

Supplementary Table S1. Results of leave-one-out sensitivity analysis for VAS score.

A change in the *p*-value indicates that the excluded study significantly influences the observed effect size.

Study removed	Statistics with study removed		
	Mean difference [95% CI]	<i>p</i> -value	<i>I</i> ²
Benito-Ruiz <i>et al.</i> 2009	-16.13 [-25.49, -6.77]	0.0007	89%
Costa <i>et al.</i> 2020	-15.38 [-23.71, -7.05]	0.0003	90%
Kumar <i>et al.</i> 2015 A	-10.07 [-15.76, -4.37]	0.0005	79%
Kumar <i>et al.</i> 2015 B	-10.90 [-17.35, -4.44]	0.0009	85%
Lugo <i>et al.</i> 2016	-15.97 [-25.86, -6.08]	0.002	89%
Luo <i>et al.</i> 2022	-13.90 [-22.18, -5.62]	0.001	90%

CI: confidence interval.

Supplementary Table S2. Results of leave-one-out sensitivity analysis for the total WOMAC score.

A change in the *p*-value indicates that the excluded study significantly influences the observed effect size.

Study removed	Statistics with study removed		
	Mean difference [95% CI]	<i>p</i> -value	<i>I</i> ²
Benito-Ruiz <i>et al.</i> 2009	-6.99 [-10.41, -3.57]	< 0.0001	77%
Chen <i>et al.</i> 2023	-7.21 [-10.45, -3.97]	< 0.0001	75%
Costa <i>et al.</i> 2020	-6.51 [-9.80, -3.22]	0.0001	77%
Costa <i>et al.</i> 2021	-6.08 [-9.18, -2.97]	0.0001	76%
Hewling <i>et al.</i> 2019	-7.09 [-10.34, -3.84]	< 0.0001	76%
Jiang <i>et al.</i> 2014	-7.18 [-10.96, -3.39]	0.0002	75%
Kumar <i>et al.</i> 2015 A	-5.68 [-8.68, -2.68]	0.0002	72%
Kumar <i>et al.</i> 2015 B	-5.67 [-8.57, -2.76]	0.0001	72%
Lugo <i>et al.</i> 2016	-6.66 [-10.21, -3.12]	0.0002	77%
Luo <i>et al.</i> 2022	-5.56 [-8.45, -2.66]	0.0002	71%
McAlindon <i>et al.</i> 2011	-7.15 [-10.29, -4.00]	< 0.0001	76%
Schauss <i>et al.</i> 2012	-6.12 [-9.33, -2.90]	0.0002	75%

CI: confidence interval.

Supplementary Table S3. Report of adverse events.

Author	n	Intervention arms	Events, n	Headache, n (% of AE)	Gastrointestinal, n (% of AE)	Respiratory infections, n (% of AE)	Chest pain, n (% of AE)	Dermatologic, n (% of AE)	Dehydration, n (% of AE)	Sleep pattern disturbance, n (% of AE)	Neurological, n (% of AE)	Allergic reaction, n (% of AE)	Genitourinary, n (% of AE)
Benito-Ruiz <i>et al.</i> 2009	111	HC	50	9 (18.0)	17 (34.0)	5 (10.0)	ND	ND	ND	ND	ND	ND	ND
	96	Placebo	31	5 (16.1)	12 (38.7)	5 (16.2)	ND	ND	ND	ND	ND	ND	ND
Chen <i>et al.</i> 2023	38	HC-II	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	37	EC + HC-II											
	38	GS HCl											
	38	Placebo											
Costa <i>et al.</i> 2020	20	UC-II + physiotherapy	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	20	Placebo + physiotherapy											
	20	Physiotherapy											
Costa <i>et al.</i> 2021	20	UC-II	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	20	Placebo											
	20	UC-II + physiotherapy											
	20	Placebo + physiotherapy											
Hewling <i>et al.</i> 2019	44	Native collagen	17	(4, 6)	(9, 2)	(13, 7)	(2, 3)	(2, 3)	(2, 3)	(2, 3)	(2, 3)	ND	ND
	44	Placebo	6	ND	(6, 9)	ND	ND	ND	ND	ND	(4, 6)	ND	ND
Jiang <i>et al.</i> 2014	46	BCP	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	48	Placebo											
Kumar <i>et al.</i> 2015	19	PCP	1*	ND	ND	ND	ND	ND	ND	ND	ND	1* (5,0)	ND
	11	Placebo	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	19	BCP	3*	ND	+	+	ND	ND	ND	ND	ND	ND	ND
	11	Placebo	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lugo <i>et al.</i> 2016	63	UC-II	8	ND	3 (37.5)	2 (25)	ND	1 (12.5)	ND	ND	ND	ND	1 (12.5)
	65	CS	28	4 (14.3)	9 (32.1)	4 (14.3)	2 (7.1)	2 (7.1)	ND	1 (3.6)	ND	ND	ND
	58	Placebo	9	2 (22.2)	3 (33.3)	2 (22.2)	ND	ND	ND	ND	ND	ND	1 (11.1)
Luo <i>et al.</i> 2022	34	UC-II	1	ND	ND	ND	ND	1 (100)	ND	ND	ND	ND	ND
	33	GS + CS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	34	Placebo	2	ND	1 (50)	ND	ND	1 (50)	ND	ND	ND	ND	ND
McAlindon <i>et al.</i> 2011	15	HC	43	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	15	Placebo	45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Schauss <i>et al.</i> 2012	35	HC-II	3	ND	ND	ND	ND	1 (33.3)	ND	ND	ND	ND	ND
	33	Placebo	6	ND	3 (50)	ND	ND	ND	ND	ND	ND	ND	ND

*Subjects. Adverse events such as pain were not included.

HC-II: hydrolysed type II collagen; EC: BRAND'S essence of chicken; PCP: porcine collagen peptides; BCP: bovine collagen peptides; UC-II: undenatured type II collagen; CS: chondroitin sulfate; GS: glucosamine; ND: no data.