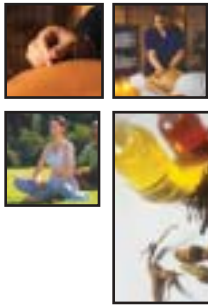




Glucosamine

An Osteoarthritis Alternative

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Osteoarthritis is difficult to treat. Due to the major side-effects of non-steroidal anti-inflammatory drugs (NSAIDs), it is helpful to have other substances to control symptoms.

Glucosamine is an aminomonosaccharide, a normal constituent of glycosaminoglycans in cartilage matrix and synovial fluid.

It is believed glucosamine may have a chondroprotective and anti-inflammatory effect. Furthermore, experiments in animals have suggested circulating glucosamine can localize in cartilage.

What are the concerns?

A number of studies have reviewed the anti-osteoarthritic effects of glucosamine; however, some experts are concerned results may be skewed because only mild to moderate osteoarthritis has been studied. Further, two major glucosamine studies (Reginster and Pavelka) had large dropout rates and the one study that did include more severe symptoms did not show a difference between placebo and glucosamine.¹

A study reported in *Arthritis and Rheumatism* in October 2004 found that in patients who were already taking glucosamine and were taken off the substance, there was no difference in the flares of their osteoarthritis of the knee compared to placebo. Critics also say that because there is no regulation in the production of glucosamine, there may be a

A review of the studies

There are a number of systemic reviews that have found glucosamine better than placebo for the treatment of osteoarthritis.

McAlindon *et al.*²

- Reviewed 15 randomly assigned, double-blind, controlled trials of more than four weeks duration for osteoarthritis of the knee and hip
- Found glucosamine had a positive effect on symptoms

Richy *et al.*³

- Metanalysis of glucosamine use and chondroitin for osteoarthritis of the knee
- Found glucosamine has a highly significant beneficial affect on symptoms and joint space narrowing
- Chondroitin was also found to cause a significant improvement in pain and mobility
- Safety is excellent for both compounds

Reginster *et al.*⁴ & Pavelka *et al.*⁵

- Followed patients with mild to moderate osteoarthritis of the knee for three years.
- Both found glucosamine-treated group had better functional outcomes and reduced narrowing of the tibiofemoral joint space

Some other studies...

- One study followed 212 patients over three years and found patients with less severe radiographic knee osteoarthritis had the best result in terms of progression of joint space narrowing
- Another study showed glucosamine to be of similar efficacy to ibuprofen; the conclusion was that glucosamine was effective in relieving joint pain associated with osteoarthritis and could be used as an alternative to anti-inflammatory drugs and analgesics or as an adjunct to standard analgesic therapy

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wide variation in what is actually present in the products being sold.

What are the side-effects?

All studies found the side-effects of glucosamine no greater than placebo.

Because altered glucose metabolism can be associated with parenteral administration of large doses of glucosamine in animals, one study looked at the clinical

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trial data of 3,063 human subjects. Fasting plasma glucose values decreased slightly for subjects after 66 weeks of oral glucosamine, but there were no adverse effects of oral glucosamine administration on blood, urine or fecal parameters. Further, side-effects were significantly less common with glucosamine than placebo or NSAIDs.

Another study demonstrated oral glucosamine supplementation does not result in clinically significant alterations in glucose metabolism in patients with Type 2 diabetes mellitus. Glucosamine recipients

had a markedly lower incidence of gastrointestinal disturbances than those receiving ibuprofen.

Since glucosamine sulphate is a salt and contains sodium, it may increase blood pressure. Although there is no clear research showing the benefit of glucosamine hydrochloride, it is often used in patients with hypertension or who are on a salt-restricted diet.

Some final thoughts

There seem to be enough clinical studies to warrant use of glucosamine sulphate at a dose of 500 mg three times daily. Often, the pills also contain chondroitin, which may improve symptom scores. Sometimes it takes four weeks for any clinical improvement. **Dx**

References

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