

## Supplements for the Treatment of Osteoarthritis

### What is osteoarthritis?

Osteoarthritis (OA), the most common form of joint disease, a “wear and tear” disorder. It results from the degeneration of the articular cartilage lining the joints. Normally, cartilage reduces the amount of friction caused by bones rubbing against each other and acts as a shock absorber to protect bones during everyday use. OA causes thinning and ultimate loss of cartilage. Therefore the structure and function of the joint changes, causing pain, swelling, stiffness, or limited movement. This can affect any joint, but most commonly affects the hips, knees, and hands.



### Which supplements can help treat OA, and how might they work?

Glucosamine, chondroitin sulfate, and SAM-e (s-adenosylmethionine) are supplements that have gained a great deal of attention due to their possible role in relieving symptoms of OA with minimal side effects. These supplements are *thought* to work by the following mechanisms but this has *not yet been proven*.

- *Glucosamine* is a natural substance often derived from crab, lobster, or shrimp shells. The theory is that it provides the building blocks needed to support growth, repair, and maintenance of cartilage within joints. Glucosamine may prevent or slow the progression of OA by helping to rebuild the damaged cartilage. It may also have a possible anti-inflammatory (decreases swelling) effect on arthritic joints.
- *Chondroitin sulfate* is found naturally in cartilage. It is believed to protect articular cartilage from enzymes that destroy cartilage. It may also help to prevent the formation of microscopic blood clots. This leads to improvement in the blood supply to joint tissues.
- *SAM-e*, pronounced “sammy”, is a naturally occurring compound produced from the amino acid methionine and adenosine triphosphate (ATP). This is a compound responsible for producing energy within the body. SAM-e is believed to improve joint mobility and relieve pain by raising levels of ATP and stimulating the production of cartilage within the joints. Getting sufficient folic acid in your diet (dark leafy green vegetables, fortified cereals) may help your body with natural SAM-e production.

### Do these supplements really work?

We still don’t know. Research findings are mixed. More research has been conducted on glucosamine than on chondroitin sulfate and SAM-e, but long-term studies are still lacking on all three. Chondroitin sulfate is frequently used along with glucosamine. However researchers are still not sure if these supplements work better together or on their own. These supplements seem to work better for people with mild to moderate OA than for those with severe OA.

### How long will it take to see effects?

Glucosamine and chondroitin sulfate are “slow-acting” and can take up to 2 to 3 months to show any effect. If you do not experience improvement in your condition after 3 months, most doctors recommend that you stop taking the supplements. They may not work for everyone. In addition, these supplements may lose their effectiveness after 6 to 12 months of use. If that happens, you should also stop using the supplement. SAM-e, on the other hand, usually produces an effect after one week of use, if the effect will occur at all. Again, if no change in your symptoms occurs, stop taking the supplement.

Supplement	Dosage	Cost per month	Time to see effects	Possible benefits	Possible side effects	CAUTIONS	Possible drug interactions
Glucosamine	1,500 mg/day  * use either the sulfate or hydrochloride form	\$11 to \$50	2 to 3 months	decreased pain & stiffness	heartburn, nausea, or diarrhea	<ul style="list-style-type: none"> <li>• May increase insulin resistance in diabetics.</li> <li>• Avoid if you have a shellfish allergy</li> <li>• Avoid if you have an allergy to sulfa drugs</li> </ul>	No known drug interactions
Chondroitin sulfate	1,200 mg/day	\$25 to \$50	2 to 3 months	decreased pain & stiffness	heartburn, nausea, or diarrhea	<ul style="list-style-type: none"> <li>• Avoid supplements made from shark cartilage (possible lead contamination)</li> <li>• Avoid if you have an allergy to sulfa drugs</li> </ul>	May increase the effects of anti-coagulants (blood thinning) drugs & herbs (heparin, warfarin, coumadin, aspirin)
SAM e	200 to 1,200 mg/day	\$45 to \$230	1 week	decreased pain & stiffness; decreased mild depression	nausea or digestive upset, especially with large doses; skin irritation	<ul style="list-style-type: none"> <li>• Avoid if you have bipolar disease. It could cause a manic episode.</li> </ul>	No known drug interactions

### Are there any special considerations when taking these supplements?

- Before taking any supplements, you should consult your doctor. It is important to make sure that these supplements are right for you and do not interact with any medications you are currently taking.
- Do not stop taking any medications prescribed by your doctor without checking with him or her first.

- Be sure to get a proper medical diagnosis before starting with any supplements. The pain in your joint(s) may be due to a problem other than osteoarthritis!
- Pregnant or breast-feeding women, children, and individuals with rheumatoid arthritis or gout should avoid taking any of these supplements.
- Stop taking the supplement if you experience any side effects or if you do not notice any improvement in your condition. Let your doctor know about any side effects.
- Do not exceed the recommended daily doses. This could cause more harm than good.
- Take the supplement consistently. You will not reap the benefits if it is not taken correctly.
- Try one new supplement at a time. This allows you to monitor effectiveness and be aware of those that do not work or agree with you.
- Choose products from large, well-established companies and read the ingredients on the label. Make sure there are no additional substances that you don't want.

**Just a reminder...**

- There are no magic bullets. You can best manage your OA by maintaining a healthy weight, using medications properly, and following any nutrition and exercise programs designed specifically for you.
- These supplements do NOT work for everyone.
- Research, especially regarding the long-term effects and safety of these supplements, is still insufficient. The use of these supplements has appeared safe only in studies conducted over a short period of time (less than one year).
- **Dietary supplements are not regulated or recommended by the FDA.**

Adapted from information developed by the Women's Sports Medicine Center, Hospital for Special surgery, New York. 2005, University of Colorado Hospital, Denver