

Collagen Essentials

CLINICAL APPLICATIONS

- Protects and Promotes Connective Tissue Biosynthesis
- Supports the Body's Processes of Cartilage, Tendon, Ligament and Fascia Self-Repair
- Supports Joint Lubrication, Joint Cushioning, and Normal Connective Tissue Inflammatory Response
- Supports Normal Rejuvenation of Healthy Hair, Skin and Nails

Over time lifestyle factors can cause reduced elasticity in cartilage, tendons, ligaments and skin. This not only leads to wrinkles and decreased dermal matrix, but to soft tissue and joint discomfort. FORTIGEL® has been shown in human studies to stimulate collagen regeneration, type II collagen and aggrecan, which all help to maintain healthy connective tissue.¹⁻³ Most therapies simply block joint pain and connective tissue discomfort, and in doing so inhibit the regeneration and elongation of specific precursors, such as polysaccharides, and deplete nutrients such as vitamin C and magnesium that maintain joint and connective tissue health. FORTIGEL®, TendoActive and Mobilee® protect and preserve cartilage, tendons, ligaments, intervertebral discs, and fascia. These patented ingredients support the natural healing process and maintain the structure of connective tissues.

High Quality Connective Tissue Support

Collagen Hydrolysate†

FORTIGEL®, backed by more than fifteen studies, provides bioactive collagen peptides (BCPs), which contain high concentrations of specific peptides that comprise connective tissue. The precise length of the short-chain peptides and their low average molecular weight allows easy absorption, transport, and accumulation to target connective tissue. FORTIGEL® provides 5 g hypoallergenic protein per serving from a sustainable protein source without the risk of oxalate kidney stones from higher-dose collagen products.

Clinical studies demonstrate joint health benefits. One randomized, double-blind, placebo-controlled clinical trial

performed in cooperation with Harvard Medical School and Tufts Medical Center demonstrated the efficacy of FORTIGEL®. 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 imaging scores, suggesting a potential to stimulate an effective chondrocyte response to maintain the collagenous matrix. (6) In cell culture studies, FORTIGEL® has been found to induce the synthesis of aggrecan (an important component in cartilage) and type II collagen, which plays a key role in cartilage elasticity, and support tendon and ligament matrix molecules.⁷ 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.⁵ Finally, a clinical trial on 160 subjects established an effective dose of 5 g for joint health support.⁴

Hyaluronic Acid Extract†

Mobilee® is a patented rooster comb extract rich in high molecular weight hyaluronic acid (HA), which is responsible for the viscoelastic, lubricating properties of synovial fluid. This extract also contains collagen and other glycosaminoglycans (GAGs). Hyaluronic acid also plays a role in the biophysical, biochemical and cell regulation processes in joint synovial tissues. Scientific evidence shows Mobilee® supports chondrocytes and synovial cell function, and is two to four times more active than regular HA in supporting synovial fluid

health.^{8,9} 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.¹⁰⁻¹²

Type I Collagen and Mucopolysaccharides

TendoActive® is a combination of type I collagen and mucopolysaccharides. Adult tendons, ligaments and fascial tissue are comprised mainly of type I collagen molecules organized into structural units. The molecular structure and organization of tendon, ligament and fascial collagen fibrils are key determinants in the ability of these tissues to endure mechanical force and fuel self-repair. While collagen provides much of tendon/ligament structure and strength, mucopolysaccharides are the “glue” that holds them together and allows them to stretch, flex, bend and maintain their resilience. Mucopolysaccharides are a critical component of extracellular matrix and are important in maintaining 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 cell. TendActive® has been shown to be efficacious in medial and lateral epicondyle tendon patients, Achilles tendon patients and plantar fascia patients.¹⁵⁻¹⁷

Directions

1 scoop (7.6 grams) in 8 oz of water or the beverage of your choice per day or as recommended by your health care professional. Can also be added to food and baking products.

Does Not Contain

Gluten, yeast, artificial colors and flavors.

Cautions

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

Supplement Facts ^{v1}		
Serving Size 1 Scoop (7.6 Grams)		
Servings Per Container About 30		
1 scoop contains	Amount Per Serving	% Daily Value
Calories	25	
Total Carbohydrate	0.8 g	<1%*
Dietary Fiber	0.5 g	2%*
Protein	5 g	10%*
Vitamin C (as Ascorbic Acid USP)	100 mg	111%*
Magnesium (as TRAACS® Magnesium Bisglycinate Chelate)	135 mg	32%
Sodium	50 mg	2%
Gelatine Hydrolysate (FORTIGEL®)	5.2 g	**
Tendoactive®	520 mg	**
(Standardized to contain 84% Mucopolysaccharides)		
Mobilee®	80 mg	**
(Standardized to contain 40 mg Hyaluronic Acid)		
* Percent Daily Values are based on a 2,000 calorie diet.		
** Daily Value not established		

†These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

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
- 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
- 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
- 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.
- 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
- Schunk M and Oesser S. Specific collagen peptides benefit the biosynthesis of matrix molecules of tendons and ligaments. *J Int Soc Sports Nutr*. 2013; 10
- 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
- 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
- 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
- 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.
- Sánchez J, Bonet ML, Keijer J, van Schothorst EM, Möller 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
- Shakibaei M, Buhrmann C, Mobasheri A. Anti-inflammatory and anti-catabolic effects of TENDOACTIVE® on human tenocytes in vitro. *Histol Histopathol*. 2011 Sep;26(9):1173-85. [PMID: 21751149]
- 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]
- Nadal et al. EFFECTIVENESS OF TREATMENT OF TENDINITIS AND PLANTAR FASCIITIS BY TENDOACTIVE™. *Osteoarthritis and Cartilage* 2009; 17(1):S253
- 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
- Balius 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 Rheum Dis*. 2014;73, Suppl. 2:299-300
- 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.