



GENESTRA  
BRANDS®

# D-Mulsion 1000

## Emulsified vitamin D for enhanced bioavailability

- Supports the musculoskeletal and cardiovascular systems<sup>†</sup>
- Promotes neurocognitive, cellular and immune health<sup>†</sup>
- Offers 25 mcg (1,000 IU) of vitamin D per convenient, once-daily drop
- Easy-to-use – drop directly into the mouth or mix in drinks
- Great-tasting natural lemon, spearmint or berry flavors

D-Mulsion 1000 provides 25 mcg (1,000 IU) of vitamin D<sub>3</sub> (cholecalciferol) per drop in an emulsified formula for improved bioavailability. The vitamin D receptor is present in nearly all human cells, demonstrating the important role of vitamin D in supporting overall well-being. While it is best recognized for its ability to promote bone health, vitamin D also maintains muscle function, healthy heart and blood vessels, immune function (especially in the upper respiratory tract), cognitive health, and mood balance. Despite its importance to many physiological functions, many Americans have inadequate levels of vitamin D. This may result from insufficient sun exposure, indoor living, wearing covering clothes, limited consumption of vitamin D-containing foods, dark skin color, older age, or low intake of vitamin D supplements. With just one convenient drop daily, this formula promotes adequate vitamin D intake for optimal health. Available in three great-tasting flavors, D-Mulsion 1000 can be taken orally dropped on a finger or spoon, directly into the mouth, or mixed in drinks, and is ideal for those who have difficulty or dislike swallowing capsules.<sup>†</sup>



### SUPPLEMENT FACTS

Serving Size 1 Drop (0.036 mL – Berry); (0.027 mL – Lemon); (0.0225 mL – Spearmint)  
Servings per Container about 833 (Berry); 1,111 (Lemon); 1,333 (Spearmint)

	AMOUNT PER SERVING	% DV
Vitamin D <sub>3</sub> (as cholecalciferol)	25 mcg (1,000 IU)	125%

% Daily Value (DV)

Berry – Other ingredients: Purified water, acacia gum, glycerin, natural blueberry flavor, medium-chain triglycerides, natural pomegranate flavor, citric acid, xanthan gum, potassium sorbate, organic stevia leaf extract, rosemary leaf extract, mixed tocopherols concentrate

Lemon – Other ingredients: Purified water, potato maltodextrin, modified tapioca starch, extra virgin olive oil, lemon oil, citric acid, potassium sorbate, rosemary leaf extract, mixed tocopherols concentrate, organic stevia leaf extract

Spearmint – Other ingredients: Purified water, cellulose, natural spearmint flavor, xanthan gum, extra virgin olive oil, organic stevia leaf extract (glucosylsteviosides), potassium sorbate, citric acid

### Recommended Dose

Take 1 drop daily or as recommended by your health professional.

### Size

1 fl oz (30 mL)



Non  
GMO



Gluten  
Free



Dairy  
Free



Vegetarian

### Product Codes

01175-30U (Berry)  
01154-30U (Lemon)  
01159-30U (Spearmint)

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# D-Mulsion 1000

## Scientific Rationale:

Primarily recognized for its beneficial effects on bone health, vitamin D mediates important biological pathways in more than 50 tissues.<sup>1</sup> It plays a critical role in gene transcription, as its binding to the vitamin D receptor (VDR) – which is present in nearly all human cells – directly or indirectly regulates the activity of approximately 2,000 genes.<sup>2</sup> Many cells, such as those in the colon, prostate and breast, can also locally produce vitamin D, which may help regulate genes related to cell growth and differentiation.<sup>2†</sup>

As one of the major nutrients involved in **bone** health, vitamin D plays an essential role in building strong bones.<sup>2</sup> It helps absorb calcium, a primary structural component of the skeleton, and regulates the differentiation of cells present in bone.<sup>2,3</sup> Vitamin D also helps to achieve peak bone mass, which occurs between the ages of 18 and 23 and has a major impact on bone health in later life.<sup>4</sup> Furthermore, vitamin D supports bone health in the elderly, a life stage associated with a greater level of bone resorption than bone formation.<sup>5,6</sup> In a randomized, double-blind trial involving elderly women, daily supplementation with 400 IU of vitamin D for two years significantly increased bone mineral density at the femoral neck.<sup>5</sup> Maintaining bone health in elderly women is especially important as the rate of bone loss increases at a greater level after menopause, resulting from decreased estrogen production.<sup>2,6</sup> Similarly, a meta-analysis concluded that supplementation with 700-800 IU of vitamin D (alone or with calcium) supported bone strength in older adults.<sup>7†</sup>

Likewise, clinical studies have reported that vitamin D intake in the elderly supports **muscle** strength and balance.<sup>8</sup> Preclinical research suggests that vitamin D may contribute to muscle health by indirectly mediating calcium transport in muscle cells, affecting contractility.<sup>8</sup> Vitamin D may also directly influence muscle through the VDR by promoting the production of proteins related to muscle cell growth and differentiation.<sup>9†</sup>

The **heart and blood vessels** also express the VDR and 1 $\alpha$ -hydroxylase (the enzyme responsible for converting vitamin D into its bioactive form), demonstrating an important connection between the vitamin and the cardiovascular system.<sup>10</sup> Observational studies have also reported that adequate vitamin D status is associated with the maintenance of cardiovascular health.<sup>10</sup> Vitamin D may act by regulating parathyroid hormone (PTH) and renin activity, endothelial function, cytokine balance, and calcium movement through the heart.<sup>10†</sup>

Additionally, most **immune** cells express the VDR, and vitamin D levels vary depending on the season in a pattern that resembles the seasonal

variation in immune system health.<sup>11,12</sup> Preclinical research suggests that vitamin D benefits both the innate and adaptive immune systems by regulating phagocytic activity of macrophages, the production of peptides that help maintain microbial balance, T cell activation, B cell function, cytokine balance and dendritic cell activity.<sup>13,14</sup> In a recent trial involving children, daily supplementation with 1,000 IU of vitamin D for three months significantly increased plasma vitamin D levels and promoted healthy cytokine balance.<sup>15</sup> Specifically, adequate vitamin D status has been associated with proper upper respiratory immune function.<sup>16,17</sup> Two meta-analyses concluded that vitamin D helped maintain respiratory tract immune health, with one analysis reporting greater benefits in participants who consumed vitamin D daily or weekly, rather than large doses at once.<sup>14,18†</sup>

Both the VDR and 1 $\alpha$ -hydroxylase are also expressed in the **brain**, including in regions responsible for cognition.<sup>1,2</sup> Preclinical research suggests a neuroprotective role of vitamin D in the brain, as it may contribute to remyelination, calcium homeostasis, and the production of neurotransmitters and neurotrophins (proteins that promote neuron health).<sup>1,2,19</sup> Observational studies have reported that seasonal variations in vitamin D levels may be associated with seasonal mood patterns, and that vitamin D levels may be associated with both mood and cognitive function.<sup>2,20</sup> Likewise, clinical studies have reported that daily supplementation with vitamin D significantly promotes positive mood.<sup>21,22†</sup>

Despite the importance of vitamin D in the human body, inadequate intakes are common worldwide.<sup>23</sup> Analysis of the 2005-2006 National Health and Nutrition Examination Survey (NHANES) data revealed that nearly 42% of Americans had insufficient levels of vitamin D.<sup>24</sup> Individuals may be vitamin D insufficient due to inadequate sun exposure (related to latitude, sunscreen use or covered clothing), limited consumption of vitamin D-containing foods, low intake of vitamin D supplements, dark skin color, or old age.<sup>23†</sup>

D-Mulsion 1000 provides a concentrated dose of vitamin D in a great-tasting and easy-to-take format. In just one convenient drop daily, this formula supports adequate vitamin intake for optimal musculoskeletal, cardiovascular, neurocognitive, cellular and immune health. It offers an emulsified form of vitamin D, which has been clinically shown to significantly increase vitamin D levels to a greater level than a tablet form.<sup>25†</sup>

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