

Low vitamin D

Testing and treatment guidelines for health professionals

People at risk of low vitamin D

People with naturally dark skin (Fitzpatrick skin type V/VI).

People with little or no sun exposure.

- Older adults and others who are housebound, hospitalised or institutionalised long term.
- People who wear concealing clothing for religious or cultural reasons, or to protect their skin.
- People who avoid sun exposure, due to skin cancer risk or are on photosensitising medication.
- People who work in occupations with limited sun exposure (for example office workers, and night shift workers).

People with medical conditions or medications affecting vitamin D metabolism, including:

- end stage liver disease,
- renal disease,
- hyperparathyroidism,
- fat malabsorption (eg cystic fibrosis, coeliac disease, inflammatory bowel disease, gastrectomy),
- medication like rifampicin and some anticonvulsants.

People with a BMI >30 kg/m².

Exclusively breastfed babies who fall into a risk category above or have mothers with low vitamin D.

Testing guidelines for 25(OH)D levels

Routine screening for vitamin D is not recommended.

Test adults and children at risk of low vitamin D, including pregnant and lactating women with risk factors.

Testing is required for people presenting with:

- osteomalacia, rickets, osteoporosis or osteopenia,
- unexplained proximal limb or muscle pain,
- unexplained bone pain or other evidence suggesting metabolic bone disease, and
- unexplained raised serum alkaline phosphatase, or low serum calcium or phosphate.

Consider testing siblings of children with moderate to severe vitamin D deficiency.

Classification of vitamin D (25(OH)D) levels in adults and children

Adequacy	≥ 50 nmol/L
Mild deficiency	30–49 nmol/L
Moderate deficiency	12.5–29 nmol/L
Severe deficiency	≤ 12.5 nmol/L

Treatment guidelines

Mild Deficiency - Serum 25(OH)D 30–49 nmol/L

- Recommend safe sun exposure, when UV is < 3, where practical (may not be possible in winter months).
- If safe sun exposure is not possible supplement with oral vitamin D3
 - Adults: 1,000–2,000 IU daily or 7,000–14,000 IU weekly.
 - Children (1 – 18 years): 1,000–2,000 IU daily for 3 months or as a single dose 150,000 IU.
- Recheck levels after 3 months and adjust dose as needed.

Moderate to Severe Deficiency - Serum 25(OH)D < 30 nmol/L

- Supplement adults with 3,000–5,000 IU oral D3 daily for at least 6-12 weeks.
- Recheck levels after 3 months. Adjust dose based on new levels.
- Supplement children (1 – 18 years) with 1,000–2,000 IU oral D3 daily for 6 months, or 3,000–4,000 IU daily for 3 months, or 150 000IU as a single dose and repeat at 6 weeks.
- Recheck levels after 3 months and adjust dose as needed.

Maintenance/Prevention

- Adults and children: maintain serum 25(OH)D ≥ 50 nmol/L, serum 25(OH)D ≥ 75 nmol/L for adults with osteoporosis.
- Safe sun exposure and dietary calcium are essential.
- At-risk groups may need lifelong supplementation.

Pregnancy and Lactation:

- Pregnant women: Test (between 7 and 10 weeks) and supplement based on serum 25(OH)D levels (1000 IU/day for 30-49 nmol/L, 2000 IU/day for <30 nmol/L). All pregnant women may benefit from a supplement of 400 – 600 IU throughout their pregnancy (especially in the third trimester).
- Lactating women: Continue 1,000 IU/day if deficient in pregnancy.
- Breastfed infants with risk factors: 400 IU daily for the first 12 months. Do not commence until breastfeeding is well established.

High Dose Regimens:

- Avoid high dose (50,000 IU monthly) in pregnancy, lactation, and older people and infants less than 3 months.
- High dose vitamin D is generally safe for infants older than 3 months, however daily supplementation is preferable as there is less risk of incorrect dosing.
- Medical practitioners can obtain TGA authorisation for high dose vitamin D.

No safe upper level of 25(OH)D has been identified. Levels above 125 nmol/L should be avoided.

See ***Low vitamin D in Tasmania: key messages for health professionals*** for more information or contact community.nutrition@health.tas.gov.au if you have any questions.



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