



Glucosamine

- Glucosamine is one of the most commonly used supplements for osteoarthritis (OA)
- Research has been conflicting about how effective it actually is for treating OA
- New research is now also raising concerns about the potential side effects of glucosamine for people with a shellfish allergy

For many years, glucosamine has been one of the most commonly used supplements for [osteoarthritis \(OA\)](#). While evidence in the past has been conflicting as to whether glucosamine is effective or not, new research now concludes that it has no effect in the treatment of OA and can actually cause harmful side effects for those with a shellfish allergy.

What is glucosamine?

At the ends of most of our bones we have a slippery cushion called cartilage. It absorbs shocks and helps our joints move smoothly. Glucosamine is a naturally occurring substance found in our cartilage.

For people who have osteoarthritis, this cushiony cartilage becomes brittle and breaks down. Some pieces of cartilage may even break away and float around inside the joint causing inflammation and pain. The cartilage no longer has a smooth, even surface, so the joint becomes stiff and painful to move.

Treating osteoarthritis

Until recently, treatments for OA have focused on managing the symptoms – controlling pain and reducing inflammation. Medications included analgesics - e.g. paracetamol - and anti-inflammatories - e.g. ibuprofen (**see note*).

Along with exercise and weight management, these were the mainstays of osteoarthritis treatment. There has been no silver bullet or treatment that worked quickly and effectively.

So when glucosamine first came on the market, with positive reviews, many people were excited at the prospect of this new, 'natural' treatment and began taking glucosamine regularly. Glucosamine seemed to provide pain relief for many people with osteoarthritis and improve their joint function.

However over the years as more research has taken place, the evidence for the use of glucosamine has come under more and more scrutiny. Earlier, positive research was mostly funded by pharmaceutical industry, and later research, that showed glucosamine provided limited improvements, was publicly funded. This called into question the potential for bias in the earlier reporting of the benefits of glucosamine.

To add to the confusion, studies have used different preparations of glucosamine – for example glucosamine sulfate, glucosamine hydrochloride, glucosamine sulfate with chondroitin etc – and different dosages. Which makes it difficult to determine how effective glucosamine really is for treating the symptoms of OA.

The peak bodies respond

Based on recent independent evidence, the American College of Rheumatology (ACR) and the Australian Rheumatology Association (ARA) have both responded publicly.

In their latest guidelines for treating OA, the ACR “strongly recommend against” using glucosamine for osteoarthritis. And the ARA has stated that this new information highlights growing evidence that glucosamine doesn't help people with OA and it's a reminder that people with a shellfish allergy shouldn't take glucosamine.

** Note: We now know that these medications provide very little benefit for managing the ongoing symptoms of OA. Currently the best evidence is for weight management (maintaining a healthy weight or losing weight if you're overweight) and exercise. Treatments such as massage, heat and the short term use of anti-inflammatories may provide temporary relief, but the evidence is not as strong.*



Safety concerns

It's been known for some time that glucosamine can interact with blood thinners such as warfarin, and that it may raise blood sugar levels in people with diabetes. Glucosamine may also have a negative effect on cholesterol and chemotherapy drugs and has been linked to worsening asthma.

However it's not been widely known to the general public that many glucosamine supplements are made from shellfish and can cause serious allergic reactions.

Recent research from the University of Adelaide investigated "spontaneous adverse drug reactions [or side effects]...to glucosamine and chondroitin in the Australian population between 2000 and 2011, with a primary focus on hypersensitivity reactions."

They found that during that period, the Therapeutic Goods Administration (TGA) was notified of 366 recorded adverse reactions. This is more than the combined adverse reactions of other supplements such as echinacea, valerian, black cohosh, ginkgo and St John's wort. However, hundreds of thousands of people also took glucosamine during that time with no ill effects, highlighting that the risk of a severe reaction was still very low.

A major issue raised is the labelling of glucosamine. Labelling must report that it contains seafood, but not specifically shellfish. And this information is often in small writing. So people who are aware that they have a shellfish allergy may not realise that they're taking something that's harmful to them.

In 2016, the TGA changed the rules for this, and required manufacturers to be clear if products contain shellfish. And this information must be easy for consumers to find. However they also gave manufactures until August 2020 to do this. So many products publicly available may still not may it clear to consumers if the product contains shellfish.

So what should you do if you currently take glucosamine?

- If you have a shellfish allergy stop taking glucosamine immediately and discuss with your doctor.
- If you have taken glucosamine for some time and haven't had any negative side effects, and want to continue taking it, then you can do so under the advice of your doctor.
- Talk to your pharmacist about any potential interactions with other medicines you may be taking.
- Talk with your doctor about other treatment options – including [exercise](#), [weight management](#), [pain management](#) techniques.
- Call our MSK Help Line weekdays on 1800 263 265 or email helpline@msk.org.au and talk with our nurses

about OA and ways you can manage it without glucosamine.

- Stay up-to-date. As well as being painful, living with a chronic musculoskeletal condition can be confusing and frustrating, especially with so much conflicting information circulating through the news, social media, and our network of family, friends and acquaintances. Follow us on [Facebook \(@MSKAust\)](#) and sign up for our [eNewsletter \(https://www.msk.org.au/subscribe\)](#) to stay informed about the latest information, research, events and much more.

References

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- Hoban C et al. (2019). Hypersensitive adverse drug reactions to glucosamine and chondroitin preparations in Australia between 2000 and 2011. Postgrad Med J. doi: 10.1136/postgradmedj-2019-136957. [Epub ahead of print] <https://www.ncbi.nlm.nih.gov/pubmed/31597786>
- Kolasinski, S.L et al. (2020). 2019 American College of Rheumatology/Arthritis Foundation Guideline for the Management of Osteoarthritis of the Hand, Hip, and Knee. Arthritis Rheumatol, 72: 220-233. doi:10.1002/art.41142 <https://onlinelibrary.wiley.com/doi/full/10.1002/art.41142>
- Mayo Clinic (2017). Glucosamine. <https://www.mayoclinic.org/drugs-supplements-glucosamine/art-20362874>

Where to get help

- Your doctor
- Musculoskeletal Australia www.msk.org.au
MSK Help Line: 1800 263 265

How we can help

Call our MSK Help Line and speak to our nurses. Phone 1800 263 265 or email helpline@msk.org.au.

We can help you find out more about:

- osteoarthritis and musculoskeletal conditions
- ways to live well with these conditions
- managing your pain
- upcoming webinars, seminars and other events.

More to explore

- Healthdirect – Allergies to seafood <https://www.healthdirect.gov.au/allergies-to-seafood>

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