

Is glucosamine supplementation for joints okay and effective? ^[1]

Dear Alice,

Is it true that taking a glucosamine supplement might improve joint strength and mobility? What exactly is glucosamine? Are there any side effects of taking glucosamine? And, if it is a good idea to take it, what dosage is recommended?

Many thanks.

Answer

Dear Reader,

Glucosamine, a combination of glucose and glutamine, is found naturally in the body and contributes to the formation of cartilage, which cushions joints. As the body undergoes wear and tear, its ability to replace cartilage slows or stops, resulting in osteoarthritis. Though some people take glucosamine supplements to prevent or treat osteoarthritis, there isn't conclusive evidence to support their effectiveness. There also isn't any evidence to indicate that it would improve joint strength. There are a few different types of glucosamine, with sulfate, hydrochloride (HCL), and N-acetylglucosamine being the most common. Although they function similarly, they're considered completely different substances, due to the fact that they act differently in the body. Glucosamine sulfate has been studied more extensively, so there's a suggested dosage, but there isn't enough evidence for an appropriate dose of glucosamine HCL or N-acetylglucosamine. As such, it's best to talk with a health care provider before taking any glucosamine supplements to ensure that it's appropriate for you.

In the United States, glucosamine sulfate and glucosamine HCL have been studied in clinical trials and are often found over the counter (OTC) as dietary supplements. Glucosamine sulfate naturally occurs in the body and helps produce chemicals that are used to build ligaments, cartilage, and tendons. This supplement is most often used to relieve pain associated with osteoarthritis, and there's some evidence to suggest it may slow down the degeneration of joints and cartilage and fluid around the joints. It's worth noting that these supplements may relieve pain in joints, but there isn't conclusive research to suggest it helps joint stiffness or function.

Compared to non-steroidal anti-inflammatory drugs (NSAID) pain relievers such as ibuprofen and aspirin that provide more immediate relief, glucosamine sulfate may take four to eight weeks to relieve pain. Even after taking glucosamine supplements, particularly glucosamine sulfate, OTC pain medications may still be necessary for pain flare-ups, but these supplements provide an alternative for those who can't take NSAIDs for pain relief. In a three year study where participants were asked to use 1,500 milligrams of glucosamine sulfate daily, no severe side effects were reported. The most common side effect was mild gastrointestinal discomfort, with additional short-term side effects including drowsiness, skin reactions, and headache. Glucosamine sulfate isn't recommended for children or those who are pregnant or nursing.

Similarly, glucosamine HCL is a naturally occurring amino sugar found in the body. Though glucosamine sulfate is considered more effective, glucosamine HCL has been found to provide relief for knee pain and joint swelling and may provide pain relief for those suffering from rheumatoid arthritis. Glucosamine HCL dosage hasn't been studied as sufficiently.

Another form of glucosamine is N-acetylglucosamine. Originating from the outer shells of shellfish and not naturally produced in the human body, this compound may not have the same effects as other forms of glucosamine. N-acetylglucosamine is often used for osteoarthritis and inflammatory bowel disease, but there's insufficient evidence to conclude its effectiveness. It's also often combined with glucosamine sulfate and glucosamine HCL in products. Despite this, no human studies have evaluated these combinations in terms of effectiveness for treating osteoarthritis. N-acetylglucosamine may help to protect the lining of the stomach and intestines and doesn't seem to raise blood pressure or cholesterol levels, but there's not enough evidence to determine its safety as a supplement. In addition, there haven't been any reports of allergic reactions for those who are allergic to shellfish.

Because the glucosamine compound is a sugar (monosaccharide), those with diabetes are advised to have their blood sugar monitored by a health care professional for the first few weeks. Those with asthma or glaucoma, going into surgery, taking medication for cancer, and taking warfarin (a prescription blood thinner) are all advised to avoid the supplement or take it under the supervision of a health care provider. Glucosamine supplements are manufactured from the chitin exoskeleton of shellfish (lobster, crab, and shrimp), and although the pharmaceutical grade of these glucosamine supplements are generally devoid of shellfish contaminants, it's recommended that people with severe shellfish allergies exercise caution when taking this supplement.

Overall, studies have shown that glucosamine sulfate and HCL help slow degeneration of cartilage, relieves pain, and it's believed that N-acetylglucosamine has antioxidant factors. With that being said, because glucosamine is classified as a natural health product, it's held to a lower standard of purity and potency than prescription medications. A recent independent study revealed that up to one-third of glucosamine products didn't contain the amount of glucosamine stated on the label. Additionally, the glucosamine supplements may not clearly label which types of glucosamine are in the supplement. For example, there are times when glucosamine HCL will actually be labeled as glucosamine sulfate. As per the Food and Drug Administration (FDA) guidelines, supplements need to have a manufacturer's certificate of analysis or a third party true-to-label claim document to verify the purity and potency of the products. Therefore, what you see may not always be what you get! For more info on alternative health products, check out the [Holistic & Integrative Health](#)

[2] section of the *Go Ask Alice!* [General Health](#) [3] archives.

Take care,

Alice!

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