



Sunshine

Essential Vitamins D- and K-Infused Bright Cacao for Bone and Immune Support*

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Benefits*

- Helps support optimal arterial health
- Promotes optimal bone health
- May help promote a positive mood
- Helps maintain proper immune system function
- May be beneficial for individuals who do not get adequate sun exposure and/or dietary sources of these vitamins

Highlights

- 50 mcg (2,000 IU) of vitamin D3 per serving
- 1 mg of vitamin K2 (as MK-4) plus 500 mcg of vitamin K1 per serving
- Zero grams of sugar — suitable for ketogenic diets
- Free of artificial sweeteners, flavors, or colors
- Low allergen profile, free of dairy, soy, gluten, and non-GMO
- Suitable for vegetarians
- Only 3 g carbohydrates per serving
- Each batch has been given a Certificate of Analysis to confirm quality and purity
- Sources of environmentally sustainable harvested cacao beans
- Convenient delivery format for better patient compliance

Dosing Guidelines

Consume 1 square of Fx Sunshine once per day. Do not exceed the recommended dose.

Warning

Consult your health-care practitioner before using this product if you are taking Coumadin, warfarin, or other anticoagulant medications.

Fx Chocolate® Sunshine

Supplement Facts		
Serving Size 1 Square (4.5 g)		
Servings Per Container 15		
Amount Per Serving	% Daily Value	
Calories	15	
Total Fat	1 g	1%**
Saturated Fat	0.5 g	3%**
Total Carbohydrate	3 g	1%**
Dietary Fiber	1 g	4%**
Total Sugars	0 g	†
Includes 0 g Added Sugars		0%**
Vitamin D (as Cholecalciferol)	50 mcg (2000 IU)	250%
Vitamin K (as Vitamin K1 Phytonadione)	500 mcg	417%
Vitamin K2 (as Menaquinone-4)	1 mg	†

**Percent Daily Values are based on a 2,000 calorie diet.
†Daily Value not established.

Ingredients: Cacao nibs, allulose, organic cocoa butter. Made on equipment shared with nuts and milk.

*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.



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fxchocolate.com

Fx Sunshine is a synergistic blend of vitamin D and bioavailable forms of vitamin K infused in 60% dark chocolate that works to promote bone health, immune function, and a positive mental outlook.* This formula combines 50 mcg (2,000 IU) of vitamin D3, 1 mg of vitamin K2, and 500 mcg of vitamin K1 per serving. Fx Sunshine may help balance the body's calcium needs while promoting bone strength and supporting immune health.*

Fx Chocolate® contains zero grams of sugar and is sweetened with allulose, a sweetening agent that is found naturally in jackfruit, figs, and raisins, with no bitterness or unpleasant aftertaste. The chocolate delivery system is a novel and convenient way to receive the benefits of bioactive ingredients found in nutrients and herbs, especially for individuals who are unable to swallow capsules or softgels, or for those who wish to reduce pill fatigue.

Ingredient Highlights

Theobroma cacao L. (also known as the “food of the gods”) boasts a wide variety of health benefits. Cacao beans are a rich source of bioactive polyphenolic compounds (with more than 200 having been identified), including flavanols, flavan-3-ols, epicatechins, and their proanthocyanidin oligomers, which have been shown to provide antioxidant properties — perhaps a reason to indulge in a little dark chocolate. Fx Exhale may offer various health benefits by reducing oxidative stress, supporting cardiovascular health¹ and blood lipid metabolism, and promoting healthy cognitive function.² The dietary polyphenols of cacao, especially flavanols, have favorable effects on the body's cardiometabolic health, including the support of healthy blood pressure, blood vessel function, and healthy fat ratios, as shown in human and animal studies.^{3,4} Furthermore, cacao polyphenols were shown to support healthy intestinal inflammatory responses by promoting healthy expressions of neutrophils, cytokines, and enzymes.²

The methylxanthines (e.g., caffeine, theobromine, theophylline), peptides, and minerals present in cacao also support its tremendous health benefits. Cacao contains micronutrients such as magnesium, copper, and selenium. These minerals are essential to human health and play a critical role as cofactors for various physiological functions, such as producing cellular energy and scavenging free radicals.⁵

Vitamin D Although it is classified as a vitamin, vitamin D more closely resembles and functions like a steroid hormone with broad influences on physiology.^{6,7} Vitamin D receptors (VDR) are found throughout the body and have been shown to influence the expression of thousands of genes that result in explicit physiological actions by 1,25-dihydroxyvitamin D.⁸ This fat-soluble vitamin is widely recognized for its critical role in maintaining optimal bone and arterial health and for supporting proper immune function.^{6,7} Vitamin D facilitates intestinal calcium absorption and reduces calcium excretion by the kidneys, providing calcium necessary for bone mineralization.^{6,7} It is clear in the research that vitamin D is critical for the prevention of rickets and osteomalacia, and that supplementation may prevent or help with sarcopenia in elderly populations.^{9,10} A meta-analysis reported that in people ages 60 and older, high serum 25(OH)D concentrations (with adequate calcium intake) reduce the risk of hip fractures compared with low vitamin D levels.^{9,11}

Vitamin D is essential for the immune system, as it modulates the response of the innate and adaptive immune system through VDR. The VDR is a critical transcription factor in differentiating lymphocytes within

the bone marrow into monocytes and granulocytes.¹² Vitamin D regulates Th1 and Th2 lymphocyte balance and downregulates the expression of inflammatory cytokines overall. Evidence suggests that decreased 25(OH)D levels in children and infants are associated with a higher prevalence of respiratory tract infections.^{13,14} Furthermore, VDR regulates the innate immune response in the gut, which plays a critical role in regulating endothelial tight junction protein expression, and this regulates the intestinal microbiota by controlling microflora composition.⁹

The Rationale for Vitamin K Vitamin D and vitamin K work in concert with one another. Vitamin K is vital for directing the transport of calcium into bone and teeth for optimal strength. Increasing the amount of vitamin D through supplementation, in the presence of inadequate levels of vitamin K, can potentially increase the risk of calcium deposition in arteries and soft tissue and have a very negative effect on artery elasticity.¹⁵ This is due to the interaction of vitamins D and K in the use of Matrix Gla Protein (MGP), which is a strong inhibitor of arterial calcification. The expression of MGP is vitamin D-dependent and the gamma-carboxylation step making it active is vitamin K-dependent.^{16,17} Osteocalcin is the most well-known Gla protein. It has been widely recognized for its importance in bone density and requires vitamin K to work properly. Vitamin K is necessary for the carboxylation of osteocalcin. Undercarboxylated osteocalcin cannot regulate calcium, and thus, it increases the risk of calcium being deposited in arteries and soft tissue.

Allulose is a monosaccharide epimer of fructose, formally called D-psicose, that is found naturally in figs, raisins, jackfruit and maple syrup. It has a sweet taste — very much like regular sugar (sucrose) — and it occurs in relatively small amounts, so it's referred to as a “rare sugar.” Although allulose has the taste and texture of sugar, when taken in isolation, it does not affect blood glucose or insulin levels. Allulose has a glycemic index of zero, which makes it an ideal sweetener for people on ketogenic or low-carbohydrate diets. Humans lack the enzymes to digest allulose, so it is absorbed in the small intestine, but it is not metabolized by the body, making it nearly calorie free. Thus, allulose has just one-tenth the calories of sucrose — only 0.4 calories/gram to be exact. Allulose is primarily excreted in the urine, and it has very low colonic microbial fermentability. Therefore, it has no unpleasant gastrointestinal effects common with polyols.

For a list of references cited in this document, please visit: <https://www.designsforhealth.com/techsheet-references/fx-sunshine-references.pdf>

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The logo for Fx Chocolate, featuring the letters 'fx' in a white square followed by the word 'CHOCOLATE' in a bold, white, sans-serif font.

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