Ergocalciferol (Vitamin D2)

Vitamin D2 is ingested through diet, and this vitamin acts like a hormone in the body, regulating calcium and phosphorous levels in the blood. Because it is controlled by a negative feedback loop, levels of vitamin D will increase when calcium is low and decrease when the calcium level returns to normal limits. Signs and symptoms of vitamin D toxicity, also known as hypervitaminosis D, are closely associated with hypercalcemia, which occurs more often in children. These include fatigue, muscle weakness, constipation, and kidney stones. Vitamin D supplementation is indicated in the treatment of hyperparathyroidism, rickets, and hypophosphatemia.



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Mechanism

Vitamin D2
Viking (D) Daisy in a (2) Tutu
Vitamin D2 (ergocalciferol) is ingested through diet, and enzymatic conversion (hydroxylation) in the liver and kidney is required for activation. This vitamin acts like a hormone in the body, regulating calcium and phosphorous levels in the blood. Because it is controlled by a negative feedback loop, levels of vitamin D will increase when calcium is low, and decrease when the calcium level returns to normal limits.

Indications

Hypoparathyroidism
Hippo-para-thigh-droid
Patients with hypoparathyroidism do not produce enough parathyroid hormone to maintain adequate levels of serum calcium. Vitamin D supplements can be given to stimulate increased calcium absorption from the intestines, causing calcium levels to rise.

Rickets
Racket of bone
Rickets is a condition related to vitamin D deficiency that can cause softening or weakening of the bones. Supplements can be used to replace deficient vitamin D, reducing or eliminating the symptoms associated with the disease.

Hypophosphatemia
Hippo-phosphate-P
Hypophosphatemia, or low levels of phosphate in the blood, can be treated with vitamin D supplementation. An increased level of vitamin D will signal the kidneys to increase absorption of phosphate, thus restoring phosphate levels in the body.

Side Effects

Fatigue
Sleepy-guy
Too much vitamin D can lead to hypercalcemia. In excess, calcium can have a sedative effect on the nervous system, leading to fatigue, while also producing muscle weakness and incoordination. Patients may also experience nausea and vomiting.

Constipation
Corked Con-toilet
Hypercalcemia, secondary to excess vitamin D, can affect the nervous system, slowing peristalsis in the intestines. Thus, patients may exhibit constipation.

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Hypercalcemia

Hiker-calcified-cow

Excess vitamin D, due to supplementation, can cause patients to become hypercalcemic. Increased calcium levels can lead to cardiac dysrhythmias if severe or if left untreated.

Kidney Stones

Kidney-throwing Stones

Increased calcium in the body can lead to stone formation in the kidneys. Calcium deposition may also occur in soft tissue, causing damage to vital organs like the heart and lungs.

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