



Cholecalciferol (Vitamin D₃)

This medicine can be prepared by a compounding pharmacist.

Mode of action*

- Regulate calcium homeostasis and bone metabolism. Increase intestinal absorption and renal reabsorption of calcium and phosphate. Promote bone mineralisation.

Indications*

- Prevention and treatment of Vitamin D deficiency (osteomalacia in adults and rickets in children)
- Hypocalcaemia in hypoparathyroidism, hypophosphataemic rickets, renal osteodystrophy, chronic renal dialysis
- Secondary hyperparathyroidism associated with chronic kidney disease
- Treatment of osteoporosis
- Prevention of corticosteroid-induced osteoporosis

Precautions*

- *Obesity* — may need higher than usual doses to achieve adequate vitamin D status
- *Hypercalcaemia* — contraindicated
- *Hyperphosphataemia* — risks of ectopic calcification; restrict dietary phosphate and/or use phosphate binders

Renal*

- Avoid use in severe impairment (inability to convert cholecalciferol to active form)

Pregnancy*

- Safe to use at physiological doses; seek special advice for use at pharmacological doses; fetal risk with untreated maternal vitamin D deficiency may be greater than risk of vitamin D-related hypercalcaemia in the infant.

Breastfeeding*

- Safe to use at physiological doses; risk of hypercalcaemia in the infant at pharmacological doses

Adverse effects*

- Most adverse effects are due to effects of hypercalcaemia; increased risk with calcitriol because of its high potency
- Symptoms of hypercalcaemia include nausea, vomiting, constipation, anorexia, apathy, muscle weakness, headache, thirst and polyuria.
- Renal and cardiovascular damage may occur because of ectopic calcification.

Dosage**[‡]

Mild vitamin D deficiency (Serum 25-hydroxyvitamin D concentration 30-49 nmol/L)

- Adult- 1000–2000 IU orally daily; wait at least 3 months before checking level again

Moderate to severe vitamin D deficiency (Serum 25-hydroxyvitamin D concentration ≤ 29 nmol/L)

- Adult- 3000–5000 IU daily for 6–12 weeks, then 1000–2000 IU once daily; or 50000 IU orally once a month for 3 to 6 months
- Child- <1 month, 1000 IU daily; 1-12 months, 3000 IU daily; >1 year, 5000 IU daily

Osteomalacia and rickets

- Intestinal malabsorption- 300000 IU IM, 6-12 monthly according to response

Practice points*

- Practice points from Vitamin D
- Higher doses may be appropriate in high-risk groups, eg dark-skinned, institutionalised or bed-bound people.

*Source: Australian Medicines Handbook Pty Ltd 2014 [‡]eTG 2014 Vitamin D deficiency

[‡]Vitamin D and health in adults in Australia and New Zealand: a position statement. MJA 2012 June 18; 196(11), 686-687

