Supplements for the Treatment of Osteoarthritis

What is osteoarthritis?
Osteoarthritis (OA), the most common form of joint disease, is a “wear and tear” disorder resulting from 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 from everyday use. Due to the thinning and ultimate loss of cartilage in OA, the structure and function of the joint is compromised, causing pain, swelling, stiffness and/or limited movement. Any joint can be involved, but the hips, knees, and hands are most commonly affected.

Which supplements are used to 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 potential role in alleviating symptoms of OA with minimal side effects. These supplements are thought to work by the following mechanisms, but have not yet been proven.

- **Glucosamine**, a natural substance often derived from crab, lobster, or shrimp shells, is theorized to provide 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 effect on arthritic joints.

- **Chondroitin sulfate**, found naturally in cartilage, is believed to protect articular cartilage from deterioration caused by enzymes that destroy cartilage. It may also help to prevent the formation of microscopic blood clots leading to improvement of circulation to joint tissues.

- **SAM-e**, pronounced “sammy”, is a naturally occurring compound produced from the amino acid methionine and adenosine triphosphate (ATP), 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 (e.g. 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 in conjunction with glucosamine, however researchers are still not sure if these supplements work better together or on their own. Individuals with mild to moderate OA have been found to benefit more from the use of these supplements than individuals with severe OA.

How long will it take to see effects?
Glucosamine and chondroitin sulfate are called “slow-acting”, because they can take up to 2-3 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 6-12 months of use, in which case use of the supplement should be discontinued. 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 Table

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<th>Time to see effects</th>
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| Glucosamine     | 1,500 mg/day   | $11-$50      | 2-3 months          | decreased pain & stiffness | heartburn, nausea, or diarrhea | *Diabetics – may increase insulin resistance  
*Avoid if you have a shellfish allergy  
*Avoid if you have an allergy to sulfa drugs | No known drug interactions |
|                 | *either the sulfate or hydrochloride form is recommended | | | | | |
| Chondroitin sulfate | 1,200 mg/day | $25-$50 | 2-3 months | decreased pain & stiffness | heartburn, nausea, or diarrhea | *Avoid supplements made from shark cartilage due to possible lead contamination  
*Avoid if you have an allergy to sulfa drugs | May increase the effects of anti-coagulants / blood thinning drugs & herbs (heparin, warfarin/coumadin, aspirin) |
| SAM-e           | 200-1,200 mg/day | $45-$230 | 1 week | decreased pain & stiffness; decreased mild depression | nausea or digestive upset, especially with large doses; skin irritation | *Avoid if you have bipolar disease – could cause a manic episode | 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/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 as instructed.
- Try one new supplement at a time so that you can 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 – the best results will occur when you maintain a healthy weight, use medications properly, and follow 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.**