

## Glucosamine and chondroitin

This sheet has been written to provide general information about glucosamine and chondroitin for people with arthritis. This sheet includes information about the effectiveness of these supplements and the possible risks.

### Introduction

Before taking glucosamine and chondroitin you should first consider the evidence in relation to your condition. There have been limited, high quality studies for glucosamine and chondroitin and their effectiveness remains unclear, particularly for severe arthritis. However both glucosamine and chondroitin have been found to be as safe as placebo (fake pills), with fewer side effects than some other medicines.

### What is glucosamine?

Glucosamine is a sugar naturally produced by the body. It is one of the building blocks of cartilage. Cartilage covers and protects the ends of the bones, allowing bones to move smoothly against each other. Glucosamine comes in two forms – glucosamine sulfate and glucosamine hydrochloride. Glucosamine supplements are made from crab, lobster or shrimp shells. They are available as tablets or liquid and often in combination with chondroitin.

### What is chondroitin?

Chondroitin is also a natural substance found in the body. It is believed to help draw water and nutrients into the cartilage, keeping it spongy and healthy. Chondroitin is available as chondroitin sulfate supplements, which are made from bovine (cow) or shark cartilage.

### How do these supplements help arthritis?

It is believed these supplements may be useful for people with osteoarthritis (OA), where there has been a breakdown of cartilage. It is thought that taking glucosamine and/or chondroitin supplements may relieve the pain and prevent or slow the breakdown of cartilage in OA. Note, most of the studies have looked only at OA of the knee, with very few studies of other joints (for example, hips, hands, back). To date there is

no evidence that these supplements are effective for any other forms of arthritis.

### What does the research say?

#### Glucosamine sulfate

- **Pain:** opinion is divided about the effectiveness of glucosamine sulfate on pain. In the majority of studies, glucosamine improved pain from OA of the knee more than placebo (fake pills). However in other studies, pain improved about the same whether people took glucosamine or placebo.
- **Cartilage:** there is some evidence that glucosamine sulfate can slow cartilage breakdown in the knee.

#### Glucosamine hydrochloride

- Studies suggest the hydrochloride form may not be as effective in relieving pain as glucosamine sulfate. The effect of glucosamine hydrochloride on cartilage has not been tested.

#### Chondroitin

- **Pain:** there are mixed results from studies of chondroitin. Some studies have found chondroitin reduces pain more than placebo. However several newer studies have found no improvement in pain with chondroitin.
- **Cartilage:** there is some evidence that chondroitin supplements slow cartilage breakdown or repair damaged cartilage from knee OA.

#### Combination glucosamine sulfate and chondroitin

- Recent studies have shown that the combination of glucosamine sulfate and chondroitin may be effective in reducing moderate to severe knee pain from OA.

### Summary

Overall, the results from studies of glucosamine and chondroitin are unclear. There have been some

promising results, particularly from glucosamine sulfate, however newer studies show little benefit. While their effectiveness remains unclear, it appears glucosamine and chondroitin are relatively safe treatment options for people with OA to trial.

### What is the recommended dose?

- Glucosamine sulfate: 1500mg per day
- Glucosamine hydrochloride: 1500mg per day (note, glucosamine sulfate is suggested to be more effective)
- Chondroitin sulfate: 800 - 1000mg per day

Different brands contain different amounts of glucosamine and chondroitin. Read the label carefully to see how many tablets you need to take to get the right dose or ask your pharmacist for advice.

### How long will it take to notice an effect?

You may need to take the supplements for four to six weeks before you notice any improvement. If there is no change in your symptoms by then, it's likely the supplements will not be of benefit for you and it's advisable you talk to your doctor about other ways of managing your arthritis.

### What are the possible risks?

#### Glucosamine

- **Shellfish allergies:** glucosamine is often made from shellfish so you should talk to your doctor before taking glucosamine if you are allergic to shellfish.

- **Bleeding:** people taking the blood thinning medicine warfarin should talk to their doctor before starting, stopping or changing their dose of glucosamine as it may interact with warfarin and make the blood less likely to clot.
- **Diabetes:** glucosamine is a type of sugar so check with your doctor before taking glucosamine if you have diabetes.
- **Pregnant or breastfeeding women:** there have not been enough long term studies to clearly say that glucosamine is safe for a developing baby. Pregnant women should talk to their doctor before taking glucosamine.
- **Other side effects:** upset stomach (for example, diarrhoea), headaches, and skin reactions. Talk to your doctor or pharmacist about possible side effects before taking glucosamine.

#### Chondroitin

- **Bleeding:** people taking blood thinning medicines, such as warfarin, should talk to their doctor before taking chondroitin as it may increase the risk of bleeding.
- **Other side effects:** chondroitin may also occasionally cause stomach upsets.

CONTACT YOUR LOCAL ARTHRITIS OFFICE FOR MORE INFORMATION SHEETS ON ARTHRITIS.

The effectiveness of glucosamine and chondroitin for OA remain unclear. Talk to your doctor or pharmacist to make sure you get the right dose.

### For more information:

**Books:** Foltz-Gray, Dorothy 2005, *Alternative treatments for arthritis: An A-Z*, Arthritis Foundation of America, Atlanta, GA.

Oster, Nancy et al 2000, *Making informed medical decisions: Where to look and how to use what you find*, O'Reilly & Associates, Sebastopol, CA.

Irwig, Judy et al 1999, *Smart health choices: How to make informed health decisions*, Allen & Unwin, St Leonards, NSW.

**Websites:** National Center for Complementary and Alternative Medicine (US) [www.nccam.nih.gov](http://www.nccam.nih.gov)

Complementary and Alternative Medicine (New Zealand) [www.cam.org.nz](http://www.cam.org.nz)

Complementary Medical Association (UK) [www.the-cma.org.uk](http://www.the-cma.org.uk)

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