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# Cal Mag Berry Liquid +

## Comprehensive bone-support formula with 100% citrate minerals<sup>‡</sup>

- Offers a combination of calcium and magnesium, plus boron and vitamins A, D, and K
- Promotes bone development and maintenance<sup>‡</sup>
- Supports eyesight, skin, energy metabolism, immune health and muscle function<sup>‡</sup>
- Calcium and magnesium are delivered in citrate form, providing superior bioavailability
- Delicious natural blueberry flavor

Cal Mag Berry Liquid + delivers six bone-supportive vitamins and minerals in a great-tasting blueberry flavor to help maintain optimal bone health. As bones are constantly being remodeled, they require an adequate supply of nutrients to maintain their strength. Calcium is an important structural component of the skeleton, while magnesium promotes bone formation. Both minerals are provided in organic citrate forms, which have demonstrated improved bioavailability when compared to inorganic forms. Vitamin D further supports bone health by promoting calcium absorption and the production of vitamin K-dependent proteins such as osteocalcin (bone Gla protein), which is secreted by bone-forming osteoblast cells. As osteoblasts and osteoclasts express retinoic acid receptors, vitamin A may provide additional support for proper bone remodeling. The trace element boron is also included to help absorb and use calcium, magnesium and vitamin D. To further maintain overall well-being, this formula helps support eyesight, skin, energy metabolism, immune health and muscle function.<sup>‡</sup>

### Supplement Facts

Serving Size 1 Tablespoon (15 mL)  
Servings per Container about 30

	Amount Per Serving	% DV
Total Carbohydrate	1 g	<1% <sup>^</sup>
Vitamin A (as vitamin A acetate)	300 mcg	33%
Vitamin D (as cholecalciferol)	25 mcg (1,000 IU)	125%
Vitamin K <sub>1</sub> (as phyloquinone)	80 mcg	67%
Calcium (as calcium citrate)	500 mg	38%
Magnesium (as magnesium citrate)	200 mg	48%
Boron (as boron citrate)	2,000 mcg	*
Vitamin K <sub>2</sub> (as menaquinone-7)	20 mcg	*

\* Daily value (DV) not established

<sup>^</sup> Percent daily values (DV) are based on a 2,000 calorie diet

Other Ingredients: Purified water, xylitol, natural blueberry flavor, medium-chain triglycerides, citric acid, xanthan gum, potassium sorbate, organic stevia leaf extract, rosemary leaf extract, ascorbic acid, mixed tocopherols concentrate

### Recommended Dose

Take 1 tablespoon daily with a meal, a few hours before or after taking medications or other supplements, or as recommended by your health professional.

### Size

15.2 fl oz (450 mL)

### Product Code

05378



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# Cal Mag Berry Liquid +

## Scientific Rationale:

Bone is constantly undergoing a state of remodeling.<sup>1</sup> While bone formation is greater than bone resorption in children, bone turnover is balanced in healthy adults.<sup>2</sup> In contrast, aging individuals typically experience greater bone resorption than bone formation, with decreased estrogen production during menopause further reducing calcium absorption and accelerating bone turnover.<sup>2</sup> Due to this continuous metabolism, individuals require adequate nutrient intake to support their bones at all life stages.<sup>1</sup> As bone health can be positively influenced by the intake of vitamins and minerals, Cal Mag Berry Liquid + provides a comprehensive combination of nutrients to support optimal bone composition in a great-tasting format.<sup>1</sup> Included in this blend are organic calcium and magnesium **citrate minerals**, which have demonstrated higher bioavailability when compared to their inorganic forms.<sup>3,4†</sup>

**Calcium's** role in bone health is well-documented. It is the most abundant mineral in the skeleton, where it acts as an important structural component of bones and teeth.<sup>5,6</sup> In addition to supporting optimal peak bone mass in early life, calcium is critical for the maintenance of bone strength during aging.<sup>1</sup> Because bone formation normally decreases in menopausal women and aging adults, calcium requirements are increased for those over the age of 51.<sup>2</sup> As milk and milk products are primary sources of calcium, individuals with lactose intolerance or other dietary restrictions may be at particular risk for decreased calcium intake.<sup>2</sup> While over 99% of the body's calcium is present in bones and teeth, this mineral is also found in muscle, where it plays an important role in muscle contractions.<sup>2†</sup>

**Magnesium** is the fourth-most abundant mineral in the human body and a cofactor in over 300 metabolic reactions.<sup>7</sup> Nearly half of the body's magnesium is stored in the bones, where it helps promote the differentiation of bone-forming osteoblast cells.<sup>8</sup> In addition to supporting bone health, this mineral helps maintain normal muscle function by regulating calcium homeostasis, while playing a role in energy metabolism.<sup>8</sup> It is estimated that many adults do not consume adequate levels of magnesium each day, which may result from magnesium losses during food processing or the use of mineral-deficient soil in agriculture.<sup>8†</sup>

**Vitamin D** is one of the major nutrients involved in bone health.<sup>2</sup> It plays an essential role in building strong bones and teeth, as it helps absorb calcium and stimulate bone mineralization and maturation.<sup>2</sup> Furthermore, this vitamin helps to achieve peak bone mass and support bone health in

the elderly.<sup>2,9</sup> In addition to its beneficial effects on bone, vitamin D also contributes to healthy immune cell function.<sup>10</sup> Despite the importance of vitamin D in the human body, inadequate intakes are common worldwide.<sup>11</sup> This may result from insufficient sun exposure, indoor living, wearing covering clothes, limited consumption of vitamin D-containing foods, dark skin color, older age, and low intake of vitamin D supplements.<sup>11,12†</sup>

**Vitamin K** is a cofactor in the carboxylation of glutamic acid residues in proteins such as osteocalcin.<sup>1</sup> Also known as bone Gla protein, this vitamin-K dependent protein is secreted by bone-forming osteoblasts and supports healthy bone mineralization by promoting the binding between calcium and the bone mineral matrix.<sup>13</sup> Vitamin K also regulates the activity of matrix Gla protein (MGP), which is produced by smooth muscle cells and helps maintain calcium metabolism in the vasculature.<sup>13</sup> Additionally, vitamin K supports healthy coagulation, as it regulates the vitamin-K dependent proteins prothrombin and factor X.<sup>13</sup> This lipid-soluble vitamin can exist either as K<sub>1</sub> (phyloquinone), which is present in leafy green vegetables, or K<sub>2</sub> (menaquinone), which is found in fermented dairy products or produced by intestinal bacteria.<sup>13†</sup>

**Boron** is a trace mineral that also contributes to healthy bones.<sup>14</sup> Research suggests that boron supports bone growth and maintenance, in part by regulating the metabolism of nutrients involved in bone health.<sup>15</sup> Boron has been shown to mediate calcium and magnesium absorption by reducing their excretion in the urine, and may help to regulate the metabolism of vitamin D and other steroid hormones.<sup>15</sup> *In vitro* research suggests that boron may also contribute to bone formation by promoting mineralization in osteoblasts.<sup>14</sup> Boron is naturally present in many plant-based foods, including fresh and dried fruits, as well as leafy vegetables and nuts.<sup>15†</sup>

**Vitamin A** is a fat-soluble vitamin primarily known for its important roles in the immune, visual and integumentary systems.<sup>16</sup> Vitamin A stimulates the development of immune cells; aids in the production of rhodopsin, a pigment required for sensing light (especially in low-light environments); and helps regulate the expression of skin keratins.<sup>17</sup> Additional research has reported that both osteoblasts and osteoclasts express retinoic acid receptors, suggesting a potential role of vitamin A in bone remodeling.<sup>1†</sup>

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† 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.