Dynamic Chiropractic

VITAMINS / SUPPLEMENTS

Research Update on Glucosamine and Chondroitin - 2004

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It has been a few years since I wrote about glucosamine and chondroitin. At that time, ivory tower academics in the United States were less than impressed (in this author's opinion) with some very impressive research from our friends across the Atlantic. That did not stop the alternative community from keeping an open mind, and it did not prevent people in pain from giving glucosamine and chondroitin a try.

In the last decade, we have learned the following about glucosamine and chondroitin:

1. It works for most people with mild to moderate arthritis.
2. Not every brand is bioavailable or contains what is claimed on the label. This is especially true of chondroitin sulfate.
3. There are both slow and faster responders.
4. If there is no change in 90 days, assuming proper dosing and product purity, the patient is likely a nonresponder.

This month, let's review some recent studies on glucosamine and chondroitin. (For an easy-to-understand biochemical background on glucosamine and chondroitin, please see "Glucosamine, Part I" in the May 18, 1998 issue; "Glucosamine, Part II," in the June 15, 1998 issue; and "Glucosamine, Part III," in the July 13, 1998 issue.

New Research

1. I usually shy away from animal studies, but this one is worth mentioning. In this case, researchers found that the metabolic response of aged cartilage to glucosamine was much better than young tissue.[1]
2. In a six-month study of 72 people with mild to moderate osteoarthritis of the knee, and 21 people with severe osteoarthritis of the knee, subjects were given either 2,000 mg of glucosamine hydrochloride, 1,600 mg of chondroitin sulfate and 300 mg of manganese ascorbate, or a placebo.

Results after six months:

	Improvement	Side-Effects
G + C + Mn	52%	17%
Placebo	28%	19%

In patients with severe osteoarthritis, the improvement was not statistically significant.[2]

1. In a large study, 212 people took either 1,500 mg a day of glucosamine sulfate or a placebo. After five years, 177 were available for follow-up (glucosamine - 91; placebo - 86). Joint space narrowing of the knees was 0.29 mm in the glucosamine group and 0.69 mm in the placebo

group.[3]

2. Type-II diabetic patients in a double-blind, placebo-controlled, randomized trial received either a daily dose of 1,500 mg per day of glucosamine hydrochloride and 1,200 mg per day of chondroitin sulfate, or a placebo. After 90 days, the researchers determined that glucosamine hydrochloride and chondroitin sulfate did not alter glucose metabolism in type-II diabetics. This included glycosylated hemoglobin A1c, which is an important marker of elevated glucose.[4]
3. In a study of 37 men and 13 women with a mean of age of 42 years and suffering from nonspecific knee pain, 2,000 mg of glucosamine hydrochloride or a placebo preparation was given. After 90 days, 88% of those taking glucosamine and 17% of those taking placebo reported a reduction of "regular" knee pain.[5]
4. Thirty-four United States Navy Diving and Special Forces team members with chronic lower back pain and knee pain were studied. X-rays showed degenerative joint disease in the low back and knees of all subjects. One group received 1,500 mg a day of glucosamine hydrochloride, 1,200 mg of chondroitin sulfate, and 228 mg a day of manganese ascorbate for four months. The other group took a placebo preparation. After four months, knee symptoms in the glucosamine and chondroitin group were reduced by 16% compared to placebo. There was no effect, positive or negative, for pain in the lumbar spine.[6] (Note: Although I have patients with spinal arthritis who swear by glucosamine and chondroitin, in blind studies, the response of the spine has been unimpressive compared to the extremities.)
5. I have been skeptical of topical glucosamine and chondroitin, and have not recommended it to my patients or doctors who write or call. This final study involved 30 (15 + 15) men and women with a mean age of 62. It lasted eight weeks and compared a cream that contained 50 mg of chondroitin sulfate per gram, 30 mg of glucosamine sulfate per gram, 140 mg of shark cartilage per gram, 32 mg of camphor per gram, and 90 mg of peppermint oil per gram to a placebo cream.

At four weeks, the glucosamine and chondroitin group had slightly less pain than the placebo group. At eight weeks, the glucosamine and chondroitin group continued to show improvement, although the rate of improvement in the second four weeks was 40% less than in the initial four weeks. The authors calculated a transdermal absorption rate of approximately 30%. This equated to approximately 225 mg of chondroitin sulfate and 90 mg of glucosamine sulfate delivered dermally each day. Although the improvement was slight, it was statistically significant.[7]

This information may be useful for patients who are unable to tolerate oral glucosamine and chondroitin. I am looking forward to larger studies using topical glucosamine and chondroitin and will report on them in this column, regardless of the results.

References

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