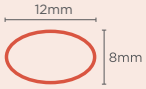
designs for health® Australia

D3 Supreme

1000 IU Vitamin D3 capsule optimising bone health and immune and muscle function



Soft Capsule

OVERVIEW

> Supports bone mineralisation, mass and integrity.
> Supports immune system function.
> Supports muscle function.
> Maintains calcium, phosphorus and Vitamin D3 levels in the body.
> 1000 IU per capsule: convenient one a day dose.
> Soy free.

Active Ingredients (per soft capsule)	
Colecalciferol Equiv. to Vitamin D3 1000 IU	25 micrograms

Pack Size	240
Servings Per Pack	240

Directions for Use

Take one capsule daily with a large glass of water or as directed by your health professional.

Excipients

Medium chain triglycerides, glycerol, gelatin, purified water, dl-alpha-tocopherol.

Allergen Information

No added: gluten, dairy, soy, lactose or nuts.

Warning

Vitamins should not replace a balanced diet.
Contains sulfites and phenylalanine.

No Added Gluten

No Added Dairy

No Added Soy

No Added Nuts

No Added Preservatives

Free from Flavours, Colours & Sweeteners

EDUCATION:

Vitamin D is a fat-soluble secosteroid hormone that can be found in three main forms – vitamin D (calcitriol), vitamin D2 (ergocalciferol), and vitamin D3 (colecalciferol). Calcitriol is endogenously produced in the body via ultraviolet B exposure to the epidermis.[1] Ergocalciferol is the synthetic form of vitamin D and is most commonly added to food. Colecalciferol is synthesised in the skin from 7-dehydrocholesterol and is also found in a limited range of food sources such as shiitake mushrooms and oily fish.

Vitamin D is required for a vast number of biological processes.[1] Due to a number of disease states having low vitamin D status in common, serum vitamin D as 25-hydroxyvitamin D (25(OH)D) is often routinely tested. Vitamin D supplementation is suggested in those with a clinical vitamin D deficiency. Variations in vitamin D status are heavily dependent upon a number of factors, including sex, season, location, age, health conditions, and lifestyle.[2]

One of the main functions of Vitamin D is to maintain calcium levels in the body. When calcium levels are low, Vitamin D is activated. Vitamin D enhances the ability of the small intestine to absorb calcium (and phosphorus) from dietary sources. It also triggers the release of calcium stored in bones and reduces the excretion of calcium from the kidneys.[6,7]

Calcium absorption occurs mostly in the duodenum and jejunum and phosphorus absorption in the jejunum and ileum. In the presence of vitamin D, calcium absorption goes from around 10-15% to 30-40%. Phosphorus absorption increases from 60% to 80%.[8]

Bone health

Vitamin D plays a primary role in maintaining bone health and integrity, mostly through its activity in the maintenance of calcium levels. Both bone mass and mineralisation require adequate vitamin D levels as calcium and phosphorous (two of the main nutrients responsible for the strength of the bone matrix), require adequate vitamin D in order to maintain homeostasis (as explained above). Vitamin D is also partly responsible for calcium deposition into bones.[6] Once in the blood, calcium is transported to the bone where it is incorporated into hydroxyapatite crystals and inserted into the collagenous matrix of the bone tissue.[7] Furthermore, vitamin D encourages bone remodelling and is vital for the metabolism of bone tissue[9] by managing the expression and activity of both osteoclasts and osteoblasts.[10]

Evidence suggests that as we age, vitamin D levels can decrease, leading to an imbalance in calcium and phosphorus.[3] Hormonal factors also influence bone resorption and formation – therefore, vitamin D is both directly and indirectly responsible for processes involved in the mineralisation of the extracellular matrix in bone tissue.[4]

Immune system

The immune system requires optimal vitamin D levels to function. A number of important immune cells have vitamin D receptors and vitamin D metabolising enzymes, including monocytes, B cells, T cells, and antigen-presenting cells.[5] Results from in vivo human and animal studies show numerous beneficial outcomes for immune function with vitamin D supplementation.[5] Calcitriol has specifically been shown to support macrophage and monocyte antimicrobial activity, as well as maintaining innate immune cell chemotaxis and phagocytosis.[5] Calcitriol is also involved in adaptive immunity where it directly influences B cell homeostasis, memory and plasma cell inhibition, and promotion of apoptosis of immunoglobulins responsible for producing B cells.[5]

Muscle function

Vitamin D supports the integrity and function of striated muscle tissue by regulating protein synthesis, ATP accretion, and actin and troponin levels. It also influences the release of calcium in muscle tissue enabling muscle contraction.[9]

References supplied on request.

Designs for Health Quality Guarantee

Designs for Health medicines that are listed on the Australian Register of Therapeutic Goods will display an AUSTL number on the label. Listed medicines in Australia need to be manufactured according to legislated standards set out in Therapeutic Goods Order 101. TGO101 legislation sets out minimum quality standards for medicines supplied in Australia that display an AUSTL number. It mandates testing for:

- Impurities such as heavy metals (including lead, mercury, cadmium and arsenic), pesticides and residual solvents.
- Dissolution (to ensure the capsule will dissolve once taken).
- Uniformity (to ensure that every capsule is the same).

Final assay testing is also performed to ensure that what we have on the label is in each capsule, and microbiological testing is performed to ensure that no microbial contamination has occurred during the encapsulation and packing process.