

# PC D 2000/5000 & Liquid D3



## Clinical Applications

- Supports Bone and Dental Health\*
- Supports Modulation of Immune Function\*
- Supports Healthy Cell Differentiation\*
- Supports Neurologic and Cognitive Health\*
- Supports Musculoskeletal Comfort\*
- Supports Cardiovascular Health and Healthy Blood Sugar Metabolism\*
- Supports Vitamin D Repletion in Cases of Dietary Deficiency, Limited Sunlight Exposure, or Use of Depleting Therapies\*

*PC D 2000 and PC D 5000 is cholecalciferol provided in convenient softgels. PC Liquid D3 is cholecalciferol derived from lanolin and provided in a liquid base of sunflower oil and purified water. In this liquid formula, vitamin D and sunflower oil are combined using a special micro-emulsification process designed to create a natural micellized matrix which, when coated by the stomach bile, will encourage absorption.\**

All Phillips Clinic Formulas Meet or Exceed cGMP Quality Standards

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## Discussion

While the skin makes vitamin D, many things affect the degree to which its biosynthesis occurs, including time of day, seasons, location, smog/pollution, clothing, shade of skin (darker skin requires more sun), and sunscreen use. Low-cholesterol diets and certain cholesterol therapies can also inhibit adequate vitamin D formation. By some estimates, one billion people worldwide have vitamin D deficiency or insufficiency.<sup>[1]</sup> Reversing deficiency and maintaining optimal serum vitamin D levels beneficially impacts biochemistry and numerous body systems; this is largely because calcitriol—the metabolic product of vitamin D—is a secosteroid hormone that targets over 200 genes in a wide variety of tissues.<sup>[2,3]</sup> As the research demonstrates, vitamin D is clearly imperative for the development, growth, and maintenance of a healthy body from gestation to senescence.\*

**Bone Health** The body needs vitamin D to absorb calcium, and the importance of vitamin D in skeletal health and bone density is well established. Although bone density is most often associated with calcium intakes, insufficient vitamin D negatively affects calcium absorption.<sup>[3]</sup> Without adequate absorption, the body must take calcium from its stores in the skeleton, which weakens existing bone and prevents the formation of strong, new bone. Clinical research shows that taking vitamin D orally with calcium supplements can support healthy bone turnover<sup>[4-6]</sup>, and adequate calcium and vitamin D throughout life—as part of a well-balanced diet—may reduce the risk of osteoporosis.\*

**The Expanding Roles of Vitamin D** The role of vitamin D in good health continues to expand as the knowledge of this vitamin's effects on different body systems grows. Research now suggests that optimal serum levels of vitamin D support normal cell differentiation,<sup>[3,7]</sup> cardiovascular health,<sup>[2,3]</sup> normal immune function,<sup>[8]</sup> good balance,<sup>[2]</sup> healthy mood,<sup>[9]</sup> normal fetal development,<sup>[10]</sup> neuronal growth and neurodevelopment,<sup>[2,3,10,11]</sup> healthy glucose metabolism,<sup>[2,3]</sup> musculoskeletal comfort,<sup>[2,3]</sup> periodontal health,<sup>[12]</sup> and normal intestinal immune responses.<sup>[8]</sup> Areas of research that have gained momentum over the past several years concern the relationship of vitamin D deficiency or insufficiency to changes in cellular proliferation, changes in fetal brain development, and mental health.<sup>[7,10,13-15]</sup> Evidence is also mounting that vitamin D supplementation may provide key immune support.\*<sup>[16-19]</sup>

**D2, D3, and Metabolites** Cholecalciferol (D3) is the form in which vitamin D is derived in the body from cholesterol and synthesized by sunlight on the skin. Although vitamin D forms are similar biochemically, a recent study reported D3 to be approximately 87% more potent in raising and maintaining serum 25-hydroxyvitamin D (25[OH]D) concentrations and in producing two- to threefold greater storage of vitamin D than did equimolar D2 (ergocalciferol).<sup>[20]</sup> The active metabolite of vitamin D (calcitriol) is formed following two sequential hydroxylation reactions in vivo.\*

**Dosing** Current understanding is that the physiological requirement of vitamin D may be as high as 4000 IU/day for adults. Although the Food and Nutrition Board established the tolerable upper intake level (UL) at 2000 IU/day for adults, newer research suggests that this amount is very conservative, and it appears unlikely that toxicity would occur in healthy adults with doses less than 10,000 IU/day.<sup>[21]</sup> One study in adolescents showed that 2000 IU daily for one year did not produce toxicity.\*<sup>[22]</sup>

\*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.



## Supplement Facts

Serving Size: 1 Softgel  
Servings Per Container: 120

	Amount Per Serving	%Daily Value
Vitamin D3 (as cholecalciferol)	2000 IU	500%

**Other Ingredients:** Extra virgin olive oil (non-GMO), gelatin, glycerin, and water.

## PC D 2000 Directions

Take one softgel daily, or as directed by your healthcare practitioner.

## Supplement Facts

Serving Size: 1 Softgel  
Servings Per Container: 90

	Amount Per Serving	%Daily Value
Vitamin D3 (as cholecalciferol)	5000 IU	1250%

**Other Ingredients:** Organic extra virgin olive oil (non-GMO), gelatin, glycerin, and purified water.

## PC D 5000 Directions

Take one softgel daily, or as directed by your healthcare practitioner.

## Supplement Facts

Serving Size: 1 Drop (0.0394 mL)  
Servings Per Container: ~ 1,500

	Amount Per Serving	%Daily Value
Vitamin D3 (as cholecalciferol)	1000 IU	250%

**Other Ingredients:** Sunflower oil and purified water.

## PC Liquid D3 Directions

Shake well before using. Take one drop, one to five times daily (plain or in liquid), or as directed by your healthcare practitioner.

## References

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## Cautions

Consult your healthcare practitioner before use. Keep out of reach of children. Avoid if allergic to any ingredient.

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