



Glucosamine and Chondroitin For Treatment of Osteoarthritis

Some very important pertinent new information has been recently published in The Journal of The American Medical Association (JAMA) March 15, 2000. A review article was written on the Glucosamine and Chondroitin treatment of osteoarthritis. The article originated from The Arthritis Center at Boston University School of Medicine, Boston, Massachusetts.

The context of the article was that Glucosamine and Chondroitin preparations are widely touted in the lay press as remedies for osteoarthritis, but uncertainty about their efficacy exists among the medical community.

The objective of the article was to evaluate the benefit of Glucosamine and Chondroitin preparations for osteoarthritis symptoms using meta-analysis combined with systematic quality assessment of clinical trials.

The summary of the review from The Arthritis Center, Boston University School of Medicine, was that the reviews found that the trials of Glucosamine and Chondroitin preparations for osteoarthritis symptoms demonstrated moderate to large effects, but there were some problems that have been associated with exaggerated estimates of benefit. The article further stated that overall it seemed probably that Glucosamine and Chondroitin do have efficacy in treating osteoarthritis and they are safe. Because of this, they may have considerable utility in osteoarthritis treatment. The arthritis unit recommended further high-quality, independent studies to further determine the efficacy and utility of Glucosamine and Chondroitin.

Attempting to study the actual effects of the supplements is very difficult. There are large variables in how the studies are conducted and how the estimates of benefit are measured.

Studies such as this from a respected institution certainly give us additional reason to recommend Glucosamine and Chondroitin to our patients with osteoarthritis of a mild to moderate degree. These preparations can never relieve the symptoms of severe osteoarthritis in which the bone is actually touching within the joint.

Of interest, perhaps regarding the origin of Glucosamine and Chondroitin, we offer the following. The commercial source of Chondroitin sulfate are the cartilaginous rings of bovine trachea. Glucosamine is an amino sugar extracted from the chitin in crustacean shells.

Addendum

Oral Glucosamine Sulfate not only improves symptoms of knee osteoarthritis, but it also appears to slow the progression of the disease, according to a study in the Archives in Internal Medicine.

Glucosamine Sulfate is the first agent for osteoarthritis to meet current criteria for classification as both a symptom and structure modifying drug.



The study included 202 patients, ages 45 to 70, with mild to moderate osteoarthritis of the knee. The participants were randomly assigned to receive oral Glucosamine Sulfate 1500mg once a day or a placebo.

X-rays showed that patients who received the placebo for three years experienced a progressive narrowing of joint space. By contrast, joint space remained stable in those taking Glucosamine for same three year period.

There was no report of any differences in treatment outcome related to gender.

These findings, according to the authors, show that long term oral administration of Glucosamine Sulfate for three years can delay the natural progression of knee osteoarthritis warranting further assessment of this agent as a primary osteoarthritis therapy.

Addendum

Oral Glucosamine and Chondroitin Sulfate appear to provide symptomatic relief in patients with osteoarthritis. Both supplements seem to be well tolerated and generally cause few side effects.

Symptoms that can appear with Glucosamine include gastrointestinal discomfort such as nausea and diarrhea, drowsiness and headache. Symptoms associated with Chondroitin use include epigastric pain and nausea.

Of particular interest is that Glucosamine and Chondroitin have no known drug or food interactions.

Diabetes

Although no long term studies of Glucosamine side effects have been published, one study did point out that possible long term effect of Glucosamine in diabetes is that since Glucosamine plays a role in glucose metabolism, it can increase insulin resistance.

Whether this is something that would affect the individual diabetic patient could be easily monitored by keeping track of blood sugar values when tested to see if they are increasing when the person is taking Glucosamine for arthritis. If the insulin seems to be as effective as it always was, then there would be no reason to be concerned about taking Glucosamine.

Both Glucosamine and Chondroitin are the fundamental building blocks of articular cartilage. These building blocks are precursors of a substance called proteoglycan, which is a main component of articular cartilage. The Glucosamine and Chondroitin seem to stimulate proteoglycan synthesis.

If Glucosamine and Chondroitin are effective in the treatment of osteoarthritis, they really are better than NSAID therapy because with NSAID therapy the underlying pathology of the osteoarthritis remains unchanged. Furthermore, because of joint overuse secondary to pain relief, it is possible that the analgesic effect of the NSAIDs may hasten adverse changes in the joint, making the arthritis even worse. Other well



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known and undesirable adverse effects of NSAIDs include drug reactions, gastrointestinal disturbance and alteration in the blood coagulation pathway.

Nutraceutical Chemistry

For all of you chemists out there, Glucosamine is an aminated molecule of glucose and is the principal component of Glycosaminoglycan, a high molecular weight linear heteropolysaccharide which forms the matrix of all connective tissues.

Glucosamine Sulfate is the sulfate salt of Glucosamine and is the most commonly used form in supplementation. It is produced from chitin, the second most common polymer on earth found in the exoskeletons of many invertebrates.

Chondroitin Sulfate is one of the predominant Glycosaminoglycans found in articular cartilage. It is a mucopolysaccharide polymer consisting of repeating disaccharide subunits of Galactosamine sulfate and Glucuronic acid. Chondroitin is obtained from either natural sources such as shark and bovine cartilage or synthetic processing.



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Thomas J. Haverbush, MD. P.C.

**Office Address:
315 E. Warwick Dr., Suite A
Alma, Michigan 48801
989-463-6092
Fax 989-463-8914**

**Website Address:
www.orthopodsurgeon.com**