

# Still the One Glucosamine

by Margy Squires

**A**s the baby boomers push into their 50's and 60's, that noise you may be hearing could be the crackling and creaking of aging bones in motion. An estimated 43 million Americans have one or more forms of arthritis, according to the Center for Disease Control. Osteo or "aging" arthritis is the most common form. Time, trauma and normal wear and tear turn a once well-lubricated knee, hip or shoulder into joints crying out for help. As new discoveries promise to "make you feel young again", don't overlook this tried and true answer for joint health: glucosamine sulfate (GS).

The fact is that GS is the most widely studied and has the longest history of successful use as a joint supplement. Glucosamine was so effective in a 2001 Belgian Study that the Arthritis Foundation reversed its stand and published approval for its use on osteoarthritis (OA) of the knee. The study, which followed 212 patients for three years, conclusively showed GS relieved pain and slowed cartilage destruction via (before and after) x-ray documentation.

OA is classified as the breakdown of cartilage that cushions joints, resulting in bone on bone pain and loss of function. It makes sense then to look at glucosamine as a viable therapeutic option. As the primary ingredient for collagen and cartilage matrix, glucosamine supplies the necessary building blocks known as proteoglycans and glycosaminoglycans to repair and maintain joint integrity. These building blocks attract water and nutrients to keep joints lubricated and flexible. As we age, repair mechanisms slow down. By supplementing GS, we stimulate production again so the body can actually rebuild joint linings. Most studies show that three months of continuous use at 1500 mg daily (typically 500 mg three times a day) reduces arthritic and joint pain and stiffness while increasing mobility. People with OA of the knee could walk further distance and without pain. Glucosamine even did better in some studies when tested against the non-steroidal anti-inflammatory (NSAID) agents, including ibuprofen.

Two glucosamine studies were presented at the 2005 American College of Rheumatology annual scientific meeting: GAIT and GUIDE. Both are summarized here. Since arthritis affects three times more women than men, statistics for the women participants are included.

**The GAIT Study.** The recently completed and published study funded by the National Institutes of Health (NIH) is the Glucosamine/Chondroitin Arthritis Intervention Trial (GAIT). This was the first multi-center trial in the U.S. to test dietary supplements for treating and preventing osteoarthritis and included 16 U.S. academic rheumatology centers and almost 1,600 participants (64% women). Patients were divided into subset groups and treated with glucosamine, chondroitin, a combination of the two, Celebrex and placebo for control. At the conclusion of 24 weeks, 79% on the glucosamine-chondroitin combination group had a 20% or greater reduction in pain. At first glance, 20% seems low; however, the subset size was small. Still, the NIH concluded "participants with moderate-to-severe pain had...statistically significant pain relief compared to placebo". The study researchers suggested that due to the size of subset, "findings should be considered preliminary and need to be confirmed in further studies". When you look at pain, however, the numbers look more impressive: 69.4% experienced relief on Celebrex, 65.7% on glucosamine alone and 61% on chondroitin alone. This is encouraging news, given the side effects of drug therapy.

**The GUIDE Study.** The European *Glucosamine Unum In Die Efficacy* (GUIDE) study compared 1500 mg of GS once a day against



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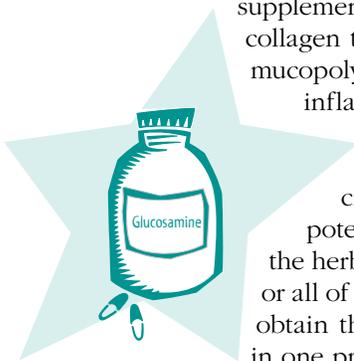
## Glucosamine

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acetaminophen 1000 mg three times a day or placebo. Participants included 318 patients (88% women) in 13 hospitals for six months. Gabriel Herrero-Beaumont, M.D., lead study director, Spain, states, "Based on these results, physicians who typically recommended acetaminophen may well find their patients gain more comfort taking glucosamine sulfate." The study concluded that GS "may be the preferred treatment for symptoms of the knee OA". GS is available only by prescription in Europe.

While many people may reach for NSAIDs for faster symptomatic relief, they're risking their joints in the long run. NSAIDs do not provide the body with what it needs to rebuild and may cause more destruction. What's more, NSAID use causes the potential gastric side effects (including bleeding). Worse, Cox-2 inhibitors are linked with adverse cardiovascular events, which resulted in a drug recall on one brand, Vioxx. A drug trial for Alzheimer's with Celebrex was halted by the NIH for similar safety reasons. The FDA felt that the heart risk warranted new labeling laws on Cox-2 selective and non-selective (NSAID) prescription and similar over-the-counter drugs in 2005. Glucosamine may take longer for pain relief but may be well worth the wait.

Although there are other supplements being touted for joints, GS is typically included in formulations because of its documented track record. Simply put, we already know it works. Another joint helper, chondroitin, hit fame when a popular book claimed it could cure arthritis, and was included in the GAIT study. Hyluronic acid is a glycosaminoglycan found in the synovial fluid of joints and had its start as an injectible agent. Time will tell if the oral form is as effective. Vitamin C is a required component of collagen. Other collagen supporting supplements include MSM and chicken collagen type II, a form that preserves the mucopolysaccharides (fatty esters) to fight inflammation. Celestin is a patented fatty esters product, but most studies done were on topical cream application. Ursolic acid is a potent anti-inflammatory agent from the herb, rosemary. A combination of any or all of these into a formula allows you to obtain the benefits of several ingredients in one product.



**Summary** Newer products may enter the market but glucosamine sulfate already has an excellent solo track record. GS is a good first line defense in maintaining joint integrity by supplying the building blocks necessary to repair cartilage and restore joint flexibility, function and reduce pain. GS works so well for knees OA, think what it can do for the rest of your joints! Taken proactively, GS may reduce the risk of developing joint problems. Of note, if you have both OA and fibromyalgia, you may want to consider glucosamine. Decreasing any joint pain may reduce overall body pain. If

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you want to try GS but are currently taking an NSAID, talk to your doctor about starting GS for three months before weaning off any medications.

*Caution: Most glucosamine sulfate is from shellfish sources. People with sensitivity to shellfish should consider the vegetarian form TyH carries.*

### Resources

1. Arthritis Foundation. [www.arthritis.org](http://www.arthritis.org).
2. ACR 2005 Scientific Meeting, Presentation #1203: Effects of glucosamine sulfate on 6-month control of knee osteoarthritis symptoms vs placebo and acetaminophen: results from the *Glucosamine Unum in Die Efficacy* (GUIDE) trial. [www.rheumatology.org](http://www.rheumatology.org).
3. Center for Disease Control. [www.cdc.gov/arthritis](http://www.cdc.gov/arthritis).
4. Clegg et al. Glucosamine, Chondroitin Sulfate, and the two in combination for painful knee osteoarthritis. *N Eng J Med*: 354, 795-808, 2006.
5. FDA Cox 2 Label Requirements. [www.fda.gov/cder/drug/infopage/cox2](http://www.fda.gov/cder/drug/infopage/cox2)
6. Reginster J, Deroisy R, Rovati L, et al. Long-term effects of glucosamine sulphate on osteoarthritis progression: a randomised, placebo-controlled clinical trial. *Lancet* 2001;357:251-6.

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