CS b-Bioactive

scientific clinical evidence

CS b-Bioactive is the chondroitin sulfate most researched: there are **22 clinical trials** published and **4.546 OA patients treated.**

See references below:

Refs:

1. **Bourgeois F, et al**. Efficacy and tolerability of chondroitin sulfate 1200 mg/day vs chondroitin sulfate 3x400 mg / day vs placebo. Osteoarthritis Cart 1998;6 Suppl A:25-30.
   (Total patients 127: **40 treated with 1200 mg / day of CS**, **43 treated with 3x 400 mg / day CS** and 44 with placebo)
2. **Bucsi L, et al.** Efficacy and tolerability of oral chondroitin sulfate as a symptomatic slow-acting drug for osteoarthritis (SYSADOA) in the treatment of knee osteoarthritis. Osteoarthritis and Cartilage 1998; 6 (Supplement A): 31-36
   (Total patients 85; **CS (n = 39)** PBO (n=46))
3. **Clegg DO, et al**. Glucosamine, chondroitin sulfate, and the two in combination for painful knee osteoarthritis. N Engl J Med 2006; 354: 795-808.
   (Total patients 1583: Placebo (N = 313), Glucosamine (N = 317), **Chondroitin Sulfate (N = 318)**, Glucosamine + Chondroitin Sulfate (N = 317) y Celecoxib (N = 318))
4. **Conrozier TE**. Die Wirkung von Chondroitinsulfat bei Behandlung der Hüftglenksarthrose. Lit Rheumatol 1992; 14:69-75.
   (Total patients 56; **CS (n=29)** or placebo (n=27))
5. **Gabay C, et al**. Symptomatic effect of chondroitin sulfate 4&6 in hand osteoarthritis the finger osteoarthritis chondroitin treatment study (FACTS). Arthritis Rheum. 2011 Sep 6.
   (Total patients 162; **80 CS** or 82 placebo)
6. **Kahan A, 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 2009; 60, 2: 524-533.
   (Total patients 622; **CS (n _ 309 patients)** or placebo (n _ 313 patients))
7. **L'Hirondel, et al. 1992**
   (Total patients 125; **63 CS** or 62 placebo)
8. **Michel B, et al**. Chondroitins 4 and 6 sulfate in osteoarthritis of the knee. A randomized, controlled trial. Arthritis Rheum 2005, 52 (3): 779-786.
   (Intent-to-treat analysis (n _ 300) **Chondroitins 4 and 6 sulfate** (**n _ 150)** Placebo (n _ 150))

9. **Möller I, et al**. Effectiveness of chondroitin sulphate in patients with concomitant knee osteoarthritis and psoriasis: a randomized, double-blind, placebo-controlled study. Osteoarthritis Cartilage. 2010 Jun;18 Suppl 1:S32-40.
(Total patients 129; **64 CS** and 65 to PBO)
10. **Morreale, et al**. Comparison of the antiinflammatory efficacy of chondroitin sulfate and diclofenac sodium in patients with knee osteoarthritis. The Journal of Rheumatology 1996; 23, 8: 1385-1391.
(Total patients 146; **CS 74** or DS 72)
11. **Pavelka K, et al**. Double-blind, dose-effect study of oral CS 4&6 1200 mg, 800 mg, 200 mg against placebo in the treatment of femoro-tibial osteoarthritis. Litera Rheumatologica 1998; 24: 21-30.
(Total patients 140; **35 in each group)**
12. **Sawitzke AD, et al**. The effect of glucosamine and/or chondroitin sulfate on the progression of knee osteoarthritis: a report from the Glucosamine/Chondroitin Arthritis Intervention Trial. Arthritis Rheum 2008;58:3183–91**.**
(Total patients 662: 134 placebo, 123 glucosamine, **128 Chondroitin sulfate**, 143 Glucosamine + chondroitin sulfate or 134 Placebo)
13. **Sawitzke AD, et al**. Clinical efficacy and safety of glucosamine, chondroitin sulphate, their combination, celecoxib or placebo taken to treat osteoarthritis of the knee: 2-year results from GAIT. Annals of the Rheumatic Diseases 2010; **69**:1459-64.
(Total patients 662: **Placebo** 131, **Glucosamine** 134, **Chondroitin** 126, **Glucosamine and chondroitin** 129, **Celecoxib** 142)
14. **Uebelhart D, et al**. Effects of oral chondroitin sulfate on the progression of knee osteoarthritis: a pilot study. Osteoarthritis and Cartilage 1998; 6 (Supplement A): 39-46
(Total patients 46: **CS (n=23)** PBO (n=23))
15. **Uebelhart D, et al**. Intermittent treatment of knee osteoarthritis with oral chondroitin sulfate: a one-year, randomized, double-blind, multicenter study versus placebo. Osteoarthritis and Cartilage 2004; 12: 269-276.
(Total patients 110**: CS (n=54)** or PBO (n=56))
16. **Verbruggen G, et al**. Systems to assess the progression of finger joint osteoarthritis and the effects of disease modifying osteoarthritis drugs. Clinical Rheumatology 2002; 21 (3): 231-243.
(Total patients: **46 chondroitin polysulphate** and **34 received chondroitin sulphate**. Eighty-five patients were kept on placebo medication and were used as controls.)
17. **Wildi LM, et al**. Chondroitin sulphate reduces both cartilage volume loss and bone marrow lesions in knee osteoarthritis patients starting as early as 6 months after initiation of therapy: a randomised, double-blind, placebo-controlled pilot study using MRI. Ann Rheum Dis. 2011 Jun;70(6):982-9.
(Total patients 69: **CS (n = 35)** or Placebo (n = 34))
18. **Raynauld JP, et al**. Total Knee Replacement as a Knee Osteoarthritis Outcome: Predictors Derived from a 4-Year Long-Term Observation following a Randomized Clinical Trial Using Chondroitin Sulfate. Cartilage. 2013 Jul;4(3):219-26.
(Total patients 57)
19. **Zegels B, et al**. Equivalence of a single dose (1200 mg) compared to a three-time a day dose (400 mg) of chondroitin 4&6 sulfate in patients with knee osteoarthritis. Results of a randomized double blind placebo controlled study.

(All subjects 352, **CS (1200) 117**, **CS 3*400 119** or Placebo 117)

20. **Monfort J, et al**. Condroitin Sulfate Decreases Chemokine Levels and Synovitis in knee osteoarthritis Patients. Arthritis Rheum 2012, 1101:S473.
    (Total patients 71: **CS N= 22)**
21. **Monfort J, et al**. Effects of chondroitin sulfate on brain response to painfull stimulation in knee osteoarthritis patients: a randomized, double blind, placebo-controlled clinical trial. Arthritis Rheum 2013, 2146:S913.
    (Total patients 64**: 32 received CS** and 32 placebo)
22. **Pelletier J-P, et al.** In a two-year double-blind randomized controlled multicenter study, chondroitin sulfate was significantly superior to celecoxib at reducing cartilage loss with similar efficacy at reducing disease symptoms in knee osteoarthritis patients. Ann Rheum Dis 2016; 75 (Suppl 2), SAT0454: 836.
    (Total patients 194: **97patients CS** vs 97 Celecoxib)

In addition, CS has a global action throughout the joint; there is clinical evidence on hand (5) (16), hip (4) and knee (the rest) OA, with mechanisms of action in the three main structures (cartilage, synovium and subchondral bone) (Du Souich, 2014), which must be, in principle most suitable for any type of arthrosis and not only for those with an inflammatory component of autoimmune origin, if I'm not mistaken, is mostly the target of native collagen.

Ref: Du Souich P. Absorption, distribution and mechanism of action of SYSADOAS. Pharmacol Ther. 2014 Jun;142(3):362-74.