



ND FORMULAS

Collagen Support

- *Protects and Promotes Connective Tissue Biosynthesis*
- *Supports the Body's Self-Repair Process for Cartilage, Tendons, Ligaments, Fascia and Bone*
- *Supports Joint Lubrication and Cushioning*
- *Maintains Normal Connective Tissue Inflammatory Balance*
- *Supports Normal Rejuvenation of Healthy Hair, Skin and Nails*

This product includes three clinically studied ingredients to support the natural healing process and maintain connective tissue structure. Most therapies simply block joint pain and connective tissue discomfort from exercise, and in doing so inhibit the regeneration and elongation of specific polysaccharide precursors and deplete nutrients, such as magnesium and vitamin C, that maintain joint and connective tissue health. FORTIGEL®, Tendaxion® and Mobilee® protect and preserve cartilage, tendons, ligaments, fascia, bone and the intervertebral discs of the spine.¹⁻³

Overview

Collagen is the most abundant structural protein found in the skin and connective tissues of the body. Roughly 29 different types have been identified with 90% consisting of type I and type II collagen.⁴ Type I collagen is found within the tendons, ligaments, fascia, skin, bones, organs, heart valves and blood vessels. Type II collagen is found within 70% of the body's cartilaginous mass, which includes hyaline and articular cartilage, and the intervertebral discs. Over time, factors such as age, lifestyle, genetics, previous injury, inflammation and biomechanical instability can lead to the breakdown of collagen and slow the process of healthy collagen synthesis.

Collagen Hydrolysate†

FORTIGEL®, backed by more than fifteen studies, provides highly concentrated bioactive collagen peptides (BCPs), which have been proven to stimulate chondrocytes to produce proteoglycans and type II collagen.² This collagen has been hydrolyzed to provide short-chain peptides with a low molecular weight to allow for easier absorption, transport and

accumulation within the target connective tissue. FORTIGEL® provides 5 g hypoallergenic protein per serving from a sustainable protein source. This lower dose decreases excess oxalate production compared to higher-dose collagen and gelatin products.

Numerous clinical studies have proven the effectiveness of FORTIGEL®. A randomized, double-blind, placebo-controlled clinical trial performed in cooperation with Harvard Medical School and Tufts Medical Center demonstrated the efficacy of FORTIGEL® on cartilage production. Thirty participants were given collagen hydrolysate daily over the course of 48 weeks. Delayed gadolinium-enhanced magnetic resonance imaging of cartilage (dGEMERIC) was used to assess hyaline cartilage and proteoglycan content in the participants' knee joints at baseline, 24 weeks and 48 weeks. The FORTIGEL® group was found to have significant improvements upon primary dGEMERIC scores, suggesting a potential to stimulate an effective chondrocyte response to maintain cartilage tissue.⁵ At Penn State University, 147 athletes were qualified to take FORTIGEL® for 24 weeks. The results of the study found FORTIGEL® to support normal joint mobility and joint health.⁶ A 2021 clinical study of 180 young adults supplemented with 5 g of BCPs over 12 weeks found a significant reduction in joint pain from exercise.⁷ Finally, a clinical trial on 160 subjects established an effective dose of 5 g for joint health support.⁸

Hyaluronic Acid Extract†

Mobilee®, sourced from rooster comb, is patented to provide the highest concentration of hyaluronic acid (HA) for easy absorption. This extract also contains collagen and

polysaccharides to aid in the viscoelastic and lubricating properties of HA. Scientific studies show that Mobilee® supports upregulation of synoviocytes to produce HA, and it is two to four times more active than regular HA in supporting synovial fluid health.^{9,10} The latest clinical research includes HA in proactive and maintenance approaches to joint care and supports normal range of motion. Research suggests Mobilee® supports the quality of synovial fluid by positively influencing synovial HA concentration and by reducing the expression of degradative factors in synovial fluid.¹¹⁻¹³

Type I Collagen and Mucopolysaccharides

Tendaxion® is a combination of mucopolysaccharides and type I collagen, which provides structural support to tendons, ligaments, fascia, skin and bones. The molecular structure and organization of the collagen fibers are key determinants in the ability of these connective tissues to endure mechanical force and fuel self-repair. While collagen provides much of the structure and strength to connective tissues, mucopolysaccharides help maintain structural integrity, lubrication and spacing of collagen fibers. Furthermore, mucopolysaccharides have been shown to increase collagen and non-collagenous protein synthesis in cultures of bovine tenocytes and ligament fibroblasts. Tendaxion® has been shown to be effective in studies done on the medial and lateral epicondyle tendons, Achilles tendon and plantar fascia.¹⁴⁻¹⁹

Directions

1 scoop (8 grams) in 8 oz of water or the beverage of your choice per day or as recommended by your health care professional.

Does Not Contain

Gluten, corn, yeast, artificial colors or flavors.

Cautions

If you are pregnant or nursing, consult your physician before taking this product.

Supplement Facts^{v2}

Serving Size 1 Scoop (8 Grams)
Servings Per Container About 30

| | Amount Per Serving | % Daily Value |
|--|--------------------|---------------|
| Calories | 25 | |
| Total Carbohydrate | <1 g | <1%* |
| Dietary Fiber | <1 g | 2%* |
| Protein | 5 g | |
| Vitamin C (as Ascorbic Acid USP) | 100 mg | 111% |
| Magnesium (as Albion® Minerals Magnesium Bisglycinate Chelate) | 135 mg | 32% |
| Sodium | 50 mg | 2% |
| Gelatin Hydrolysate (FORTIGEL®) | 5.2 g | ** |
| Connective Tissue Blend (TENDAXION™) | 520 mg | |
| Mucopolysaccharides | | ** |
| Type I Collagen | | ** |
| Chicken Comb Extract (MOBILEE®) (Standardized to contain 40 mg Hyaluronic Acid) | 80 mg | ** |

* Percent Daily Values are based on a 2,000 calorie diet.

** Daily Value not established.

References

- Oesser S, Adam M, Babel W, Seifert J: Oral administration of 1-⁴C labelled gelatin hydrolysate leads to an accumulation of radioactivity in cartilage of mice (C57/BL). *Journal of Nutrition*, 129 (1999), 1891 – 1895 12).
- Oesser S, Seifert J: Stimulation of type II collagen biosynthesis and secretion in bovine chondrocytes cultured with degraded collagen. *Cell Tissue Res* 311 (2003), 393 – 399.
- Moskowitz RW: Role of collagen hydrolysate in bone and joint disease. *Seminars in Arthritis and Rheumatism*. Vol.30, No. 2 (October 2000), 87 – 99 18).
- Shenoy M, Abdul NS, Qamar Z, Bahri BMA, Al Ghalayini KZK, Kakti A. Collagen Structure, Synthesis, and Its Applications: A Systematic Review. *Cureus*. 2022;14(5):e24856. Published 2022 May 9. doi:10.7759/cureus.24856.
- McAlindon TE, Nuite M, Krishnan N, Ruthazer R, et al. Changes in knee osteoarthritis cartilage detected by delayed gadolinium enhanced magnetic resonance imaging following treatment with collagen hydrolysate: a pilot randomized controlled trial. *Osteoarthritis and Cartilage* 19 (2011) 399e405.

6. Clark KL, Sebastianelli W, Flechsenhar KR, Aukermann DF, Meza F, Millard RL, Deitch JR, Sherbondy PS, Albert A: Long-term use of collagen hydrolysate as a nutritional supplement in athletes with activity-related joint pain. *Curr Med Res Opin.* 2008 May;24(5):1485-96.
7. Zdzieblik, D.; Brame, J.; Oesser, S.; Gollhofer, A.; König, D. The Influence of Specific Bioactive Collagen Peptides on Knee Joint Discomfort in Young Physically Active Adults: A Randomized Controlled Trial. *Nutrients* 2021, 13, 523.
8. Zuckley L, Angelopoulou K, Carpenter MR: Collagen hydrolysate improves joint function in adults with mild symptoms of osteoarthritis of the knee. *Medicine and Science in Sports and Exercise* 2004, 36 (Supplement), 153 – 15.
9. Torrent A, Ruhí R, Theodosakis J, et al. Comparative efficacy of IB0004, extracted hyaluronic acid (HA) and fermented HA on the synthesis of endogenous HA by human synoviocytes. *Osteoarthritis Cartilage.* 2009;17(Suppl 1):S278-79. – 10x HA secretion.
10. Torrent A, Ruhí R, Martínez C, et al. Anti-inflammatory activity and absorption of a natural rooster comb extract. *Osteoarthritis and Cartilage.* 2010 Oct;18(Suppl 2):S246-47. doi:10.1016/S1063-4584(10)60577-8. – reduction of inflammation.
11. Möller I, Martínez-Puig D, Chetrit C. Oral administration of a natural extract rich in hyaluronic acid for the treatment of knee OA with synovitis: a retrospective cohort study. *Clinical Nutrition Supplements* 2009;4(2):171-172.
12. Martínez-Puig D, Möller I, Fernández C, Chetrit C. Efficacy of oral administration of yoghurt supplemented with a preparation containing hyaluronic acid (Mobilee™) in adults with mild joint discomfort: a randomized, double-blind, placebo controlled intervention study. *Mediterranean Journal of Nutrition and Metabolism* 2013;6:63–68.
13. Sánchez J, Bonet ML, Keijer J, van Schothorst EM, Mölller I, Chetrit C, Martínez-Puig D, Palou A. Blood cells transcriptomics as source of potential biomarkers of articular health improvement: effects of oral intake of a rooster combs extract rich in hyaluronic acid. *Genes & Nutrition* 2014; 9: 417.
14. Shakibaei M, Buhrmann C, Mobasheri A. Anti-inflammatory and anti-catabolic effects of TENDAXION® on human tenocytes in vitro. *Histol Histopathol.* 2011 Sep;26(9):1173-85. [PMID: 21751149].
15. Lippiello L. Collagen synthesis in tenocytes, ligament cells and chondrocytes exposed to a combination of glucosamine HCl and chondroitin sulfate. *Evid Based Complement Alternat Med.* 2007 Jun;4(2):219-24. [PMID: 1754923.
16. Nadal et al. Effectiveness of treatment of tendinitis and plantar fasciitis by TENDAXION®. *Osteoarthritis and Cartilage* 2009; 17(1):S253.
17. Arquer et al. The efficacy and safety of oral mucopolysaccharide, type I collagen and vitamin C treatment in tendinopathy patients. *Apunts Med Esport.* 2014;49:31-6.
18. Balias et al. A Randomized, Placebo-Controlled Study to Evaluate Efficacy and Safety of A Dietary Supplement Containing Mucopolysaccharides, Collagen Type I and Vitamin C for Management of Different Tendinopathies *Ann Theum Dis.* 2014;73, Suppl. 2:299-300.
19. Proksch E, Oral intake of specific bioactive collagen peptides reduces skin wrinkles and increases dermal matrix synthesis. *Skin Pharmacol Physiol.* 2014;27(3):113-9. doi: 10.1159/000355523.