Chondroitin Sulfate Today

Chondroitin Sulfate is a molecule, which occurs naturally in the body. It is an important component of cartilage - the tough connective tissue that cushions the joints. Chondroitin was discovered in the cartilage of cows in 1861 by a German chemist, Fischer.

Chondroitin Sulfate is a muco-polysaccaride (glucosaminoglycan) with a high viscosity and the N-acetylgalactosamine as repeated link and with a sulfate group pr. disaccharide unit. The most frequently found muco-polysaccarides in the body are Chondroitin-4-Sulfate and Chondrotin-6-Sulfate. They are present in both bones and connective tissues.

Why use Chondroitin Sulfate?

Chondroitin Sulfate is widely used in the treatment of osteoarthritis, which may be a result of wear and tear due to sport or natural aging process. It may also relief pains related to joint health problems.

Chondroitin Sulfate helps keeping cartilage healthy by absorbing liquid (especially water) in the connective tissue. It can also block the enzymes that degrade cartilage, and it provides the building blocks for the body to produce new cartilage.

**Chondroitin Sulfate:**

- helps keeping cartilage healthy
- helps block the enzymes that degrade cartilage
- is used in the treatment of osteoarthritis
The latest scientific study

Absorption and mechanism of action for Chondroitin sulfate (CS) was reviewed recently as follows:
- Oral bioavailability of CS of the order of 20%.
- CS absorption is mediated by lymphatic transport and/or paracellular mechanisms and the low bioavailability might be secondary to the saturation of these processes.
- Orally administered CS accumulate in the joints.
- CS inhibits inflammatory cytokine (NF-κB) and the inflammatory reaction by binding a variety of receptors (TLR4, CD44 and ICAM1).
- Moreover, CS promotes the expression of a growth factor, TGF-β1 and the synthesis of hyaluronic acid and collagen II.


The clinical effect was reported with objective assessment, radiographic method.
- international, randomized, double-blind, placebo-controlled trial
- 622 patients with knee osteoarthritis
- 800 mg CS (n = 309 patients) or placebo (n = 313 patients)
- once daily for 2 years
- at the time of enrollment and at 12, 18, and 24 months
- minimum joint space width (JSW) of the medial compartment of the tibiofemoral joint was assessed by digital image analysis.
- primary outcome was the loss in minimum JSW over 2 years.
- The intent-to-treat analysis demonstrated a significant reduction (P < 0.0001) in minimum JSW loss in the CS group as compared with the placebo group.
- Pain improved significantly faster in the CS group than in the placebo group (P < 0.01).
- There were no differences in safety between groups.

Andre ́ Kahan et al., Long-Term Effects of Chondroitins 4 and 6 Sulfate on Knee Osteoarthritis, The Study on Osteoarthritis Progression Prevention, a Two-Year, Randomized, Double-Blind, Placebo-Controlled Trial, ARTHRITIS & RHEUMATISM Vol. 60, No. 2 (2009), pp 524–533

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