

Glucosamine + MSM® Forte™ Joint health formula

DESCRIPTION

Glucosamine + MSM® Forte™ capsules provided by Douglas Laboratories contain 500 mg of pure glucosamine sulfate and 250 mg of methylsulfonylmethane (MSM®). Ascorbic acid, proanthocyanidins, and bromelain are also included to provide additional aid in maintaining the health of aging joints.

FUNCTIONS

Glucosamine is a naturally occurring amino sugar found in glycosaminoglycans, integral components of the proteoglycans found in joint cartilage. Proteoglycans are large carbohydrate rich structures that provide resiliency, load distribution, shock-absorbing, compressive and lubricating properties to joints and connective tissues. The availability of glucosamine is an integral part of the synthesis of glycosaminoglycans and proteoglycans that are necessary during the constant remodeling that aging cartilage undergoes. Thus, the maintenance of healthy aging cartilage may be improved with enhanced deposition of glycosaminoglycans and proteoglycans. †

Dietary glucosamine serves as an immediate precursor for glycosaminoglycan synthesis, and also stimulates incorporation of other precursors into the connective tissue matrix. Bioavailability of oral glucosamine sulfate is excellent. It is absorbed intact, and utilized very quickly by all tissues, including connective tissues.

Glucosamine sulfate is more efficiently used for connective tissue metabolism than other glucosamine sources, such as cartilage extracts or chondroitin sulfate. In summary, glucosamine sulfate is a well-recognized, highly effective source of glucosamine for glycosaminoglycan and proteoglycan synthesis in all connective tissues, such as cartilage, ligaments, tendons, skin, and bone. †

MSM®, a derivative of DMSO, is a naturally occurring compound of biologically available sulfur, an indispensable element in human nutrition. As part of the amino acids methionine and cysteine, sulfur is required for the structural integrity and function of almost every protein in the body, as well as the glycosaminoglycans of cartilage and other connective tissue. Dietary MSM® serves as a versatile donor of metabolically active sulfur for the synthesis of numerous organosulfur compounds and proteins in the body. As such, MSM® helps maintain normal immune response, lung function, connective tissue metabolism, and muscle contraction. MSM® occurs naturally in a variety of foods, such as fruits, vegetables, cereal grains, milk, and fish. However, MSM® is volatile and easily lost during cooking. MSM® is very well absorbed by the intestinal tract and rapidly distributed within the body. †

Bromelain, a protease from the pineapple plant, reduces the production of prostaglandins by modulating the arachidonate cascade. Its ability to modulate the body's normal physiological processes may reduce the discomfort associated with aging joints. †

Proanthocyanidins, such as those found in red wine, are natural polyphenolic bioflavonoids that are widespread in nature and highly regarded for their strong antioxidant properties, as well as their functions in supporting the body's connective tissues. They have been shown to bind with collagen fibers, thereby protecting from premature degradation. This helps maintain the natural elasticity of collagen in skin, joints, arteries, capillaries, and other connective tissues. †

Although vitamin C has numerous biological functions, foremost, it is essential for the synthesis of collagen which are the building materials of all connective tissues, such as joint cartilage, tendons, blood vessels, skin, and bone. Ascorbic acid (vitamin C) is the required coenzyme for two groups of enzymes that catalyze the cross linking of collagen fibers -lysyl hydroxylases and prolyl hydroxylases. Consequently, vitamin C is essential for the normal structure and function of connective tissue. †

Glucosamine + MSM® Forte™ Joint health formula

INDICATIONS

Glucosamine + MSM® Forte™ capsules may be a useful nutritional adjunct for individuals who wish to support the structure and function of the body's connective tissues, such as cartilage, bone, tendons, ligaments, and skin.

FORMULA (#83909)

Each Capsule Contains:

Vitamin C	50 mg
(Ascorbic Acid)	
Glucosamine Sulfate	500 mg
(from crab and shrimp)	
Methylsulfonylmethane.....	250 mg
(MSM®)	
Proanthocyanidins.....	10 mg
(red wine)	
Bromelain	10 mg

SUGGESTED USE

Adults take 1 capsule daily or as directed by physician.

SIDE EFFECTS

No adverse side effects have been reported.

STORAGE

Store in a cool, dry place, away from direct light. Keep out of reach of children.

Warning: If you have an allergy to shellfish, (including crab and shrimp) you should not use this product.

REFERENCES

Kamarul T, et al. Eur Cell Mater. 2011 Mar15;21:259-71; discussion 270-1.

Braham R, Dawson B, Goodman C. Br J Sports Med. 2003 Feb;37(1):45-9; discussion 49.

Herrero-Beaumont G, et al. Arthritis Rheum. 2007 Feb;56(2):555-67.

Biggee BA, et al. Ann Rheum Dis. 2006 Feb;65(2):222-6.

Kim LS, et al. Osteoarthritis Cartilage. 2006 Mar;14(3):286-94.

Debbi EM, et al. BMC Complement Altern Med. 2011 Jun 27;11:50. doi: 10.1186/1472-6882-11-50.

Glucosamine + MSM® Forte™ Joint health formula

Barmaki S, Bohlooli S, Khoshkharesh F, Nakhostin-Roohi B. J Sports Med Phys Fitness. 2012.

Amirshahrokhi K, Bohlooli S. 2013 Oct;36(5):1111-21. doi: 10.1007/s10753-013-9645-8.

Kim SH, et al. Am J Transl Res. 2015 Feb 15;7(2):328-38.

Omeroğlu S, Peker T, Türközkan N, Omeroğlu H. ArchOrthop Trauma Surg. 2009 Feb;129(2):281-6. doi: 10.1007/s00402-008-0603-0.

Conrozier T, et al. Altern Ther Health Med. 2014 Winter;20 Suppl 1:32-7.

Kelly GS. Altern Med Rev 1998;3:27-39.

Leffler CT, et al. Mil Med 1999;164:85-91.

Qiu GX, et al. Arzneimittelforschung 1998;48:469-74.

Russell AL. Med Hypotheses 1998;51:347-9.

Shankland WE, 2nd. Cranio 1998;16:230-5.

For more information visit douglaslabs.com

† 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.

Manufactured by
Douglas Laboratories
600 Boyce Road
Pittsburgh, PA 15205
800-245-4440
douglaslabs.com



**You trust Douglas Laboratories.
Your patients trust you.**