

Collagen Peptides

A Clinically Proven Tool for Musculoskeletal Health

By Erica Zelfand, ND

Collagen: the protein that holds us together.

It isn't merely a metaphor to say collagen holds us together: 75 to 80% of our skin and 30% of our total body protein is made of collagen.¹ Collagen is the most abundant protein in the body, important for the integrity and health of our skin, hair, bones, tendons, ligaments, and cartilage.

Found in the articular cartilage that covers the ends of our bones where they come together to form joints,² collagen enables the joints to withstand forces of compression, thus protecting the bones from injury.³ Our bodies have limited ability, however, to repair and replace cartilage, which is why joint integrity tends to decline with age.⁴

How does collagen supplementation work?

Because collagen products are sourced from animals, the amino acid composition of the peptides found in collagen supplements is similar to that of the collagen in the cartilage of our joints. Those peptides are well absorbed by the gut after ingestion, making their way into the bloodstream and eventually accumulating in the cartilage and skin.^{5,6}

Although eating meat—whether it be that of a chicken, cow, fish, or other animal—provides us with many amino acids, it doesn't support connective tissue health in quite the same manner as does collagen. Collagen is rich in the amino acid glycine,⁷ containing up to 20 times more glycine than meat. In addition to helping build connective tissue like tendons and muscle,⁸ glycine has also been shown to support mood, sleep, and metabolism.⁹

Preliminary evidence suggests that supplementation with collagen activates the body's own collagen biosynthesis in chondrocytes, the cells in the body that make cartilage.¹⁰ Research has demonstrated these effects particularly in conditions in where the cartilage is stressed.¹¹ Additionally, other studies have suggested collagen supplementation may have an immunomodulatory effect^{12,13} and may thus be supportive in autoimmune diseases such as rheumatoid arthritis. With respect to skin health, collagen has further been shown to support the integrity, moisture, elasticity, and suppleness of the skin, and even decrease wrinkles and other signs of aging.^{14,15}

To extract collagen for at-home consumption, the bones and/or skin of an animal must be boiled for hours and the broth consumed. This can create a tasty soup base, but is also a time-consuming task that can be hard to do on a daily basis. Fortunately, collagen supplements are a convenient alternative to help us quickly and easily get collagen into our bodies. Furthermore, it has been shown that the hydrolyzed collagen (HC) found in quality supplements is easier to absorb than the collagen found in home-cooked preparations.¹⁶ Because of the low molecular weight of peptides found in HC, they are much more easily absorbed and bioavailable—with animal studies suggesting up to 95% absorbability when taken orally.⁵

As of 2015, there were over 60 scientific studies demonstrating the benefits of HC on a host of conditions associated with the aging process, including osteoarthritis,¹⁷ osteoporosis,¹⁸ and even skin problems.¹⁹ In their review of these studies, the authors conclude "HC con-

tinual ingestion helps to reduce and prevent joint pain, bone density loss and skin aging. These results as well as its high level of tolerance and safety make HC ingestion attractive for a long-term use in bone and joint degenerative diseases and in the fight against skin aging.”²⁰

Not just for aging, collagen also benefits athletic performance

The benefits of HC are not just experienced with age-related disease; many studies also show benefits in healthy athletes. In one such study, healthy, competitive male mountain bikers and female basketball players consumed 10 grams of HC enhanced with B vitamins and magnesium daily for six months.²¹ At the end of the six months, ultrasounds performed on the shoulders and knees of the athletes demonstrated statistically significant increases of cartilage thickness. The control subjects, on the other hand, either had no improvements in cartilage thickness, or a decrease.

In another study, 84 athletes (with an average age of 41 years) consumed 10 grams of HC daily for 12 weeks. Of the participants—all of whom had joint pain in either the knee, hip, and/or shoulder at the beginning of the trial—most reported reduced pain both at rest and during test exercises after supplementing with HC.²² In a recent

study, athletes with ankle instability were supplemented with five grams of collagen peptides or placebo daily for six months.²³ Athletes taking the collagen peptides had significant improvements in ankle stability (as assessed by multiple standardized scoring tools and athlete perception) compared with those taking the placebo. Additionally, there was a significant decline in ankle injuries in those taking the collagen peptides at the three-month follow-up after the intervention.

Finally, collagen peptide supplementation also has been shown to enhance lean body mass in athletes. In a 2019 study, active young men engaging in a resistance training exercise program were supplemented with 15 grams of collagen peptides or placebo daily for 12 weeks.²⁴ At the end of the training period, the group receiving the collagen peptides had a significant increase in fat-free mass compared to placebo. The placebo group, on the other hand, had a significant increase in body fat mass while no change was seen in those taking the collagen peptides.

Thank goodness for collagen

When the demands of gravity, physical stress, and injury chip away at the body, we can thankfully turn to the basic connective-tissue-building-blocks found in colla-

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