

About the Quality of Glucosamine

Glucosamine is a widely used ingredient that occurs naturally in the body of warm-blooded animals, and forms an important building block of joint cartilage. Glucosamine may help build tissue that holds water providing cartilage thickness and giving it a cushioning effect. Dozens of scientific studies with animals and humans have clearly demonstrated that dietary supplementation of glucosamine in combination with chondroitin, another building block of cartilage, benefits connective tissues. The best-known clinical study is the 4-year one known as the Glucosamine/chondroitin Arthritis Intervention Trial (GAIT), conducted at 16 sites across the United States. This double-blind, placebo-controlled study was sponsored by the government funded National Institute of Health (NIH), and was published in 2005 in the New England Journal of Medicine. This study, which enrolled nearly 1,600 patients, showed that when Glucosamine and Chondroitin were used in combination, they resulted in relief of knee pain in nearly 79% of patients with moderate to severe osteoarthritis; significantly more than either the placebo control group, or patients that were treated with the common NSAID drug Celecoxib (Celebrex).

Origin

Nearly all glucosamine originates in China and nearly all is produced from shellfish. The quality of glucosamine varies and is sometimes not of the expected purity. Several consumer studies have brought to light that glucosamine products sold in stores contain between 0% and 115% of the glucosamine claimed on the labels. This is not to say that manufacturers add less than the desired amount on purpose, but rather that the glucosamine used is of dubious quality. Another problem with commonly used glucosamine is that people who are shellfish intolerant may respond adversely to shellfish-derived glucosamine, even though the chemical process should eliminate almost any proteins present in the source material.

Glucosamine Sulfate of Glucosamine HCL?

Pure glucosamine molecules are chemically unstable, and manufacturers of glucosamine products must therefore purchase a stabilized form of this molecule, which is done by converting it into a salt. Typical forms of glucosamine salts are [glucosamine.HCl], better known as glucosamine hydrochloride, and [glucosamine.SO₄.2KCl], or glucosamine sulfate. There is a fair amount of controversy about which salt form is easiest assimilated by the body, although in reality both salts, in the pure form, deliver equally effective amounts of the desired glucosamine to joint cartilage. The explanation is straightforward; in the acidic environment of the stomach, the stable glucosamine salt molecule is quickly ionized into a positively charged glucosamine ion and a negatively charged chloride or sulfate ion. Only the pure glucosamine relates to the observed benefits relative to osteoarthritis.

There is another important difference between the two forms, however, and that is the weight of the glucosamine molecule. The SO₄.2KCl portion of the sulfate salt form is much heavier than the HCl portion of the hydrochloride form. Another way of looking at this is, that one molecule of glucosamine chloride contains approximately 80% pure glucosamine, while one molecule of glucosamine sulfate contains only about 60%. Therefore, glucosamine hydrochloride yields considerably more pure glucosamine, and it takes therefore less of the hydrochloride salt form to derive at the same absolute label claim of glucosamine than when using the sulfate salt form, so that the tablets can be smaller.

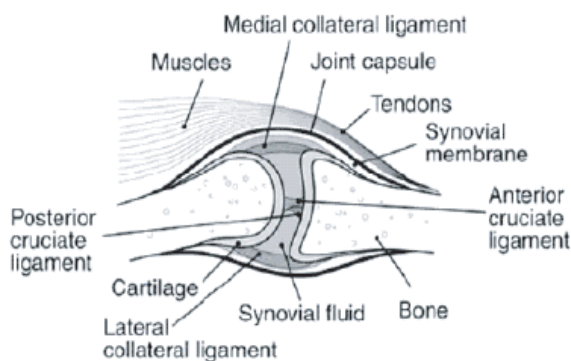
A word of caution when comparing concentrations of glucosamine present in products from different manufacturers; it is important to notice whether the label claim is presented as pure glucosamine or as the glucosamine salt. For example, a label claim of 400 mg glucosamine (as glucosamine sulfate) is very different from a claim of 400 mg glucosamine sulfate, which would represent only 240 mg glucosamine.

Regenasure® Vegetarian Glucosamine

Cargill, an international provider of food and agricultural products, is the sole producer of a patented, vegetarian form of glucosamine, i.e., a non-shellfish, non-animal derived form of this popular ingredient. This form of glucosamine is marketed under the brand name Regenasure® glucosamine. The stabilized chemical form of this molecule is the hydrochloride salt, as this form yields the most glucosamine per unit weight.

Nevertheless a major disadvantage of this vegetarian glucosamine is that it costs about two to three times as much as the more popular animal-derived forms of glucosamine. Regenasure® glucosamine is pharmaceutical grade and therefore of the highest possible purity, and is produced by means of a unique and patented fermentation process. Not only is Regenasure® glucosamine of high quality, it also is obtained from corn and therefore not subject to the shortcomings of animal-derived glucosamine. This important fact is a major benefit to people and pets allergic to shellfish.

Healthy Joint



Unhealthy Joint

