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Collagen Peptide Supplementation Improves Measures of Activities of Daily Living and Pain in Active Adults

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Background: Pain is a major limiter of physical activity (PA) and activities of daily living (ADLs) in aging populations, contributing to lower quality of life and increased disease risks. Pharmacological interventions for managing pain often have negative side effects Collagen peptides (CP) have been shown to be efficaciou for growth and repair of connective tissue and to mitigate pain, but there are no long-term studies in healthy middle-aged active populations. Therefore, the purpose of this double-blind, randomized control trial was to determine the effects of daily consumption of CP (SOLUGEL®) over 6 months on markers of pain and ADLs in middle-aged lifelong exercisers.

Methods: Participants (N = 61) were randomized into three groups: 20 g (n = 21; male = 11), 10 g (n = 19; male = 7), or placebo (n = 21; male = 12). The Knee Injury and Osteoarthritis Outcome Score (KOOS) was used to assess changes over time (baseline, 3 months, and 6 months) in Pain and ADL scores. A 50% frequency split for physical activity during the study was used to dichotomize participants into low (LF) or high frequency (HF) exerciser groups. Repeated measures (RM) ANOVAs were used to assess interactions between experimental groups, exercise frequency groups, and scores (Pain or ADLs) at each time point. Simple repeated measures ANOVAs were used for post hoc analyses of significant interactions, and changes in scores are reported as percent change from baseline to 6 months. Increasing values reflect improvements in Pain and ADLs.

Results: There was a significant interaction ($p < 0.05$) between CP dose, exercise, and pain. Post hoc analysis indicated a significant interaction in HF exercisers between CP dose and pain ($p < 0.05$), but not in LF. Pain scores improved in the HF exercisers in both CP groups (20 g and 10 g), whereas pain scores worsened in placebo (+2.6%, +4.2%, −6.8%, respectively). There was a significant interaction between CP dose and ADLs ($p < 0.05$), with 20 g and 10 g improving in score, but not placebo, regardless of exercise frequency (+0.3%, +4.1%, −1.5%, respectively).

Conclusions: Daily CP intake of 20 g and 10 g over the course of 6 months yielded significant improvements in pain scores exclusively in HF exercisers, whereas no signifi cant changes were observed in LF exercisers across groups. ADL scores improved with 10 g and remained stable with 20 g, whereas the placebo scores worsened, independent of exercise frequency. These findings indicate CP supplementation over 6 months may have protective as well as beneficial effects on ADLs and improvements in pain for middle-aged HF exercisers.

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