

Whole Body Collagen



Research-backed Collagen Peptides for Bones, Joints, and Skin*

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This information is provided as a medical and scientific educational resource for the use of physicians and other licensed health-care practitioners ("Practitioners"). This information is intended for Practitioners to use as a basis for determining whether to recommend these products to their patients. All recommendations regarding protocols, dosing, prescribing, and/or usage instructions should be tailored to the individual needs of the patient considering their medical history and concomitant therapies. This information is not intended for use by consumers.

Whole Body Collagen is a synergistic formulation designed to benefit the health of bones, joints, and skin. It contains well-researched collagen peptide blends of Verisol®, Fortigel®, and Fortibone®, which are derived from dietary collagen protein and produced with proprietary hydrolyzation technologies to optimize their beneficial properties. The unique blend of Whole Body Collagen is supported by clinical research showing its efficacy for supporting collagen production, bone strength, joint health and integrity, and skin elasticity.*

Ingredient Highlights

- A synergistic blend of three patented collagen peptide blends: Verisol®, Fortigel®, and Fortibone®
- Dairy-free, gluten-free, soy-free, and non-GMO
- Flavorless and no added sweeteners, making it easy to add to any beverage or shake

Collagen is a special type of protein that accounts for as much as 30% of the body's total protein. It acts as a primary structural component of connective tissue and supports a variety of tissues that include the tendons, skin, teeth, joints, and bones. Collagen has many roles in the body that include the development of organs, healing of wounds and tissues, and the repair of the cornea, gums, scalp, bones, and blood vessels. Collagen is present in the bones, tendons, ligaments, skin, and muscles.¹⁻⁴

There are at least 29 distinct types of collagens grouped into eight families, differing by sequence, structure, and function. Type I collagen is considered the major fibrillar collagen in vertebrae connective tissues and the most abundant collagen in the skin, bones, teeth, tendons, ligaments, and organs. Type II collagen is found in the cartilage, and type III is found in the skin, muscles, and blood vessels.¹⁻⁴

Collagen-specific helical structures are supported by the amino acids (AAs) of glycine, proline, and hydroxyproline. Although other dietary proteins can provide these specific amino acids, collagen is a more concentrated source, so it may be a more effective choice when the clinical goal is related to supporting structural components of bones, tendons, cartilage, and skin integrity. Collagen also supports overall protein and amino acid needs. As one article concludes, it was estimated that when 36% of an adequate protein intake is substituted by collagen, the need for essential AAs is still met, along with a significant supply of the collagen essential AAs of glycine and proline.⁵

Approximately 25% to 30% of the human body's proteins are represented by collagen type proteins, which are essential in human anatomy and physiology.⁶⁻¹¹ These are signaling molecules and significant structural components, which consist of 75% skin, 64% corneal tissues, 50% cartilage, 65% to 80% tendons, 70% ligaments, 10% to 11% muscles, 16% bones, 10% lungs, 12% to 24% aorta, and 30% tooth dentin.^{10,11} The amino acid and peptide compositions of dietary collagens are very similar to those of human collagens, which may also be derived from various sources such as pork, beef, fish, or chicken. Consequently, dietary collagen peptides provide nutritional support for optimization of body collagen turnover and renewal.

Benefits*

- Supports healthy bones
- Promotes healthy nails
- Supports joint health
- Helps to support healthy skin appearance and integrity

Supplement Facts

Serving Size 13 grams (approx. one scoop)
Servings Per Container 30

Amount Per Serving	% Daily Value	
Calories	45	
Protein	11 g	0%*
Sodium	30 mg	1%
Collagen Peptides	12.5 g	†
(from FORTIGEL®, FORTIBONE® and VERISOL®)		

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

†Daily Value not established.

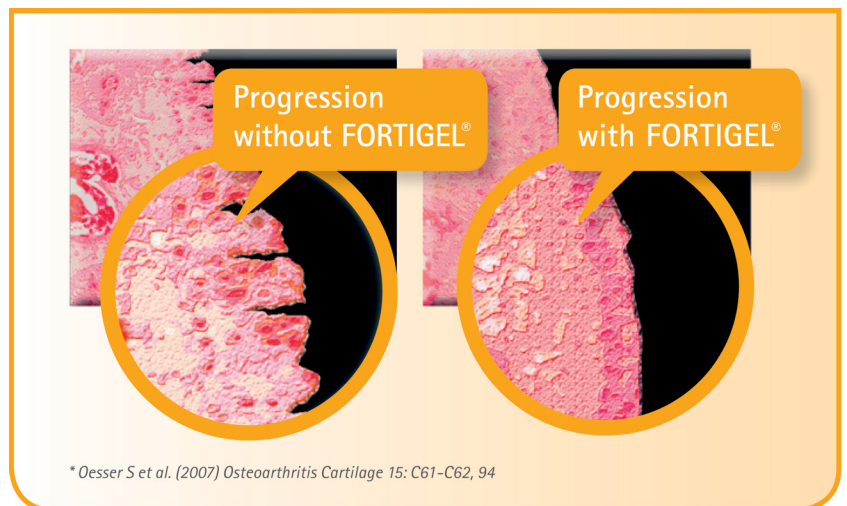
Body collagens have a normal turnover similar to other body proteins, such as muscle proteins.^{7,8,10} Their rate of turnover is affected by nutritional status, physical stimulus (exercise, stretching), and hormones.⁷⁻¹⁰ Thus, it makes sense to incorporate collagen peptides in a balanced daily protein consumption. Collagen protein has been classically viewed as incomplete solely based on its content of essential amino acids (EAAs), but it should be viewed similarly to vegetarian proteins, which contribute to total AA intake, such that the daily need of EAAs is met in the context of the average Western diet.⁵

The benefits of body collagens are explained by the fact that they are absorbed and transported to cells in various amino acid sequences and lengths. Body collagens are similar to the collagen peptides produced naturally in the body from connective tissue turnover. Endogenously produced collagen peptides are viewed as signals for stimulating repair or renewal of connective tissues. Diet-derived collagen peptides act in concert with endogenous peptides to enhance this type of signaling. Collagen peptides are eventually broken down to individual amino acids inside cells, providing building blocks for new collagen synthesis. Cofactors, such as vitamin C, silicon, iron, sulfur, and copper are crucial for stabilizing newly synthesized pro-collagens, a process that converts them to tissue-usable collagens.

Whole Body Collagen is formulated with three clinically supported collagen peptides. These unique peptides exhibit a range of structural and physiological benefits as noted in studies conducted by researchers at the universities of Harvard, Tufts, and Penn State.

Fortibone® collagen peptide blend has been found in studies to help improve bone health. One study compared 5 g of Fortibone® per day with a placebo in postmenopausal females with osteopenia or osteoporosis. The Fortibone® group experienced an improvement in bone mineral density (BMD) in the femoral neck and spine, along with increased markers of bone formation (procollagen type I propeptides [P1NP]) with no change in markers of bone breakdown (C-telopeptide of type I collagen [CTX-1]).¹² Similarly, in a small follow-up, observational study of postmenopausal women with reduced BMD, a daily intake of 5 g of Fortibone® resulted in a steady increase in BMD and the T-score in the spine and femoral neck after 4 years.¹³ Another study found that the addition of 5 g of Fortibone® to a supplement with 500 mg of elemental calcium and 400 IU of vitamin D3 in postmenopausal females with osteopenia led to a significant decrease of both P1NP and CTX-1 within 3 months, demonstrating a decrease in bone turnover. The group taking only the calcium and vitamin D3 experienced no change.¹⁴

Fortigel® collagen peptide blend has been found to benefit osteoarthritis, including knee pain and low back pain, in clinical trials. One randomized controlled trial found that kinesiotherapy, along with Fortigel®, vitamin C, sodium hyaluronate, manganese, and copper, led to a more marked improvement in pain and quality of life.¹⁵ In a pilot study, patients who took Fortigel® for 24 weeks experienced an increase in the delayed gadolinium-enhanced magnetic resonance imaging of cartilage (dGEMRIC) score (a measure associated with cartilage damage) of the medial and lateral tibial regions, demonstrating a change in proteoglycan content in the knee cartilage.¹⁶ In another study, athletes with functional knee problems during sports used 5 g of Fortigel® for 12 weeks. The Fortigel® group experienced a statistically significant improvement in activity-related pain intensity and some improvement in pain under resting conditions, although it did not reach statistical significance.¹⁷ In another randomized controlled trial of young active adults between 18 and 30 years old suffering with knee joint discomfort, a daily intake of 5 g of Fortigel® specific collagen peptides for 12 weeks led to a significantly higher reduction of exercise-related knee pain compared to a placebo.¹⁸

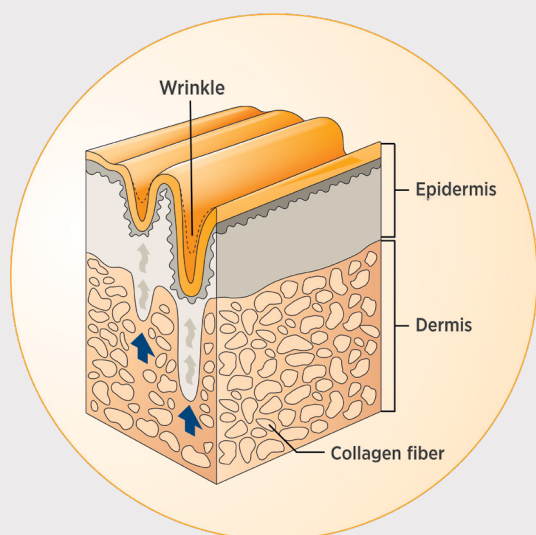


Aging and joint overuse cause loss of volume and functionality of cartilage and other joint tissues.

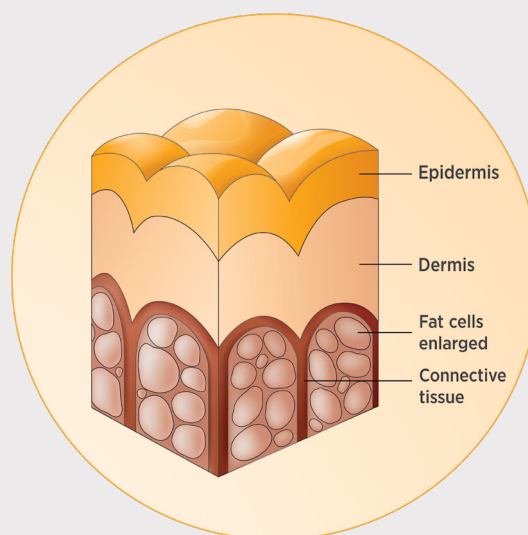
Verisol® collagen peptide blend has been shown to benefit skin health. Studies have found that it upregulates the synthesis of collagen, elastin, fibrillin, and glycosaminoglycans in the dermal layer of facial skin, resulting in reduced wrinkles and improved skin elasticity that can last for at least 4 weeks after collagen supplementation ends.^{19,20} Verisol® has also demonstrated the ability to improve cellulite appearance by increasing dermal thickness and elasticity.²¹ Another study has shown that Verisol® supplementation resulted in improved nail growth and reduced occurrence of brittle and broken nails.²²

Age-related Changes in Skin

Epithelial and dermal layers get thinner due to loss of collagen, elastin, proteoglycans, and water binding capacity. This results in wrinkles, dryness, loss of tone and elasticity, cellulite, and “crepe-like” appearance.



The Anatomy of Wrinkles



The Anatomy of Cellulite

The connective tissue surrounding the fat cells and the tissues that compose the skin layer lose elasticity and promote an uneven appearance.

Skin Aging and Elasticity

Declines in collagen are associated with skin aging.^{3,23} Collagen loss begins between the ages of 18 and 29, and after age 40, it is estimated that the body loses roughly 1% annually. By age 80, it is estimated that the collagen production in the body may be decreased by 75% compared to young adults. In addition to aging, oxidative stress, diet, certain conditions, and various lifestyle factors may contribute to increased collagen loss.³

Systematic reviews on dermatological applications for oral collagen supplementation found that it improves wrinkles, skin elasticity, hydration, and dermal collagen density with promising results for improved wound healing and skin aging while also being generally safe.^{23,24} Another systematic review looked at the potential mechanisms of dermatological oral collagen supplementation and determined that the most likely reasons for collagen's benefit for skin health were the effects on fibroblasts that lead to an increase of extracellular matrix synthesis and the induction of Treg cells and the alternatively activated macrophages (or M2-like macrophages) that increase extracellular matrix turnover and reduce the immune response against endogenous collagen.²⁵

Joint Support

Alterations in collagen may also affect joint health. Collagen damage is associated with osteoarthritis (OA), with damage common in two or more joints, such as the hips, knees, lower back, neck, or fingers.⁹ A meta-analysis of randomized, placebo-controlled trials found that oral supplementation of collagen led to a significant improvement in both total Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score and Visual Analog Scale (VAS) score in patients with osteoarthritis, demonstrating improvement in OA symptoms.²⁶

In another systematic review of all preclinical and clinical trials, it was found that the participants who took both oral and intra-articular supplements experienced benefits for OA and cartilage repair.²⁷ Specific collagen peptides have also been shown to benefit ankle stability and perceived function, pain, and swelling during physical activity, and decreased relapsing-remitting ankle trauma in subjects with chronic ankle instability.²⁸

Bone Health

Bones are composed of minerals (70%), whereas the balance is composed of organic mass (20%) and water (10%). Organic bone mass consists of 80% collagen and the balance consists of elastin, proteoglycans, osteocalcin, osteopontin, and other proteins and cells.^{29,30} Collagen fibrils act as connecting coils that bind the bone mineral crystals of calcium and phosphate.²⁹ Thus, collagen contributes to bone elasticity and resilience. Collagen content, fibril diameter, and its organization are all important determinants of bone quality, and thus, of fracture risk.^{30,31} Mechanisms of action that may explain the benefits of collagen peptides on bone metabolism have been documented by in vitro studies with bone specific cells and other connective tissues, such as collagen peptides that provide amino acid building blocks for bone collagen, exert stimulatory signals for bone cells, increase collagen and osteocalcin synthesis, reduce inflammatory cytokines (such as tumor necrosis factor-alpha, interleukin-1-beta, interleukin-6), increase alkaline phosphatase levels, and increase differentiation of mesenchymal cells into osteoblasts.^{30,32,33}

Animal studies have demonstrated benefits of collagen peptide supplementation on bone health, including reduced fracture risk, increased bone mineral density, organic mass, and collagen content of bones, along with accelerated fracture healing and improved markers of bone turnover in ovariectomized rats and bone development during growth.^{30,34-38} Clinical, pre-clinical, and in vitro research is accumulating to support the benefits of collagen peptides for bone health.^{30,39}

Collagen may also benefit body composition and muscle health, which include increased fat-free mass, improved muscle strength, and reduced fat mass, especially when combined with exercise.^{40,41} In middle-aged, untrained men, 15 g of daily supplementation of specific hydrolyzed collagen peptides in combination with a 12-week resistance training program significantly increased fat-free mass and decreased fat mass compared to the placebo.⁴² An animal study suggests that supplementation with a blend of collagen peptides may reduce menopause-related obesity.⁴³ Collagen supplementation after exercise may also support exercise recovery and muscle soreness.⁴⁴

Recommended Use: Mix 13 grams (approximately one scoop) with 8 ounces of water per day or as directed by your health-care practitioner. For ease of mixing and best consistency, add powder before adding water or another liquid.

For a list of references cited in this document, please visit:

<https://www.designsforhealth.com/api/library-assets/literature-reference---whole-body-collagen-tech-sheet-references>

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Healthcare practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage.



Fortigel®, Verisol® and Fortibone® are registered trademarks of GELITA AG.

***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.**

To contact Designs for Health, please call us at (860) 623-6314, or visit us on the web at www.designsforhealth.com.