Stem Cell Support

Aspen Institute for Anti-Aging & Regenerative Medicine

Clinical Applications

- Helps Maintain Healthy Joints*
- Provides Joint Tissue Building Blocks*
- Supports a Healthy Joint Environment by Influencing the Activity of Cytokines, Catabolic Enzymes, and Oxidative Molecules*

Stem Cell Support *is designed to bolster what years of joint use can threaten in active individuals. This breakthrough formula contains critical joint building blocks and other nutrients that work cooperatively to nourish joint tissues and maintain a healthy joint environment. Let Stem Cell Support help you stay active!**

All Aspen Institute for Anti-Aging & Regenerative Medicine Formulas Meet or Exceed cGMP Quality Standards

Distributed By: Aspen Institute for Anti-Aging and Regenerative Medicine
122 W Main Street
Aspen, CO 81611
970-429-4318

Discussion

Years of joint tissue stress, underlying cytokine imbalance, and other factors can upset the equilibrium between anabolic and catabolic processes in the joints. The cooperative ingredients in Stem Cell Support nourish joint tissues and help support balanced metabolic activity within them.*

Green-Lipped Mussel (GLM) (*Perna canaliculus*) Aspen Institute for Anti-Aging & Regenerative Medicine's GLMs are sourced from unpolluted waters off New Zealand and are guaranteed to be pure. They contain glycosaminoglycans (GAGs)—the principal components of cartilage and synovial fluid—as well as eicosatetraenoic acid, which promotes a healthy joint environment.[1,2] GLMs have been shown to inhibit cyclooxygenase and lipoxygenase enzymes.[2,3] Results of a systematic review of human randomized or placebo-controlled trials show that GLM supplementation (900-1200 mg/d) helps maintain healthy joint tissue and function.*[1]

Hyal-Joint® Hyaluronic acid (HA) is responsible for the viscoelastic and lubricating properties of synovial fluid as well as for performing biophysical, biochemical, and cell-regulatory roles in joint synovial tissues. Given these critical tasks, HA has become a focus of proactive joint care. Hyal-Joint is a proprietary rooster comb extract rich in high-molecular–weight HA; it also contains collagen and other GAGs. Research suggests that Hyal-Joint supports the quality of synovial fluid by positively influencing synovial HA concentration and by reducing the expression of degradative factors in synovial fluid.[4-8] Furthermore, scientific evidence shows that Hyal-Joint is two to four times more active than regular HA in nourishing and supporting the health of synovial fluid.[7] This higher degree of activity comes from the unique composition of Hyal-Joint, which naturally contains key ingredients that benefit synovial fluid.*

CS BiO-ACTIVE® Chondroitin sulfate (CS) is a GAG required for the formation of proteoglycans found in joint cartilage. CS is thought to enhance joint health by supporting endogenous synthesis and preventing degradation of other joint GAGs. Oral administration of CS (800-1200 mg/d) has proven to positively influence joint space width, joint comfort, and fluid accumulation.[9-12] The pharmaceutical grade, low-molecular–weight CS in CS BiO-ACTIVE has demonstrated higher bioavailability[13] and greater biological activity[14] than other CS sources. CS BiO-ACTIVE is the reference CS for the European Union Pharmacopoeia, and it was selected by the US National Institutes of Health for their glucosamine/chondroitin trial.[15] In fact, most of the clinical research performed using CS has employed CS BiO-ACTIVE; and in all clinical trials and over 10 years of pharmacovigilance, CS BiO-ACTIVE has shown an excellent safety profile.*

Glucosamine Sulfate Glucosamine is an amino saccharide that research suggests stimulates chondrocytes, supports GAG synthesis, incorporates sulfur into cartilage, induces HA production, and modulates prostaglandin (e.g., PGE2) synthesis.[16-18] Most of the scientific research done on glucosamine has been performed using glucosamine sulfate. Oral doses of 1,500 mg/d show clinical benefits in joint mobility and comfort.[16,19] It is postulated that lower doses may nourish the joint tissues, especially in combination with chondroitin sulfate. Several studies confirm that the benefits of combining glucosamine sulfate and chondroitin sulfate outweigh taking them alone.*[20-22]

Methylsulfonylmethane (MSM) As an organosulfur compound, MSM is thought to primarily benefit joint tissues by delivering sulfur. Sulfur helps maintain the strength and structure of connective tissue by forming cross-linkages through disulfide bonds—such as those found in GAGs.[23] Research suggests that MSM may reduce joint tissue damage triggered by free radicals.[24] One joint study shows that glucosamine and MSM achieve better results when combined than when administered individually.*[25]

Vitamin C and Manganese Vitamin C is essential to the synthesis of collagen and to the maintenance of collagen integrity. Furthermore, an animal study suggests that serum ascorbate levels influence fluid accumulation in the joint.[26] Manganese assists the growth and development of normal bone and the synthesis of cartilage. Pairing manganese with chondroitin and glucosamine in high doses has yielded positive effects on joints,[27,28] and one combination study demonstrated a synergistic protective effect on joints.*[21]

***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.**

Stem Cell Support

Supplement Facts

Serving Size: 2 Capsules
Servings Per Container: 60

	Amount Per Serving	% Daily Value
Vitamin C (ascorbic acid)	38 mg	63%
Manganese (as TRAACS® manganese bisglycinate chelate)	2.5 mg	125%
Methylsulfonylmethane (MSM)	500 mg	**
Green-Lipped Mussel (*Perna canaliculus*)	500 mg	**
Chondroitin Sulfate (as chondroitin sulfate sodium)(CS BiO-ACTIVE®)	300 mg	**
Glucosamine Sulfate Sodium Chloride	300 mg	**
Hyaluronic Acid (from Hyal-Joint®)	15 mg	**

** Daily Value not established

Other Ingredients: HPMC (capsule), ascorbyl palmitate, silica, and medium-chain triglyceride oil.
Contains: Crustacean Shellfish (shrimp and crab)

Hyal-Joint® is a registered trademark licensed by Bioiberica, S.A.

CS BiO-ACTIVE® is a registered trademark licensed by Bioiberica, S.A.

TRAACS® is a registered trademark of Albion Laboratories.

Directions

Take two capsules daily, or as directed by your healthcare practitioner.

Consult your practitioner prior to use. Individuals taking warfarin or other medication should discuss potential interactions with their healthcare practitioner. Do not use if tamper seal is damaged.

References

1. Brien S, Prescott P, Coghlan B, et al. Systematic review of the nutritional supplement Perna Canaliculus (green-lipped mussel) in the treatment of osteoarthritis. *QJM.* 2008 Mar;101(3):167-79. [PMID: 18222988]
2. McPhee S, Hodges LD, Wright PF, et al. Anti-cyclooxygenase effects of lipid extracts from the New Zealand green-lipped mussel, Perna canaliculus. *Comp Biochem Physiol B Biochem Mol Biol.* 2007 Mar;146(3):346-56. [PMID: 17197217]
3. Treschow AP, Hodges LD, Wright PF, et al. Novel anti-inflammatory omega-3 PUFAs from the New Zealand green-lipped mussel, Perna canaliculus. *Comp Biochem Physiol B Biochem Mol Biol.* 2007 Aug;147(4):645-56. [PMID: 17543561]
4. Castillo V, Bendele AM, Li K, et al. Effects of oral administration of Hyal-Joint® in 17 day rat developing type II collagen arthritis. *Osteoarthritis Cartilage.* 2010 Oct;18(Suppl 2):S244-45. doi:10.1016/S1063-4584(10)60572-9. Osteoarthritis Research Society International (OARSI) World Congress; September 23-26, 2010; Brussels, Belgium.
5. Carmona JU, Argüelles D, Deulofeu R, et al. Effect of the administration of an oral hyaluronan formulation on clinical and biochemical parameters in young horses with osteochondrosis. *Vet Comp Orthop Traumatol.* 2009;22(6):455-59. [PMID: 19876524]
6. Torrent A, Ruhí R, Theodosakis J, et al. Comparison of the efficacy of two products sold as orally-administered hylauronic acid supplements, ib0004 and id386 on the endogenous in vitro synthesis of hyaluronic acid by human synoviocytes. *Osteoarthritis and Cartilage* 2009;17(1):S277-78.
7. Torrent A, Ruhí R, Theodosakis J, et al. Comparative efficacy of IB0004, extracted hyaluronic acid (HA) and fermented HA on the synthesis of endogenous HA by human synoviocytes. *Osteoarthritis Cartilage.* 2009;17(Suppl 1):S278-79. [on file]
8. Torrent A, Ruhí R, Martínez C, et al. Anti-inflammatory activity and absorption of a natural rooster comb extract (Hyal-Joint®). *Osteoarthritis and Cartilage.* 2010 Oct;18(Suppl 2):S246-47. doi:10.1016/S1063-4584(10)60577-8.
9. Kahan A, Uebelhart D, De Vathaire F, et al. Long-term effects of chondroitins 4 and 6 sulfate on knee osteoarthritis: the study on osteoarthritis progression prevention, a two-year, randomized, double-blind, placebo-controlled trial. *Arthritis Rheum.* 2009 Feb;60(2):524-33. [PMID: 19180484]
10. Möller I, Pérez M, Monfort J, et al. Effectiveness of chondroitin sulphate in patients with concomitant knee osteoarthritis and psoriasis: a randomized, double-blind, placebo-controlled study. *Osteoarthritis Cartilage.* 2010 Jun;18 Suppl 1:S32-40. [PMID: 20399899]
11. Wildi LM, Raynauld JP, Martel-Pelletier J, et al. Chondroitin sulphate reduces both cartilage volume loss and bone marrow lesions in knee osteoarthritis patients starting as early as 6 months after initiation of therapy: a randomised, double-blind, placebo-controlled pilot study using MRI. *Ann Rheum Dis.* 2011 Jun;70(6):982-89. [PMID: 21367761]
12. Hochberg MC, Clegg DO. Potential effects of chondroitin sulfate on joint swelling: a GAIT report. *Osteoarthritis Cartilage.* 2008;16 Suppl 3:S22-24. [PMID: 18768335]
13. Adebowale A, Du J, Liang Z, et al. The bioavailability and pharmacokinetics of glucosamine hydrochloride and low molecular weight chondroitin sulfate after single and multiple doses to beagle dogs. *Biopharm Drug Dispos.* 2002 Sep;23(6):217-25. [PMID: 12214321]
14. Tat SK, Pelletier JP, Mineau F, et al. Variable effects of 3 different chondroitin sulfate compounds on human osteoarthritic cartilage/chondrocytes: relevance of purity and production process. *J Rheumatol.* 2010 Mar;37(3):656-64. [PMID: 20110528]
15. Barnhill JG, Fye CL, Williams W, et al. Chondroitin product selection for the glucosamine/chondroitin arthritis intervention trial. *J Am Pharm Assoc.* 2006 Jan-Feb;46(1):14-24. [PMID: 16529337]
16. Dahmer S, Schiller RM. Glucosamine. *Am Fam Physician.* 2008 Aug 15;78(4):471-76. [PMID: 18756654]
17. Igarashi M, Kaga I, Takamori Y, et al. Effects of glucosamine derivatives and uronic acids on the production of glycosaminoglycans by human synovial cells and chondrocytes. *Int J Mol Med.* 2011 Jun;27(6):821-27. [PMID: 21455564]
18. Kapoor M, Mineau F, Fahmi H, et al. Glucosamine sulfate reduces prostaglandin E(2) production in osteoarthritic chondrocytes through inhibition of microsomal PGE synthase-1. *J Rheumatol.* 2012 Mar;39(3):635-44. [PMID: 22089456]
19. Selvan T, Rajiah K, Nainar MS, et al. A clinical study on glucosamine sulfate versus combination of glucosamine sulfate and NSAIDs in mild to moderate knee osteoarthritis. *Scientific World Journal.* 2012;2012:902676. [PMID: 22577354]
20. Tat SK, Pelletier JP, Vergés J, et al. Chondroitin and glucosamine sulfate in combination decrease the pro-resorptive properties of human osteoarthritis subchondral bone osteoblasts: a basic science study. *Arthritis Res Ther.* 2007;9(6):R117. [PMID: 17996099]
21. Lippiello L, Woodward J, Karpman R, et al. In vivo chondroprotection and metabolic synergy of glucosamine and chondroitin sulfate. *Clin Orthop Relat Res.* 2000 Dec;(381):229-40. [PMID: 11127660]
22. Clegg DO, Reda DJ, Harris CL, et al. Glucosamine, chondroitin sulfate, and the two in combination for painful knee osteoarthritis. *N Engl J Med.* 2006 Feb 23;354(8):795-808. [PMID: 16495392]
23. Methylsulfonylmethane (MSM). Monograph. *Altern Med Rev.* 2003 Nov;8(4):438-41. [PMID: 14653770]
24. Brien S, Prescott P, Lewith G. Meta-analysis of the related nutritional supplements dimethyl sulfoxide and methylsulfonylmethane in the treatment of osteoarthritis of the knee. *Evid Based Complement Alternat Med.* 2011;2011:528403. doi: 10.1093/ecam/nep045. [PMID: 19474240]
25. Usha PR, Naidu MU. Randomised, double-blind, parallel, placebo-controlled study of oral glucosamine, methylsulfonylmethane and their combination in osteoarthritis. *Clin Drug Investig.* 2004;24(6):353-63. [PMID: 17516722]
26. Simões SI, Eleutério CV, Cruz ME, et al. Biochemical changes in arthritic rats: dehydroascorbic and ascorbic acid levels. *Eur J Pharm Sci.* 2003;18(2):185-89. [PMID: 12594012]
27. Das A Jr, Hammad TA. Efficacy of a combination of FCHG49 glucosamine hydrochloride, TRH122 low molecular weight sodium chondroitin sulfate and manganese ascorbate in the management of knee osteoarthritis. *Osteoarthritis Cartilage.* 2000 Sep;8(5):343-50. [PMID: 10966840]
28. Leffler CT, Philippi AF, Leffler SG, et al. Glucosamine, chondroitin, and manganese ascorbate for degenerative joint disease of the knee or low back: a randomized, double-blind, placebo-controlled pilot study. *Mil Med.* 1999 Feb;164(2):85-91. [PMID: 10050562]

Does Not Contain

Wheat, gluten, yeast, soy, dairy products, fish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, or preservatives.

***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.**

Distributed By: Aspen Institute for
Anti-Aging and Regenerative Medicine
122 W Main Street
Aspen, CO 81611
970-429-4318

DRS-167
REV. 02/15/16