

CHONDRO-FLX



CLINICAL APPLICATIONS

- Supports Joint Integrity and Movement
- Helps Protect Cartilage Cells
- Supports a Normal Inflammatory Response
- Enhances Synthesis of Proteoglycans for Healthy Connective Tissue

MUSCULOSKELETAL HEALTH

What is Chondro-Flx?

Chondro-Flx combines glucosamine sulfate, chondroitin sulfate, vitamin C and bromelain, all of which have a long history of use and a large body of research highlighting their role in supporting joint health. As the key precursors to cartilage formation, the ingredients in Chondro-Flx provide full support for joint integrity and movement and a normal inflammatory response. The formula also includes bromelain to enhance the absorption of chondroitin and vitamin C, an antioxidant that reduces free radicals and is a cofactor to enzymes critical for the synthesis of new collagen.

Overview

Cartilage is composed of collagen fibers that impart tensile strength, and proteoglycan molecules (especially chondroitin) that serve as a cushion for joint impact. Proteoglycan molecules are made of a linear core protein with several hundred molecules of glycosaminoglycans and the protein's core molecules are attached to a hyaluronic acid frame work. Lifestyle factors and age can both contribute to a breakdown of healthy cartilage and lead to discomfort, which can lead to nutrient and fluid deprivation of the affected articular cartilage. While most current therapies simply block the pain of joint discomfort, they also inhibit the regeneration and elongation of chondroitin sulfate polymers that maintain joint health.^[1] The ingredients in Chondro-Flx address the root cause of joint discomfort and provide the precursors that enhance cartilage synthesis for healthy joints and connective tissue.

Glucosamine[†]

Glucosamine sulfate (GS) is a naturally occurring, joint-supporting compound. As a precursor to the primary building

blocks of joint tissue (glycolipids, glycoproteins, hyaluronate, and proteoglycans) it is an important starting point for cartilage synthesis. Meta-analyses have long confirmed positive trends for the use of glucosamine.^[2-4] In an early double-blind, placebo-controlled trial (80 subjects, half received 1.5 g of glucosamine sulfate in 3 divided doses, and the other half received placebo), those given glucosamine had double the joint health benefits compared with placebo (71% vs 41%).^[5] In a double-blind trial of 178 patients with joint discomfort, 1500 mg of glucosamine sulfate led to significant improvement in joint health after four weeks and continued to maintain joint benefits two weeks after treatment was stopped.^[6] A more recent 16-week, randomized, double-blind, placebocontrolled trial (glucosamine-based dietary supplement combined with chondroitin sulfate and three antioxidant micronutrients) showed a synergistic improvement when these ingredients were used in combination. The treatment group showed benefits at all four assessment time points in the test group, but not at any point in the placebo group.^[7] Lastly, a 2013 study of data from a French database of 11,772 adults taking a glucosamine supplement showed a significant positive effect in joint health, functional limitation and quality of life.^[8]

Chondroitin Sulfate[†]

As the major glycosaminoglycan associated with articular cartilage, chondroitin sulfate (CS) is designed to draw water into the joint tissues and hydrate them, allowing for compression when pressure is put on the joint and to rehydrate when the pressure is released. There is a growing body of research supporting the benefits of chondroitin for joint discomfort. A review of seven clinical trials (327 total patients in which CS was compared with placebo for 120 days or more) revealed it to

[†] 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.

be significantly superior to placebo.^[9] Key research in the use of chondroitin sulfate confirmed the use for knee^[10,11] and finger joint benefits.^[12] A one year, randomized, double-blinded, placebo controlled study of patients with knee discomfort showed a significant positive effect in joint health and mobility in patients taking CS (800 mg/day) compared to placebo.^[13] CS has also been shown to support normal inflammatory response, with an affinity to synovial cartilage and to have metabolic effects on synthesis of hyaluronate and cartilage proteoglycans. CS has also been shown to inhibit cartilage degrading enzymes (collagenase, elastase, proteoglycanase).^[14]

Chondroitin Sulfate - Bioavailability Considerations†

The importance of bioavailability is obvious: If consuming chondroitin sulfate has little effect on joint health, there is no reason to ingest it. Studies show that oral doses are well-absorbed and have a high affinity to cartilaginous tissues. This, however, is dependent on the size of chondroitin sulfate particles that are selected.^[15] It is well established that the molecular weight (particle size) of chondroitin sulfate has a direct influence on its permeability and absorption. A study at the University of Maryland examining random retail chondroitin sulfate products showed that a majority of products use large molecular weight, acid-hydrolyzed chondroitin particles. These particles are inconsistent in size and too large to be absorbed in the intestine. The chondroitin sulfate in Chondro-Flx is enzymatically processed providing consistently small, highly absorbed chondroitin molecules ensuring the best results.

Bromelain†

Bromelain is a protease derived from pineapple stems that helps to maintain a normal inflammation response by affecting both the kinin and fibrin pathways. Bromelain also increases the absorption of chondroitin sulfate.^[16]

Synergy†

A number of studies support the synergy of glucosamine and chondroitin when co-supplemented. A double-blind, placebocontrolled, cross-over trial with placebo using GS (1500 mg/day) and CS (1200 mg/day), with 228 mg of manganese ascorbate in 34 males with discomfort in the knee and low back (U.S. Navy diving and special warfare communities),^[17] showed statistical significance for the knee after 4 months, although the results for the spine were inconclusive.

Directions

1 capsule three times per day on an empty stomach or as recommended by your health care professional.

Does Not Contain

Gluten, corn, yeast, artificial colors and flavors.

Cautions

If you are pregnant or nursing, consult your physician before taking this product.

V2		
Supplement Facts		
Serving Size 1 Capsule		
Servings Per Container 90 & 180		
1 capsule contains	Amount Per Serving	% Daily Value
Vitamin C (as Ascorbic Acid USP)	20 mg	33%
Glucosamine Sulfate Potassium Chloride	500 mg	*
Chondroitin Sulfate	267 mg	*
Bromelain (2,400 GDU/g) (from Pineapple)	15 mg	*
* Daily Value not established		

ID# 537090 90 Capsules

ID# 537180 180 Capsules

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