



Glucosamine

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Common Uses

Glucosamine is a naturally occurring sugar that is a basic building block of several important constituents of articular (joint) cartilage¹. Some foods, such as shellfish, are relatively rich in glucosamine. Most commercially available supplements contain synthetically manufactured glucosamine sulphate, glucosamine hydrochloride or N-acetyl-D-glucosamine (NAG)¹.

Glucosamine is commonly used for the relief of pain and symptoms associated with osteoarthritis and other joint disorders^{1,2}. A Cochrane review identified 16 RCTs, involving a total of 2,029 patients, comparing glucosamine against placebo or an NSAID³. Seven RCTs involving placebo, which included pain relief as a measurable outcome, found that glucosamine gave greater pain relief. Furthermore, three of the RCTs, which included pain relief as a measurable outcome, found that when glucosamine was compared against an NSAID, it provided at least as much pain relief. A second review identified six placebo-controlled trials, involving a total of 911 patients, which evaluated glucosamine in osteoarthritis. It concluded that these trials do demonstrate a moderate effect on symptoms but quality issues and likely publication bias resulted in exaggeration of these effects; despite this some degree of efficacy appears probable⁴.

A randomised double-blind study, involving 212 patients, has shown a reduction in joint changes for patients treated with glucosamine for 3 years compared to placebo⁵. Whether these joint changes are of clinical significance is not clear from this study and further work is needed to determine if glucosamine has a role as a disease-modifying agent. However, a recent review concluded that glucosamine 1500mg daily is a reasonable choice for the treatment of osteoarthritis of the knee; further work is needed for its use at other sites of the body⁶.

In trials oral, intraarticular, intramuscular and intravenous routes of administration have been used². The majority of studies have used oral glucosamine in tablet or capsule form and these are widely available.

Side Effects^{1,2}

The following side effects have been reported and are usually infrequent and mild: gastrointestinal symptoms (e.g. nausea, vomiting, constipation, diarrhoea and dyspepsia), rash, drowsiness, headache and insomnia.

Drug Interactions^{1,2}

No drug interactions have been reported between glucosamine and conventional medicines to date. However, it is worth noting that the information available for complementary medicines is limited and although no interaction has been reported, this does not necessarily mean that an interaction will not occur with conventional medicines.

Precautions^{1,2,5,7}

- Not to be used by women who are pregnant or breastfeeding due to lack of data on safety.
- Glucosamine may alter glucose regulation or insulin sensitivity. No reports of a clinically significant effect on blood sugar have been found in the literature but monitoring remains advisable.
- There are no trials that have evaluated the long-term safety of glucosamine.
- Patients with an allergy to shellfish should be cautious when using glucosamine products in case they are derived from marine sources.
- The effects of glucosamine may take about a month to become fully apparent.

References

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6. Is glucosamine worth taking for osteoarthritis? Drug and Therapeutics Bulletin 2002; **40** (11): 81 – 83.
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Abbreviations

- RCT Randomised Controlled Trial
- NSAID Non steroidal anti-inflammatory drug

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