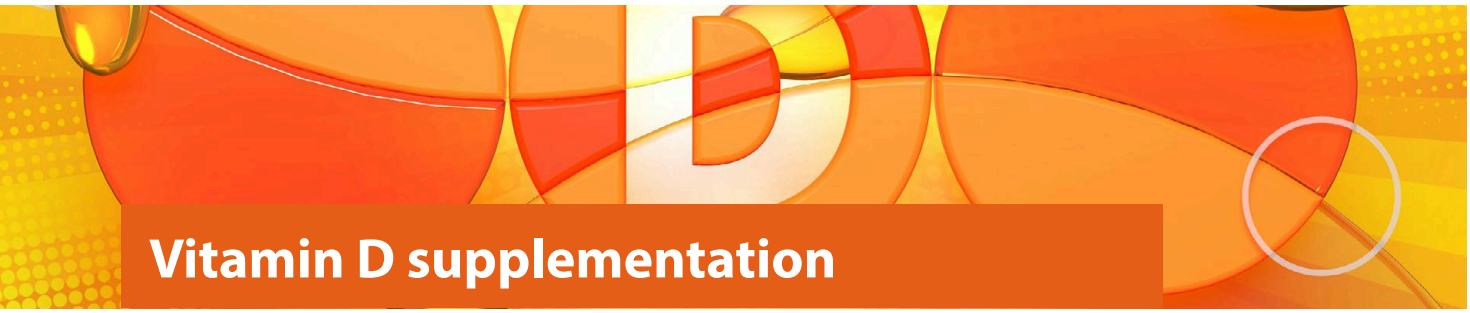

Vitamin D supplementation

When to consider vitamin D supplementation

Vitamin D supplementation is generally only recommended for people with specific risk factors for deficiency (Table 1) or who have confirmed deficiency

Table 1. Risk factors for vitamin D deficiency.

People with naturally very dark skin (this includes many people from South Asia, Africa and the Middle East)	People with minimal sun exposure due to religious, cultural, personal or medical reasons, e.g. veiled, full coverage clothing, history of skin cancer, taking photosensitive medicines
People living in southern regions of New Zealand who spend very limited time outdoors around midday between May and August	People with a medical condition that affects vitamin D or calcium metabolism, e.g. liver failure, renal failure, inflammatory bowel disease, coeliac disease
People with reduced mobility, who are frail or who are house-bound	People taking certain medicines that affect the metabolism or absorption of vitamin D, e.g. anticonvulsants, rifampicin
People living in aged residential care facilities	
Older people admitted to hospital	People who have had a hip fracture
Infants with any of the following: ☐ Exclusively or partly breast-fed receiving < 500 mL of formula ☐ A sibling who has been diagnosed with rickets or hypocalcaemic seizures (who would in turn already be receiving vitamin D) ☐ Pre-term or weighed < 2.5 kg at birth ☐ Naturally very dark skin ☐ Mother was vitamin D deficient or at higher risk of deficiency	**Pregnant** people with any of the following: ☐ Live south of Nelson/Marlborough during winter or spring ☐ Naturally very dark skin ☐ Spend very limited time outdoors and/or have minimal sun exposure due to religious, cultural, personal or medical reasons

People who are pregnant who otherwise do not meet criteria for risk may also benefit from empiric vitamin D supplementation. However, there is inconsistent evidence of benefit.

- If vitamin D is taken during pregnancy, it can be continued while breast-feeding

Supplementation is not recommended for the prevention of vitamin D deficiency in people who do not have specific medical conditions or risk factors for vitamin D deficiency

Vitamin D testing should be selective

Vitamin D testing (serum 25-hydroxyvitamin D) is **not recommended in most cases**; empiric supplementation can usually be given based on risk

Clinical scenarios in which testing is appropriate and funded in the community: investigating possible rickets (or high risk), osteomalacia, disorders of calcium and phosphate metabolism - check with your local laboratory for full criteria

Consider vitamin D testing during pregnancy if there are strong reasons to suspect deficiency, because if deficiency is confirmed, a higher vitamin D dose is needed. New Zealand guidelines recommend vitamin D testing for pregnant patients with:

- ☐ A history of vitamin D deficiency or insufficiency
- ☐ Unexplained laboratory results, e.g. raised serum alkaline phosphatase, low calcium and phosphate
- ☐ Unexplained bone pain, unusual fractures or other symptoms or signs suggesting metabolic bone disease
- ☐ **All** of the following risk factors: naturally very dark skin, live south of Nelson/Marlborough during winter or spring, spend very limited time outdoors and/or have minimal sun exposure due to religious, cultural, personal or medical reasons

Consider vitamin D testing for infants with hypocalcaemic seizures or an unexplained raised serum alkaline phosphatase

Severe vitamin D deficiency suspected – also request serum calcium, phosphate, alkaline phosphatase and any other laboratory tests as clinically indicated (e.g. parathyroid hormone for pregnant patients)

Prescribing vitamin D supplements

If vitamin D supplementation is indicated, **prescribe colecalciferol** (drops or capsules); see Table 2. Advise patients to optimise dietary calcium intake.

Colecalciferol is generally safe and well tolerated at recommended doses. Toxicity, e.g. hypercalcaemia, is possible with long-term use of excessive daily doses (> 4000 IU/day).

Table 2. Suggested colecalciferol dosing. N.B. High intermittent dosing should generally be avoided as it is associated with more adverse effects.

	Prevention	Confirmed deficiency	Notes
Adults	10 micrograms (400 IU) per day (one drop of oral liquid)*; *OR* 1.25 mg (50,000 IU) every two to three months (one capsule)†	1.25 mg (50,000 IU) per month (one capsule)†; *OR* 30 – 40 micrograms (1,200 – 1,600 IU) per day (3 – 4 drops of oral liquid); *OR* Contents of one whole bottle of oral liquid per month as a single dose (5 mL) In moderate to severe deficiency, a loading dose of 1.25 mg (50,000 IU) per day (one capsule)† for ten days may be given, followed by 1.25 mg (50,000 IU) per month (one capsule)†	Some people with deficiency due to malabsorption states or liver disease may need higher doses

Table 2 Contd.

Pregnancy	10 – 20 micrograms (400 – 800 IU) per day (1 – 2 drops of oral liquid)	There is no consensus on the dosing regimen – seek specialist advice; in general, 25 – 50 micrograms (1,000 – 2,000 IU) per day (2 – 5 drops) may be given. 1.25 mg (50,000 IU) per month (one capsule)† may also be considered but safety data for monthly dosing during pregnancy is lacking – and this is an unapproved use. An individualised treatment programme is required in severe deficiency	It may be appropriate to continue vitamin D supplementation during breast-feeding Colecalciferol 1.25 mg capsules (Multichem Vit D3) are contraindicated by the manufacturer during pregnancy and lactation due to a lack of safety data. N.B. This contraindication applies only to this product; colecalciferol is considered compatible with pregnancy and lactation up to doses of 4,000 IU per day.
Infants and children	10 micrograms (400 IU) per day (one drop of oral liquid)	There is no consensus on the optimal dosing regimen – seek specialist advice	Oral liquid can be given directly into the mouth or applied to the nipple or a bottle teat. The drop can also be added to other food or drink provided that it is all consumed. For exclusively or partly breast-fed infants, initiate as soon as practical but by age four weeks and continue until age 12 months Colecalciferol 1.25 mg capsules (Multichem Vit D3) are contraindicated by the manufacturer in children aged under 18 years; dosing regimens for prevention of deficiency are available, e.g. one capsule, every two to three months, but this is an unapproved use.

* Note the packaging of the currently funded brand of colecalciferol oral liquid (Clinicians) is marketed for use in children, but this product is also suitable for adults, e.g. pregnant people, those with soya or peanut allergy

† The currently funded brand of colecalciferol capsules (Multichem Vit D3) contains soya oil and will not be suitable for patients with an allergy to soya or peanut.[16] Ingredients of animal origin, including the gelatin capsule, are halal compliant.[16]

Multivitamins often do not contain sufficient quantities of vitamin D (or the required dose would exceed levels of other vitamins, e.g. vitamin A), therefore, should not be recommended in place of prescribed colecalciferol for patients needing vitamin D supplementation. For patients already taking a vitamin D-containing OTC supplement:

- ☐ Check packaging to see if the dose is sufficient
- ☐ If the dose is not adequate, discuss that it is preferable to take prescribed colecalciferol to meet the recommended daily dose
- ☐ If the patient would prefer to continue taking the OTC supplement, prescribe a 'top up' dose of colecalciferol if needed

It is strongly recommended to review the original resource at your convenience for full details of recommendations and evidence.

See full article here: **Vitamin D supplementation: an update**