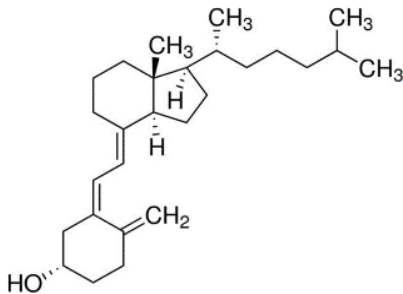


## Vitamin D<sub>3</sub> 2,000 IU High Potency

### TECHNICAL SUMMARY

The major biologic function of vitamin D is to maintain healthy blood levels of calcium and phosphorus.\* Vitamin D supports bone health by promoting calcium absorption and bone mineralization.\* Vitamin D also plays an important role in immune function and helps to regulate cell growth and differentiation.\*

#### Structure Formula:



**Chemical Name:** Cholecalciferol (activated 7-dehydrocholesterol; (3β,5Z,7E)-9,10-secocholesta-5,7,10(19)-trien-3-ol).

**Allergen and Additive Disclosure:** Not manufactured with yeast, wheat, gluten, soy, corn, milk, egg, fish, or shellfish ingredients. Produced in a GMP facility that processes other ingredients containing these allergens.

**Delivery Form:** Softgels.

### ROLE AS NUTRIENT/FUNCTION

The function of vitamin D<sub>3</sub> in the body is well established; it allows for the tight regulation of calcium levels in the blood, as well as phosphate homeostasis.\* In addition, more recent discoveries have shown that vitamin D is also involved in many other bodily functions such as regulation of cell proliferation, cell differentiation, immunomodulation, and cardiovascular health.\*

### NATUROKINETICS®

**Liberation:** Disintegration of the softgel capsule is measured in water using a USP testing method with disintegration between zero and 60 minutes.

**Absorption:** Vitamin D<sub>3</sub> is considered a fat-soluble vitamin. It is absorbed with other dietary fats in the small intestine, enters the blood circulation via the lymphatic system, and is transported in the chylomicron fraction of plasma. Consumption of vitamin D<sub>3</sub> supplementation is recommended with a fat-containing meal to increase efficiency of absorption.

**Distribution:** Once vitamin D enters the circulation, it is cleared by the liver or is rapidly stored in fat tissues. Vitamin D deposited in fat tissue is not readily available to exert its bodily functions.

**Metabolism:** Vitamin D (cholecalciferol) is an inactive provitamin and must first be metabolized to its active form before it can function. This metabolism is complex with a first phase occurring in the liver and a second phase in the kidney. It is tightly regulated by the parathyroid gland, which is sensitive to changes in blood calcium and phosphate levels.

## Supplement Facts

Serving Size 1 Softgel

	Amount Per Serving	% Daily Value
Vitamin D <sub>3</sub> (as Cholecalciferol) (from Lanolin)	50 mcg (2,000 IU)	250%

Other ingredients: Extra Virgin Olive Oil and Softgel Capsule (bovine gelatin, glycerin, water).

- **Helps Maintain Strong Bones\***
- **Supports Immune System\***

**SUGGESTED USAGE:** Take 1 softgel daily with a fat-containing meal, or as directed by your healthcare practitioner.

**Elimination:** The products of vitamin D metabolism are excreted through the bile into the feces, and very little is eliminated through the urine.

### CLINICAL VALIDATION

#### Bone Health Support.\*

- In a randomized, placebo-controlled study with women aged > 49 years who were vitamin D deficient, vitamin D<sub>3</sub> supplementation (4,000 IU/day for 6 months), without changing calcium intake, resulted in statistically significant improvement in the markers of bone turnover (osteocalcin and C-telopeptide) as compared to placebo.\*
- In a randomized, double-blind, placebo-controlled trial with 124 nursing home residents (average age 89, average serum 25(OH)D at baseline 19.5 ng/mL), vitamin D<sub>3</sub> supplementation (800 IU/day for 5 months) resulted in a statistically significant decrease in the number of fall incidents as compared to lower dose vitamin D supplementation groups or placebo.\*

#### Immune System Support.\*

- In a large epidemiological study in which data from 45 year old adults living in the UK was analyzed, the rate of respiratory events relative to strong seasonal pattern had an inverse relationship to the pattern for 25(OH)D concentrations. After adjustment for adiposity, lifestyle and socio-economic factors, each 4 ng/mL (10 nmol/l) increase in 25(OH)D was associated with a 7% lower risk of respiratory events (Figure 1).\*
- In a randomized study on schoolchildren between January and March, the subjects were treated with supplemented vitamin D and analyzed for respiratory health using two groups. Respiratory health was compared between the control group and the supplemented groups during the 3-month period of the study (Figure 2). The results showed the maintenance of respiratory health within the supplemental group, which suggests that supplemental vitamin D<sub>3</sub> can help support

immune system functioning particularly in responds to seasonal challenges.\*

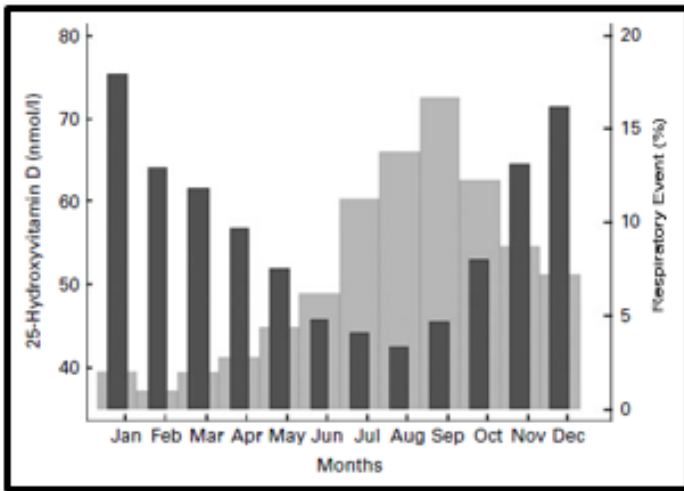


Figure 1. Geometric mean of 25-hydroxyvitamin D (nmol/l,) concentrations and the prevalence of respiratory events in the 1958 British birth cohort.

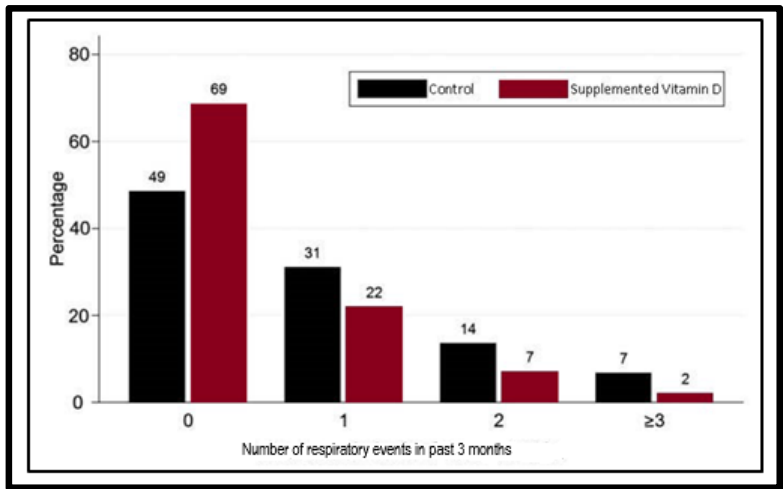


Figure 2: Relative respiratory health during the three month period in the supplementation and control groups.

## SAFETY INFORMATION

**Tolerability:** Oral supplementation of vitamin D<sub>3</sub> is typically well-tolerated.

**Contraindications:** Vitamin D<sub>3</sub> should be used cautiously by those taking cardiac glycosides and anyone with hypercalcemia.

## INTERACTIONS

**Drug Interactions:** Possible interactions with cardiac glycosides, atorvastatin, and thiazide diuretics

**Supplement Interactions:** Vitamin D increases calcium and magnesium absorption and may therefore interact with calcium and magnesium supplementation.

**Interaction with Lab Tests:** None known.

## STORAGE

Store in a cool, dry environment in sealed container.