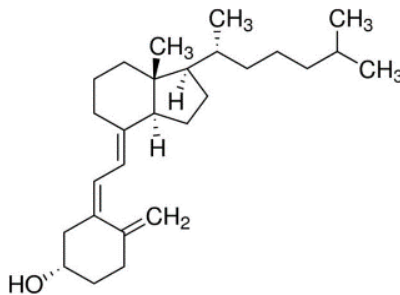


Liquid Vitamin D₃ 400 IU per 4 Drops

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; (3 β ,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, shellfish, or sesame ingredients. Produced in a GMP facility that processes other ingredients containing these allergens.

Delivery Form: Liquid

ROLE AS NUTRIENT/FUNCTION

The function of vitamin D₃ 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 D₃ is also involved in many other bodily functions such as regulation of cell proliferation, cell differentiation, immunomodulation, and cardiovascular health.*

NATUROKINETICS®

Liberation: Not applicable. Ingredients are in the form of a solution.

Absorption: Vitamin D₃ 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 D₃ supplementation is recommended with a fat-containing meal to increase efficiency of absorption.

Distribution: Once vitamin D₃ enters the circulation, it is cleared by the liver or stored in fat tissues within a few hours. However, vitamin D deposited in fat is not readily available to exert its bodily functions.

Metabolism: Vitamin D₃ (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 4 Drops (approx. 0.112 mL)
 Servings Per Container about 527

	Amount Per Serving	% Daily Value
Vitamin D (as D ₃ Cholecalciferol) (from Lanolin)	10 mcg (400 IU)	50%

Other ingredients: MCT Oil (medium-chain triglycerides) and Safflower Oil.

- Supports Bone and Dental Health*
- Regulates Healthy Immune Function*

SUGGESTED USAGE: Shake well. For adults, take 4 drops 1 to 5 times daily. For children, administer 4 drops once daily. Do not exceed recommended dose. Take directly or add to your favorite beverage. If the dropper contacts the lips or oral tissues, thoroughly wash and dry it before replacing in the bottle and closing it completely. Best when taken with a fat-containing meal.

Elimination: The products of vitamin D₃ metabolism are excreted through the bile into the feces, and very little is eliminated through the urine.

CLINICAL VALIDATION

Bone Health Support.*

- A randomized study in 72 healthy volunteers receiving 1,000 IU/day vitamin D₃ supplementation for two 60-day periods resulted in effectively improved serum 25(OH)D levels, contributing to the maintenance of bone health.* The study highlighted that, even at the lower dose of vitamin D₃, there was a significant enhancement in vitamin D₃ status, which is crucial for calcium absorption and bone mineral density.*
- 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 D₃ 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 D₃ 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).*
- A randomized, double-blind, placebo-controlled trial assessing the impact of vitamin D₃ supplementation (1,200 IU/day) on immune system support during winter months in 167

schoolchildren indicated that vitamin D₃ supplementation significantly reduced the incidence of respiratory events among the participants.* (Figure 2).

- In clinical study involving 72 healthy volunteers with an average age of 22 years, participants received 2,000 IU of vitamin D₃ daily over two 60-days periods, with 30-days break in between. The results demonstrated that the 2,000 IU dose produced a significant rise in vitamin D levels that was maintained for a long period following discontinuation.*

SAFETY INFORMATION

Tolerability: Oral supplementation of vitamin D₃ is typically well-tolerated.

Contraindications: Vitamin D₃ 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 D₃ 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.

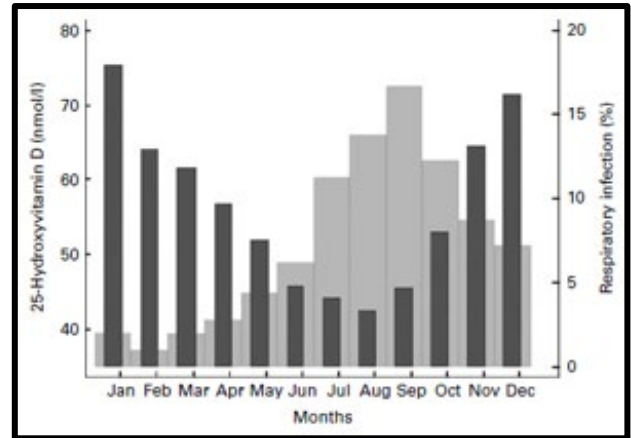


Fig. 1. Geometric mean of 25-hydroxyvitamin D (nmol/l) concentrations and the prevalence of respiratory events in the 1958 British birth cohort.

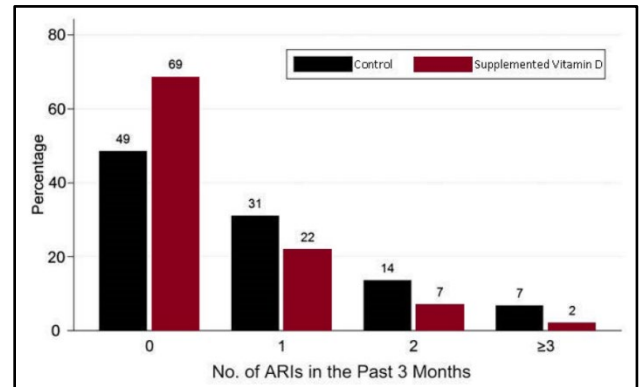


Fig 2: Number of ARIs during the three-month period in the supplementation and control groups.