



Marine Bone Discovery™

This formula assists in the stimulation of inner bone growth for bone rejuvenation and outer bone ionic mineralization for better bone strength. * Carefully selected marine sourced ingredients include pearl powder, ionic mineral seaweed source, and brown seaweed extract naturally help rejuvenate and help restore both inner and outer bone.

* Added vitamin K2 helps keep calcium out of the blood and into the bone where it belongs. Vitamin D3 helps activate bone formation and mineralization. Formulation is NON-GMO and Halal Certified. *

Product Image



Supplement Fact/ Product Formulation

Supplement Facts		
Serving Size: 3 Capsules		
Servings Per Container: 30		
	Amount Per Serving	% DV*
Vitamin D3 (as cholecalciferol)	25 mcg	125%
Calcium (from calcium carbonate, Aquamin® TG sea minerals, dicalcium phosphate and pearl powder)	575 mg	44%
Phosphorus (as dicalcium phosphate)	38 mg	3%
Magnesium (as magnesium oxide, citrate and Aquamin® TG sea minerals)	95 mg	23%
Proprietary Bone Support Blend	656 mg	**
Pearl powder, Aquamin® TG sea minerals, Brown seaweed extract (30% fucoxanthin), Boron (as citrus, aspartate, glycine complex), Vitamin K (as menaquinone -7)		
* Daily Values (DV) are based on a 2,000 calorie diet.		
** Daily Value not established.		
Other ingredients: Bovine gelatin (capsule), rice flour, and magnesium stearate.		

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

***Note: Please view our Marine Bone Discovery promotional video by Edward R. Gibson. (Click Link:)**

<https://www.youtube.com/watch?v=6iPMCatMVdA>

This video is available for use as an advertisement

Ingredient/ dosage	Research	Benefits	Story/Claims
<p>Aquamin® TG Sea Minerals 278 mg</p>	<p>Aquamin literature</p> <hr/> <p>Aslam MD, et al. A Mineral-Rich Extract from the Red Marine Algae Lithothamnion calcareum Preserves Bone Structure and Function in Female Mice on a Western-Style Diet. Calcif Tissue Int. 2010 April ; 86(4): 313–324. doi:10.1007/s00223-010-9340-9.</p>	<p>72 ionic marine minerals</p> <p>Living minerals Plant minerals Marine minerals</p> <p>Supports outer bone mineralization with good source of ionic calcium plus 71 other minerals and inner bone structure.</p> <hr/> <p>Red marine algae, especially those of the coralline family, extract minerals from salt water and concentrate the minerals as carbonate salts in their fronds. The fronds of the red algae become so highly mineralized that they are essentially devoid of substances (phytols, agar, alginate, carageenan) common to many algae. The mineral-rich fronds have been utilized as a source of multiple trace elements in agriculture for years [34,35]</p> <p>In the cortical (outer bone) analysis there were reductions in bone mineral content, tissue mineral density, mean cortical thickness, and cortical cross-sectional area in mice eating a Western Diet. This was observed in both femora and tibiae. In the trabecular analysis (inner bone structure), female mice on the Western diet had lower bone mineral content, tissue mineral density, and bone volume fraction, due to decreases</p>	<p>Bones need all 72 ionic minerals which come from the sea to support both inner bone growth and outer bone mineralization.</p> <p>“ionic” vs rock minerals. Sea based substances are more conducive to the body than ground up rocks, land-based sources of minerals</p> <hr/> <p>Mice eating high corn oil and mineral- deficient “Western Diet” with 20% corn oil had weak inner and outer bones. When supplemented with red marine algae (Aquamin) their bones stayed strong in inner bone and outer bone.</p> <p>The red algae seaweed supplement eliminated the bone problems caused by the Western Diet.</p> <p>Compared to another group of mice on a low-fat diet, the algae supplemented mice on Western Diet had increased mineral content and bone strength – even though calcium levels were the same.</p> <p>Demonstrates the need for more minerals besides calcium alone</p> <p>Red algae stimulates inner bone growth which</p>

		<p>in both trabecular number and thickness.</p> <p>Female mice that received the mineral-rich marine red algae extract as a supplement while consuming a western diet did not demonstrate bone mineral loss and had strong inner bone as well.</p> <p>The bone defects in female mice were overcome.</p>	<p>promotes healthy mineralization of outer bone. Red algae provides a wide spectrum of minerals to be deposited on bone – not just calcium.</p>
	<p>Aquamin, Shandon Clinic. 2005</p>	<p>Prevents calcium from leaching from bone in post-menopausal women</p>	
	<p>O'Gorman DM, et al. The marine-derived, multi-mineral formula, Aquamin, enhances mineralization of osteoblast cells in vitro. <i>Phytother Res.</i> 2012 Mar;26(3):375-80. doi: 10.1002/ptr.3561. Epub 2011 Jul 12.</p>	<p>Red algae promotes increased mineralization and bone formation in osteoblast cell culture. (O'Gorman)</p>	<p>Red algae promotes new bone cells and greater mineralization of these cells – both inner and outer bone improvement. (O'Gorman)</p>
	<p>Widaa A, et al. The Osteogenic Potential of the Marine-Derived Multi-Mineral Formula Aquamin Is Enhanced by the Presence of Vitamin D. <i>Phytother Res.</i> 2013 Jul 19. doi: 10.1002/ptr.5038.</p>	<p>In vitro. This study demonstrates that Aquamin aids osteogenesis, and that its osteogenic response can be enhanced by combining Aquamin with Vitamin D3. (Widaa)</p>	<p>Aquamin aids growth of new bone cells. This growth is further strengthened by combining with Vitamin D3. (Widaa)</p>

	<p>[Epub ahead of print]</p> <p>(#8)</p> <p>https://ods.od.nih.gov/factsheets/Magnesium-HealthProfessional/ Accessed Apr 11, 2018.</p>	<p>Magnesium contributes to the structural development of bone</p> <p>Magnesium deficiency is a risk factor for osteoporosis.</p>	
<p>Pearl powder 300 mg</p>	<p>Li X., et al. "Study on Bioavailability of pearl", Journal of Pharmacology and Clinical Study of Chinese Medicine 1998, 14(2): 40-41</p> <p>Shen Y, et al. In vitro osteogenetic activity of pearl. Biomaterials. 2006 Jan;27(2):281-7. Abstract.</p> <p>Lamghari M, et al. Stimulation of bone marrow cells and bone formation by nacre: in vivo and in vitro studies. Bone. 1999 Aug;25(2 Suppl):91S-94S.</p>	<p>Pearl powder is absorbed twice as efficiently as conventional calcium carbonate</p> <p>PEARL IN VITRO: Cell culture reveals that pearl could stimulate osteoblast proliferation, which proceeded more quickly and smoothly than that on shell nacre and hydroxyapatite (HA), and abundant extracellular matrix occupied the whole pearl surface <u>by 5 days</u>. It is concluded that <u>pearl is a superior osteoinductive material with high osteogenetic activity</u>. (Shen, 2006) [Pearl is very similar to nacre, mother of pearl, but in this study it performed better for osteogenesis.]</p> <p>NACRE IN VIVO AND IN VITRO: [Pearl injected into holes in sheep bone] By 12 weeks, the experimental cavity was occupied by newly matured bone.</p> <p>Trabeculae in contact with or adjacent to the dissolving nacre (grew new</p>	<p>Stimulates inner bone growth.</p> <p>In vitro study, stimulated new bone growth by 5 days (Shen)</p> <p>The pearl is more effective than mother of pearl for inner bone growth. (Shen)</p> <p>Pearl is "superior" in terms of growing new inner bone.</p> <p>Pearl is completely compatible with human bone. It can stimulate new bone growth, and increase mineralization, which enhances bone</p>

	<p>Rousseau M. Nacre, a Natural Biomaterial. Chapter 14. www.intechopen.com/download/pdf/23629</p> <hr/> <p>Wang H, et al. The healing effect of pearl formula on mice with osteoporosis." Acta Academiae Medicinae Shanghai 25(1):43, 1998</p> <p>Wu Z., et al. Study of</p>	<p>bone). The functional new bone trabeculae were covered with osteoid lined with osteoblasts, indicating continuing bone formation. The in vitro study on rat bone marrow explants cultured with a water-soluble extract of the nacre organic matrix also resulted in the stimulation of osteogenic bone marrow cells with enhanced alkaline phosphatase activity. Thus, both the in vivo and in vitro findings suggest that nacre contains one or more signal molecules capable of activating osteogenic bone marrow cells. (Lamghari, 1999)</p> <hr/> <p>Cell culture shows that pearl has the same osteogenic activity as shell nacre. (Rousseau)</p> <p>Pearl is a "biomineral" that contains both minerals and proteins and stimulates biological activity for inner bone growth. (Rousseau)</p> <p>Rare absorbable calcium crystal (Aragonite) (Rousseau)</p> <p>Rare combination of minerals layered with protein (nacre structure) binds with bone (Rousseau)</p> <hr/> <p>In vivo: mice that received the pearl powder formulation experienced significantly higher bone calcium content, bone mineral density, and total bone weight in comparison to the mice that did not.</p>	<p>density</p> <p>Good for both inner and outer bone. The author states it is the "perfect" bone supplement. (Lamghari)</p> <hr/> <p>Pearl is nearly identical to nacre, but slightly better.</p> <p>Contains both minerals and proteins for both inner and outer bone.</p> <hr/>
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	<p>the effect of pearl formula osteoporosis., Chinese Traditional Patent Medicine, 23(10):766-768, 2001 In Research Summary</p> <hr/> <p>Wang X, e al. Pinctada fucata mantle gene 5 (PM5G5) from pearl oyster mantle inhibits osteoblast differentiation. Biosci Biotechnol Biochem. 201175(5):991-993.</p> <hr/> <p>Rousseau M, et al. The water-soluble matrix fraction from the nacre of Pinctada maxima produces earlier mineralization of MC3T3-E1 mouse pre-osteoblasts. Comp Biochem Physiol B Biochem Mol Biol. 2003 May;135(1):1-7</p> <hr/> <p>Cognet JM, et al. Pinctada margaritifera nacre (mother-of-pearl): physico-chemical and biomechanical properties, and in vitro cytocompatibility]. Rev Chir Orthop Reparatrice Appar Mot. 2003 Jun;89(4):346-52.</p> <p>(#4)</p> <hr/> <p>Kim H, et al. The role of nacreous factors in</p>	<p>(Wang H)</p> <hr/> <p>Pearl stimulates healthy bone growth <i>and</i> inhibits excess bone growth.</p> <p>Allowed for the correct amount of bone growth, without over-growth.</p> <p>(Wang X)</p> <hr/> <p>Pearl stimulates mineralization of bone 3 ½ times faster than conventional compounds. “These studies revealed that (pearl powder) stimulates osteoblast (Inner Bone Growth Cells) differentiation and mineralization by day 6 instead of the 21-day period required for cells grown in normal mineralizing media.” (Rousseau, 2003)</p> <hr/> <p>Pearl made new collagen in inner bone. (Cognet)</p> <hr/> <p>“Anti-osteoporotic agents</p>	<hr/> <p>In vitro, pearl acts 3 1/2 times faster when mineralizing bone when compared to conventional compounds used for mineralization. (Rousseau, 2003)</p> <hr/> <p>Unlike any other</p>
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	<p>preventing osteoporotic bone loss through both osteoblast activation and osteoclast inactivation. Biomaterials. 2012 Oct;33(30):7489-96. doi: 10.1016/j.biomaterials.2012.06.098. Epub 2012 Jul 16.</p> <hr/> <p>Curry JD, et al. Mechanical properties of nacre and highly mineralized bone. Proc R Society London. B. 2001. 268:107-111.</p> <p>Green DW, et al. A Therapeutic Potential for Marine Skeletal Proteins in Bone Regeneration Mar. Drugs 2013, 11, 1203-1220; doi:10.3390/md11041203. Review.</p> <hr/> <p>Oliveira DV, et al. Identification of Proteins with Potential Osteogenic activity present in the water-soluble matrix proteins From Crassostrea gigas nacre using a proteomic approach. Sci World J. Volume 2012, Article</p>	<p>that are able both to inhibit bone resorption and to stimulate bone formation are not available."</p> <p>Our findings thus show that the components of a natural material [pearl] have beneficial effects on bone remodeling that are mediated through regulation of both osteoblast and osteoclast function." (Kim, 2012)</p> <hr/> <p>The structure of pearl makes it amazingly tough.</p> <p>Fig 1. D is microscope photo of pearl structure. You can see how regular it is.</p> <p>Even though pearl is highly mineralized it is NOT brittle; it has a very high bending rate due to its layering structure of protein and minerals.</p> <p>Compares bending strength and hardness of pearl with whale and bovine. (Table 2. Curry)</p> <hr/> <p>Why nacre makes an excellent bone substitute. Scientists identify the proteins in nacre. (Oliveira)</p>	<p>material (except maybe red algae), pearl acts on BOTH mechanisms of bone: inner bone growth (osteoblasts in inner bone) and outer bone resorption (osteoclasts). (Kim, 2012).</p> <hr/> <p>Pearl is the "perfect" bone. Highly mineralized but flexible, tough and strong. (Curry)</p> <p>You want bone to be bendable, not brittle.</p> <p>Curry has quantitative comparisons of bendability whale, cow, pearl</p> <p>Green talks about regeneration of bone with pearl/nacre.</p>
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	<p>ID 765909, 9 pages doi:10.1100/2012/765909</p> <hr/> <p>Mouriès LP, et al. Bioactivity of nacre water-soluble organic matrix from the bivalve mollusk <i>Pinctada maxima</i> in three mammalian cell types: fibroblasts, bone marrow stromal cells and osteoblasts. <i>Comp Biochem Physiol B Biochem Mol Biol.</i> 2002 May;132(1):217-29.</p> <hr/> <p>Research summary.</p> <hr/>	<hr/> <p>In vivo and in vitro studies provide strong evidence of the osteogenic (bone growth) activity of nacre obtained from <i>Pinctada maxima</i> [nacre]. (Mouries)</p> <hr/> <p>Pearl provides calcium, protein, essential amino acids, amino acids, vitamins, plus 50 other minerals</p> <hr/>	<hr/> <p>There is strong scientific evidence that pearl stimulates bone growth.</p> <hr/>
<p>Marine Plant Blend (Brown Seaweed Extract) 75 mg</p>	<p>Velasco-Vázquez J, et al. Bone histology of prehistoric inhabitants of the Canary Islands: comparison between El Hierro and Gran Canaria. Am J Phys Anthropol. 1999 Oct;110(2):201-13.</p>	<p>Marine diet is healthier for bone. Canary Islands comparison between islands; ancient bones pre-Spanish: bones of agricultural diet riddled with holes and crumbly; bones of marine diet, virtually no bone problems.</p> <p>Canary Islands is at the crossroads of ocean</p>	<p>Comparison of two islands: one ate “marine based diet” and one didn’t – ate agricultural foods. The Marine Based Diet skeletons had virtually no bone deterioration – no holes, no crumbling. The Agriculture Diet – half the skeletons were riddled with holes and crumbling</p>

	<p>C K Shaw. An epidemiologic study of osteoporosis in Taiwan. <i>Annals of Epidemiology</i> 06/1993; 3(3):264-71.</p> <p>Changotade SI, et al. Potential effects of a low-molecular-weight fucoidan extracted from brown algae on bone biomaterial osteoconductive properties. Biomed Mater Res A. 2008 Dec 1;87(3):666-75. doi: 10.1002/jbm.a.31819.</p> <p>Young-Sook Choa, et al. Beneficial effects of fucoidan on osteoblastic MG-63 cell differentiation. Food Chemistry. 2009 Oct. 116(4): 990-994.</p> <p>Osteoporosis Treatment: Marine Algal Compounds Ch 32. Jayachandran Venkatesan* Have full text.</p> <p>Nguyen MH, et al. Marine algae possess therapeutic potential for Ca-mineralization via osteoblastic differentiation. Adv Food Nutr Res. 2011;64:429-41. doi: 10.1016/B978-0-12-387669-0.00033-8.</p>	<p>currents that brings crucial seaweed to the islands. Known for its brown seaweeds containing fucoidans.</p> <p>In a multiple linear regression analysis of BMD, significant variables were years since menopause, age, body mass index, and seaweed diet.</p> <p>Fucoidans (in brown seaweed species):</p> <p>In vitro. Low molecular weight fucoidan promotes human osteoblast proliferation and collagen type I expression and favors precocious alkaline phosphatase activity. (Changotade)</p> <p>Fucoidan extracted from the marine brown alga <i>Undaria pinnatifida</i>, significantly induced osteoblastic cell differentiation</p> <p>review of marine algae and osteoporosis.</p> <p>Marine algae support mineralization by stimulating inner bone growth.</p>	<p>bones.</p> <p>Univ of Michigan researcher found that the key dietary variable to prevent osteoporosis in women in Taiwan was eating seaweed.</p> <p>Brown seaweeds promote collagen and inner bone growth.</p>
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<p>Phosphorus 38 mg</p>	<p>Guyton, Arthur C. Textbook of medical physiology, 9th Ed. 1996.</p>	<p>The crystalline salts deposited in the organic matrix of bone are comprised of calcium and phosphate (phosphorus)</p> <p>Vitamin D enhances phosphate (phosphorus) absorption via the gastrointestinal tract.</p>	
<p>Vitamin D3 1000 IU</p>	<p>Vitamin D Council http://www.vitamindcouncil.org/</p> <p>Busse B, et al. Vitamin D deficiency induces early signs of aging in human bone, increasing the risk of fracture. Sci Transl Med. 2013 Jul 10;5(193):193ra88. doi: 10.1126/scitranslmed.3006286</p> <p>[info on D3 and bones. It's well accepted as required for healthy bones.]</p>	<p>Needed for healthy bone formation. 93% of Americans deficient. *</p> <p>Needed to help grow new bones (osteoblasts)</p> <p>Enhances bone building activity of K2 and Red Algae (Aquamin)</p> <p>Vitamin D3 deficiency speeds up bone aging and fractures.</p>	<p>Vitamin D3 enhances effectiveness of both K2 and Red Algae minerals.</p>
<p>Vitamin K2 50 mcg</p>	<p>https://ods.od.nih.gov/factsheets/VitaminK-HealthProfessional/ . Accessed Apr 23, 2018.</p>	<p>Vitamin K is a co-enzyme for Vitamin K dependent carboxylase, an enzyme required for bone metabolism.</p> <p>Osteocalcin is a vitamin K dependent protein that may be involved in bone</p>	

		<p>mineralization and turnover</p> <p>The MK-7 form of Vitamin K2 is well absorbed and has a longer half-life than Vitamin K1</p> <p>Studies associate higher Vitamin K intakes with higher bone mineral density and reduced fractures.</p> <p>A clinical study found that supplementing with the MK-7 form of Vitamin K improved bone strength in post-menopausal women</p>	
<p>Boron 3 mg</p>	<p>17. Hendler SS. PDR for Nutritional Supplements, 2nd Edition. 2008.</p>	<p>Boron has anti-osteoporotic activity</p> <p>In one human study, boron substantially increased serum levels of Vitamin D3</p> <p>Optimal intake of Boron is 2-3 mg per day</p>	