



Chondroprotective Agents

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ARTICULAR CARTILAGE:

Articular cartilage, or chondral cartilage, is a smooth, low friction surface that caps the ends of our bones and helps our joints move smoothly. It also distributes forces evenly throughout the underlying bone. When this chondral surface breaks down (chondrosis), either through injury or gradually over time, the joint loses its ability to effectively handle the forces placed upon it. This results in initial degenerative changes in the articular cartilage that lead to osteoarthritis. Chondrosis is graded into four different categories ranging from Grade I (minimal changes to the chondral surface) to Grade IV (significant damage to the chondral surface with underlying bone visible).

To date, treatment for these conditions has included lifestyle changes such as weight loss and activity modification. Medications such as Tylenol, or anti-inflammatory agents (Celebrex, Diclofenac or Voltaren, Ibuprofen or Advil) can also reduce symptoms. Chondroprotective agents such as glucosamine and chondroitin sulfate may provide another effective treatment.

GLUCOSAMINE:

Glucosamine stimulates the production of proteoglycans and collagen (materials that are building blocks of articular cartilage) and, therefore, increases the strength of articular cartilage. Glucosamine is found naturally in the body. By increasing the amount of glucosamine present in our joints through supplements, we may allow the body to produce more proteoglycans and collagen to make our cartilage stronger. Osteoarthritis occurs when our body's ability to make cartilage is exceeded by the amount of breakdown of cartilage. Glucosamine may help slow or stop this degenerative process.

CHONDROITIN:

Chondroitin sulfate is the most prevalent proteoglycan in articular cartilage. As we age, the amount of chondroitin our bodies produce decreases. Though chondroitin sulfate's main role is to help provide strength to the cartilage, it has also been shown to be effective in inhibiting enzymes which break down articular cartilage. It is also theorized that chondroitin helps to increase blood flow to the bone underlying the articular cartilage, making this bone stronger and more resilient to osteoarthritis.

RECOMMENDED DOSAGE:

Glucosamine and chondroitin sulfate together comprise a more effective supplement than either taken alone. Both products have been proven in clinical trials to be safe. These supplements are recommended for people whose cartilage is in the early stages of breakdown. They may also be used after surgery to enhance the healing response. Cartilage protective agents are not as effective when cartilage damage is severe and widespread.

Recommended dosage:

	less than 120 lb	120-200 lb	greater than 200 lb
Glucosamine	1000 mg	1500 mg	2000 mg
Chondroitin	800 mg	1200 mg	1600 mg

It may take 6 to 8 weeks for you to notice a change. Afterwards, you can decrease the dosage as tolerated. You may also take the supplements to help prevent cartilage breakdown at half the dosage listed above.

