

# Phyta D

All natural vitamin D concentrate



**Pack Size:** 50ml oral spray (277 doses).

**Dosage:** 1 spray (180mL) per day, or as directed by your healthcare practitioner.

**Storage Guide:** Shake well before use, store below 25°C in a cool dry place and refrigerate after opening.

**Warnings:** Vitamin supplements should not replace a balanced diet.

## Co-Prescribing Considerations:

- D-Complete
- Adalase
- Natal Care
- Ribraxx

## Product Highlights

1000IU of vegan vitamin D3

All natural and preservative free

Highest quality glass bottle packaging

Neutral taste for maximum patient compliance

Each 50ml bottle contains 277 doses

Free from lanolin, palm oil and palm by-products

High-quality fatty acid and vitamin E base

Strictly Practitioner Only

## Each spray of Phyta D (180mL) contains:

Extracts equivalent to:

Cholecalciferol	25mcg
equiv. Vitamin D3	1000IU

## Phyta D Indications:

- Vitamin D supports the health and function of the immune system, the nervous system and supports neuromuscular function
- Vitamin D plays a role in the maintenance of healthy blood sugar levels in healthy individuals
- Supports a healthy pregnancy, and the health of the growing baby during pregnancy
- Individuals who limit their exposure to sunlight may have an increased need for vitamin D supplementation
- Vitamin D supports the development and maintenance of strong, healthy bones and teeth
- Supports and maintains bone mineral density, helps to reduce the risk of fracture, and helps calcium absorption

## The growing need for supplementation

Vitamin D is a fat soluble nutrient, requiring the assistance of dietary fat and bile salts for its assimilation within the body. Vitamin D is distinctive to all other nutrients, in that the body is able to synthesise it with the help of ultraviolet rays from sunlight.<sup>1</sup> Increasing reductions to UVB ray exposure through responsible use of sun protection, in combination with the limited vitamin D content in food sources, is contributing to an increase in vitamin D deficiency among Australians.<sup>2</sup>

When serum concentrations are adequate, excess vitamin D is stored within reservoirs in the body; predominantly adipose tissue and the skin.<sup>3</sup> The body is able to maintain blood concentrations by liberating these stores, allowing vitamin D back into circulation. As a result, supplementation of vitamin D may occur intermittently without affecting serum concentrations, as long as the daily average intake is adequate.<sup>1</sup> Several observational studies have demonstrated that intermittent supplementation, encompassing the weekly requirements for vitamin D in a single dose, is effective at meeting the body's vitamin D requirements and maintaining healthy serum levels. This is an important clinical consideration as intermittent prescribing presents several advantages including; negating issues of erratic compliance due to prohibitive cost or forgetfulness, as well as allowing for flexible dosing in particular populations such as children, pregnant women, and the elderly.<sup>4</sup>

## A superior form of vegan vitamin D

The importance of adequate vitamin D levels across different age groups and genders is well known. Vitamin D plays an important role in many biological processes within the body; contributing to bone, immune, blood sugar and nervous system health.<sup>1,3,5</sup>

The main sources of vitamin D3 in food are found predominantly in animal products such as butter, milk, cheese, liver and oily fish.<sup>3</sup> The majority of these sources are restricted on a vegetarian diet and completely omitted in a vegan diet. Most vegan sourced vitamin D supplements are in D2 form; this form can be either sourced from plants or chemically synthesised.<sup>6</sup> Although not fully elucidated, it is thought that D2 is an inferior supplemental form when compared to D3. A study conducted by Crowe et al., compared the serum vitamin D concentrations of vegetarians and vegans to their meat eating counterparts. The researchers found that individuals consuming a vegetarian or vegan diet had considerably lower serum concentrations; up to 38% lower in winter months. This study demonstrates that dietary intake of vitamin D, as well as the form of vitamin D consumed are important determinants of vitamin D status.<sup>7</sup>

The vitamin D3 in Phyta D has undergone a specialised patented process in order to provide highly concentrated D3 that is suitable for both vegetarians and vegans. Phyta D is enhanced with Licopherol™; a unique proprietary blend which combines high-quality fatty acids and natural vitamin E, providing a superior and stable base for the concentrated vitamin D3. Phyta D contains no artificial preservatives and is available in a neutral tasting and convenient spray for maximum patient compliance.

## Spray dosing: ideal for children

Children and adolescents may have an increased requirement for vitamin D during times of development and growth; increasing further when calcium intake is marginal. These requirements may not be met in winter months as reduced exposure to UVB rays depletes the body's vitamin D stores.<sup>8</sup> The recommended daily intake of vitamin D for children and adolescents from 1-18 years is 5ug per day (equivalent to 200IU).<sup>2</sup> Due to the body's storage capacity, intermittent doses of Phyta D will provide this minimum requirement and may also address possible deficiencies.

## Unique processing: the Phyta D advantage

The cholecalciferol in Phyta D is sourced from symbiotic plants; a mixture of fungi and algae mutually dependent on each other for survival. It is sustainably harvested from multiple sites and locations due to the natural variation in vitamin D3 content in these plants at different times and places of harvest. The extraction, purification and refining of the raw material of Phyta D is a multistep process, utilising physical maceration and extraction via application of natural solvents. Only high-grade alcohol and water are used during the extraction, purification and concentration steps, to produce a clean, highly concentrated vegan source of vitamin D3. This tightly controlled process is conducted in ideal atmospheric conditions.



## Enhanced with Licopherol™

**Exclusive to BioMedica, Licopherol™ is a unique proprietary blend of quality fatty acids and natural vitamin E. Licopherol™ provides a neutral tasting and stable base, allowing convenient delivery of an all natural, premium vegan vitamin D3, free from palm oil, lanolin and preservatives.**

# Stringently Controlled Processing for Superior Quality Vitamin D

## SUSTAINABLE HARVESTING

- The raw material is harvested at varying sites and times due to natural variation of the vitamin D3 content in the plants
- This harvesting process ensures sustainability along with the highest quality and concentration of vitamin D

## WASHING OF RAW MATERIAL

- Raw material is then thoroughly washed to ensure impurities are removed before processing

## PHYSICAL MACERATION OF PLANT MATERIAL

- Plant material is physically broken down (chemical-free process) to allow full extraction of active constituents

## SPECIALISED NATURAL SOLVENT EXTRACTION

- Natural solvents (high-grade alcohol and purified water) are used in the extraction of the active constituents
- Highly specialised and patented process
- These solvents are necessary to extract the highly concentrated D3, yet no traces are detected in the final product

## PURIFICATION AND STANDARDISATION

- The extracted oil is further purified and the natural solvents (water and alcohol) are removed
- Testing is conducted to ensure the vegan vitamin D3 is highly concentrated

## ENHANCED WITH LICOPHEROL™

- The vegan vitamin D3 is then combined with Licopherol™, a unique blend of quality fatty acids (from rice bran oil) and natural vitamin E
- Licopherol™ provides a stable and natural base that is palm oil and preservative free

## SUPERIOR PACKAGING

- The finished product is then packaged into a high-quality glass bottle for maximum stability and suitability for a lipid based supplement

# Clinical Indications and Applications of Vitamin D

INDICATION	CLINICAL EVIDENCE
<b>Vitamin D supports the health and function of the immune system.</b>	<ul style="list-style-type: none"> <li>• Vitamin D receptors have been identified on critical immune cells, suggesting a role in their development and function. Vitamin D deficiency has been shown to modulate T-cell mediated immunity.<sup>18</sup></li> <li>• Vitamin D enhances the body's immune response to both bacterial and viral agents, primarily through promoting differentiation and activation of macrophages.<sup>15</sup> Recent research also suggests vitamin D may improve lung function by decreasing immune-mediated inflammation in the airways.<sup>9</sup></li> </ul>
<b>Vitamin D plays a role in the maintenance of healthy blood sugar levels in healthy individuals.</b>	<ul style="list-style-type: none"> <li>• Insulin sensitivity is positively associated with serum 25-hydroxyvitamin D (25-OH D) concentrations.<sup>19</sup> Vitamin D may assist in maintaining insulin production and secretion, and may also support blood sugar regulation in healthy individuals.<sup>10,16</sup> Vitamin D may enhance the synthesis of insulin via its ability to control intracellular calcium flux in islet cells.<sup>15</sup></li> </ul>
<b>Supports the health and function of the nervous system.</b>	<ul style="list-style-type: none"> <li>• Although mechanisms are not fully elucidated, evidence suggests vitamin D is needed for the biosynthesis of neurotropic factors. Additionally, vitamin D may be involved in the synthesis of neurotransmitters, and may assist brain detoxification pathways.<sup>15</sup></li> </ul>
<b>Vitamin D may support a healthy pregnancy, and the health of the growing baby during pregnancy.</b>	<ul style="list-style-type: none"> <li>• Vitamin D is essential to both skeletal and neural development in infants.<sup>15</sup> Low vitamin D status during pregnancy has been associated with a higher incidence of low birth weight infants. Additionally, maternal vitamin D insufficiency during pregnancy has been associated with reduced bone mineral accrual in the offspring, during childhood.<sup>16</sup></li> <li>• Trials involving over 500 pregnant women have demonstrated that supplementing with 1200IU/day of vitamin D produced a statistically significant increase in foetal birth weight, a reduced prevalence of hypocalcaemia and hypophosphataemia both in maternal and umbilical cord blood, and reduced blood pressure in toxemic women.<sup>15,17</sup></li> <li>• Evidence suggests that adequate vitamin D intake during foetal development may assist in maintaining immune function for the child, once born.<sup>15</sup></li> </ul>
<b>People who limit their exposure to sunlight may have an increased need for vitamin D supplementation.</b>	<ul style="list-style-type: none"> <li>• Prevalence of vitamin D insufficiency and deficiency among young, healthy people appears to be increasing.<sup>9</sup> Requirements may be increased and/or supplements necessary in populations whose exposure to sunlight may be reduced.<sup>16</sup> A 1998 study in the New England Journal of Medicine assessing a random group of 290 hospitalised patients over the age of 65, revealed 57% were vitamin D deficient.<sup>10</sup></li> </ul>
<b>Vitamin D is important for bone health and improves calcium absorption. A diet deficient in calcium can lead to osteoporosis in later life. Vitamin D supplementation may reduce the risk of osteoporosis and fracture.</b>	<ul style="list-style-type: none"> <li>• Vitamin D is essential for promoting the absorption and utilisation of calcium and phosphorus. Vitamin D enhances the intestinal absorption of calcium, primarily in the duodenum and jejunum, and the intestinal absorption of phosphorus, also particularly in the jejunum and ileum.<sup>9</sup> Via regulation of calcium and phosphorus, vitamin D may support the normal development of bones and teeth.<sup>10</sup> Without vitamin D, only 10 to 15% of dietary calcium and about 60% of phosphorus is absorbed.<sup>11</sup></li> <li>• Vitamin D may protect against osteoporosis, and bone fractures in the elderly. Without sufficient vitamin D, inadequate calcium is absorbed, resulting in elevated parathyroid hormone, and subsequent increased bone resorption. This may weaken bones and increase the risk of fracture. Vitamin D supplementation has been shown to slow bone loss and reduce fracture, particularly when taken with calcium.<sup>9,12</sup></li> <li>• A study conducted by Peacock et al., compared the effect of calcium supplementation, vitamin D3 supplementation, and placebo. Both the calcium and vitamin D3 supplementation arms showed significant improvements in bone mineral density. Both calcium and vitamin D supplementation significantly reduced bone loss, secondary hyperparathyroidism, and bone turnover compared to placebo. The results of this study confirm supplementation with vitamin D3 is warranted for individuals requiring bone mineral density support.<sup>13</sup></li> <li>• Vitamin D supplementation has been shown to reduce the incidence of vertebral fractures and also showed a trend in reducing the incidence of non-vertebral fractures in postmenopausal women. These results indicate that vitamin D supplementation in this population group may prevent osteoporosis.<sup>14</sup></li> </ul>

## Selected References (full list available on request)

4. Vidailhet, M. E. (2012). Vitamin D: Still a topical matter in children and adolescents. A position paper by the Committee on Nutrition of the French Society of Paediatrics. Archives de Pédiatrie, 316-328.
7. Crowe, F. E. (2010). Plasma concentrations of 25-hydroxyvitamin D in meat eaters, fish eaters, vegetarians and vegans: results from the EPIC-Oxford study. Public Health Nutrition, 340-346.