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## Glucosamine and Chondroitin Sulfate

Glucosamine and chondroitin sulfate are substances found naturally in the body. Glucosamine is a form of amino sugar that is believed to play a role in cartilage formation and repair. Chondroitin sulfate is part of a large protein molecule (proteoglycan) that gives cartilage elasticity.

Both glucosamine and chondroitin sulfate are sold as dietary or nutritional supplements. They are extracted from animal tissue: glucosamine from crab, lobster or shrimp shells; and chondroitin sulfate from animal cartilage, such as tracheas or shark cartilage.

### What do they do?

Past studies show that some people with mild to moderate osteoarthritis (OA) taking either glucosamine or chondroitin sulfate reported pain relief at a level similar to that of nonsteroidal anti-inflammatory drugs (NSAIDs) such as aspirin and ibuprofen. Some research indicates that the supplements might also slow cartilage damage in people with OA. Definitive results about the effects of these supplements are expected from an in-depth clinical study currently being conducted by the National Institutes of Health.

These two compounds have gained widespread use for the treatment of arthritic conditions. Though initially skeptical of "homeopathic" natural remedies, our patients have swayed our thinking by reporting excellent symptomatic relief, comparable to any non-steroidal (NSAID) drug. Additionally solid basic science studies and prospective blinded human studies have shown that glucosamine is effective in:

- Reducing joint pain**
- Increasing lubrication of the joint**
- Stimulating cartilage matrix repair**
- Inhibiting enzymes that breakdown cartilage**
- Preserving joint space**
- Anti-inflammatory actions**

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