What is the current status of chondroitin sulfate and glucosamine for the treatment of knee osteoarthritis?

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Abstract

Chondroitin sulfate and glucosamine sulfate exert beneficial effects on the metabolism of in vitro models of cells derived from synovial joints: chondrocytes, synoviocytes and cells from subchondral bone, all of which are involved in osteoarthritis (OA). They increase type II collagen and proteoglycan synthesis in human articular chondrocytes and are able to reduce the production of some pro-inflammatory mediators and proteases, to reduce the cellular death process, and improve the anabolic/catabolic balance of the extracellular cartilage matrix (ECM). Clinical trials have reported a beneficial effect of chondroitin sulfate and glucosamine sulfate on pain and function. The structure-modifying effects of these compounds have been reported and analyzed in recent meta-analyses. The results for knee OA demonstrate a small but significant reduction in the rate of joint space narrowing. Chondroitin sulfate and glucosamine sulphate are recommended by several guidelines from international societies for the management of knee and hip OA, while others do not recommend these products or recommend only under condition. This comprehensive review clarifies the role of these compounds in the therapeutic arsenal for patients with knee OA.