

Whole Body Collagen

Research proven collagen peptides for bone, joints and skin

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Whole Body Collagen is a synergistic formulation designed to benefit the health of bones, joints, and skin. It contains the research-proven collagen peptide blends Verisol®, Fortigel® and Fortibone®, which are derived from dietary collagen protein and produced with proprietary hydrolyzation technologies in order to optimize their beneficial properties. Other hydrolyzed collagen proteins are available, but they cannot all be assumed to have the same efficacy, due to different amino acid and peptide profiles. In addition, the clinical effects obtained in studies with collagen peptides have not been duplicated with non-collagen type proteins, likely due to collagen's unique composition.³¹

Why Collagen Peptides?

Compared to other proteins, collagen has a unique amino acid composition and a distinct role in human anatomy. Collagen proteins are rich in the modified amino acid hydroxyproline (approx. 12%), and they have an unusually high content of glycine and proline (approx. 22% and 13%, respectively). While other dietary proteins can provide these, collagen is a more concentrated source, and as such, may be a more effective choice when the clinical goal is related to collagen as a structural protein, such as in supporting the strength of bone, tendons and cartilage, as well as the health and appearance of skin.

Collagen accounts for as much as 30% of the body's total protein, especially connective tissue. The amino acid and peptide compositions of dietary collagens are very similar to those in human collagens, making dietary collagen peptides ideal for supporting body collagen turnover and renewal.

Many individuals—the elderly in particular—do not consume adequate protein. Even among those with a higher protein intake, unless nose-to-tail eating is emphasized, the richest sources of collagen—animal skins, bone broth, and tendons—are not typically part of the modern Western diet. Since collagen powder can be incorporated into shakes, smoothies, and other foods and beverages, it is a convenient way to ensure adequate intake of these unique amino acids, and to titrate to higher doses for those who may need greater amounts, such as athletes, aging individuals, those recovering from injury, and menopausal women not on HRT.

For more information on how dietary collagen peptides support body collagen turnover, bone health, and also serve as signaling molecules, see the corresponding addendum:

http://catalog.designsforhealth.com/assets/itemresources/Addendum_on_collagen.pdf

Whole Body Collagen helps support:

- Bone density; bone mass and quality; reduced risk of fracture
- Improved skin elasticity, thickness and hydration; nail health
- Reduced wrinkle formation & cellulite appearance
- Joint tissue health & function involving cartilage, tendons and ligaments
- Healthy blood pressure
- Muscle strength; GI tract health

Highlights

Fortibone® collagen peptide blend: Clinical, pre-clinical and in vitro research is accumulating to support the benefits of collagen peptides for bone health.⁴⁵ This is complementary to the classical approach of ensuring adequate status for bone-supportive nutrients, such as calcium, magnesium, silicon, and vitamins D, K1 and K2. In a study of menopausal women with osteopenia or osteoporosis, compared to placebo, supplementation with 5 g per day of Fortibone® resulted in improvement in bone mineral density (BMD) by 6.4% in the femoral neck and 5.5% in the spine, as well as increased markers of bone formation (PINP), with no change in markers of bone breakdown (CTX 1).²⁸ The placebo group experienced no changes in BMD and PINP but showed an increase in CTX 1. Another study showed that post-menopausal women supplemented with 10 g of a collagen peptide blend (previous version of Fortibone®) for 3 years reported a fracture rate of just 9%, compared to 42% in a group treated only with calcium.⁵³ A study supplemented a 10 g dose of collagen peptides in conjunction with calcitonin and reported a higher reduction in bone resorption than in the intervention group with calcitonin alone.²⁹ Animal studies have also demonstrated benefits of collagen peptide supplementation, including reduced fracture risk, increased BMD, organic mass and collagen content of bone, accelerated fracture healing and improved markers of bone turnover in ovariectomized rats and bone development during growth.^{30-33,36,45}

Based on evidence presented above, supplementation with Fortibone® demonstrates the potential to improve both essential components of bone – the minerals and the organic content, with emphasis on the collagen related matrix. Both of these aspects of bone quality contribute to the demonstrated reduction of fracture rate.⁵⁴

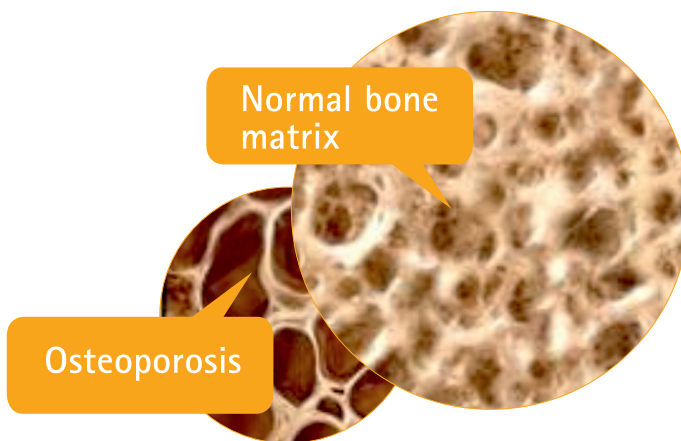


Fig. 1 Healthy versus osteoporotic bone:

Bone quality is determined not only by mineral density but also by organic mass (representing 20% of total bone mass), composed of protein and cells, of which collagen represents 80-90%.

Mineralized fibril

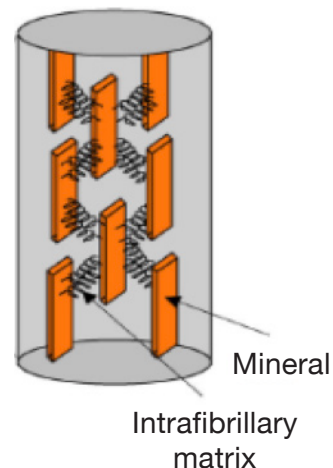
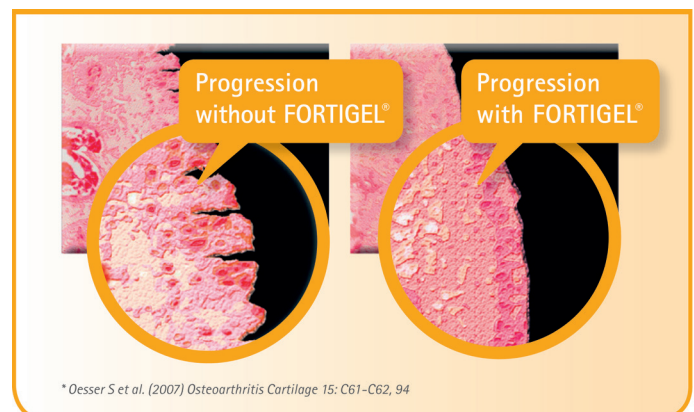


Fig. 2 Bone intrafibrillary matrix components: collagen fibrils & proteoglycans which bind calcium-phosphate crystals⁴⁶

Fortigel® collagen peptide blend has been shown to improve collagen production in joints, resulting in improved cartilage structure (increased glycosaminoglycans content as evidenced by MRI and joint space by X-ray), reduced osteoarthritis symptoms (pain, stiffness), improved joint function, reduced post-exercise joint pain in young athletes and improved ankle stability.^{16-26,47,48} Most athletic injuries occur at tendon sites, likely because the tendon is often the weakest link in the chain of transmitting mechanical force. Since the tendon is composed of 65-80% collagen, collagen peptide supplementation has potential to support improved tendon strength and elasticity.



* Oesser S et al. (2007) Osteoarthritis Cartilage 15: C61-C62, 94

Fig. 3 Aging and joint overuse cause loss of volume and functionality of cartilage and other joint tissues.

Verisol® collagen peptide blend has been shown to upregulate synthesis of collagen, elastin and glycosaminoglycans in the dermal layer of facial skin, resulting in reduced wrinkles, improved skin elasticity and hydration.^{14,15} Verisol® has also demonstrated the ability to improve cellulite appearance by increasing dermal thickness and elasticity.³⁸ These benefits may also be useful in counteracting age-related skin thinning, manifested as a “crepe-like” appearance. Another study has shown that Verisol® supplementation resulted in improved nail growth and reduced occurrence of brittle nails.⁵¹ Verisol® has been shown to reduce inflammatory processes in the skin, with potential for alleviating various clinical inflammatory conditions manifested in epithelial tissues.^{7,8} Various collagen peptides have been shown to speed healing of bed sores in the elderly,⁴³ support healing of stomach ulcerations^{40,41} and to have an anti-inflammatory/healing effect in colitis.³⁹

Age-related changes in skin

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

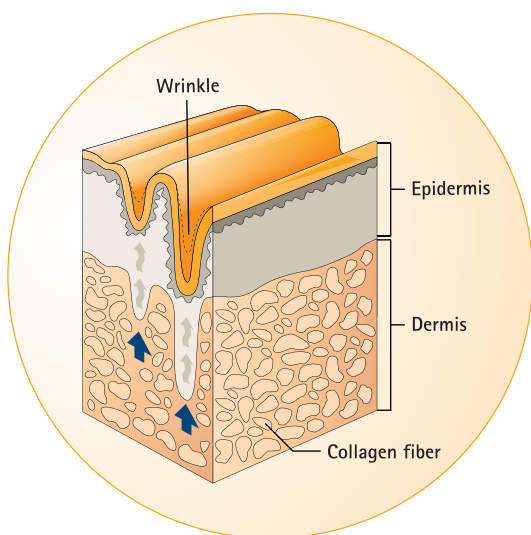


Fig. 4 The anatomy of wrinkles

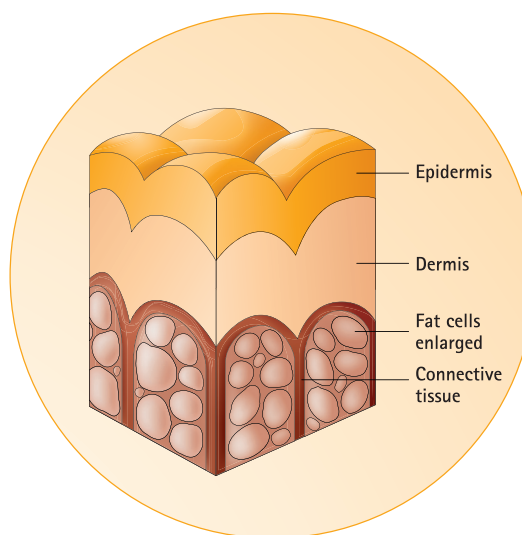


Fig. 5 The anatomy of cellulite: the connective tissue surrounding the fat cells and that composing the skin layer lose elasticity and promote an uneven appearance

Additional Benefits

Maintenance or increase in lean mass. One study reported improved muscle strength and increase in fat free mass (FFM) by 4.2 kg after a 12-week supplementation with 15g/day of an optimized collagen peptide in conjunction with resistance exercise, more than that achieved by exercise alone.⁵⁰ This study also reported a reduction in fat mass of 5.4 kg, which was likely due to an increase in metabolic rate. Another study found that a 50% substitution of dietary protein with a blend of collagen peptides preserved FFM in older sedentary menopausal women, while the same substitution with whey protein caused a slight loss in FFM.²⁷ An animal study suggests that supplementation with a blend of collagen peptides may reduce menopause-related obesity.⁴⁹

Blood pressure support. The study done with Fortibone® discussed above observed a statistically significant reduction of systolic blood pressure (128.1 versus 134.5 mmHg) and diastolic blood pressure (78.6 versus 81.2) in the intervention group but not in the placebo group.²⁸ This study was not designed with blood pressure as an outcome, but these observations are encouraging for more studies to be done, particularly when considering that an animal study (ovariectomized rats) showed that collagen peptide supplementation had a normalizing effect on blood pressure.³⁷ A potential mechanism may have been inhibition of angiotensin converting enzyme (ACE) by collagen peptides. In addition, it’s possible that blood pressure elevation may be caused in part by impaired elasticity of the arteries. Since the collagen peptide blend Verisol® was shown to improve elastin content in skin,^{7,8} it is conceivable that it may have the same effect in arterial tissue, an effect that should be investigated in future studies.

Synergistic DFH Products:

- **For general support of collagen metabolism:** C+ BioFizz™, Stellar C™, MSM capsules or powder, Ferrochel® (only if ferritin is low)
- **For skin support:** H-S-N Complete™, H-S-N Complex™ powder
- **For joint support:** Arthroben®, ArthroSoothe™ Supreme, ArthroSoothe™, Glucosamine
- **For bone support:** Vitamin D + K formulas, Tri-K™, OsteoForce™, OsteoForce™ Supreme, Osteoben®, Calcium and Magnesium formulas
- **For GI integrity:** GI Revive™, GastroMend-HP™

Supplement Facts

Serving Size 13 grams (approx. one scoop)

Servings Per Container 30

Amount Per Serving	% Daily Value	
Calories	45	
Protein	11 g	22%*
Sodium	85 mg	4%
Collagen Peptides (from FORTIGEL®, VERISOL® and FORTIBONE®)	12.5 g	†

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

†Daily Value not established.



How to Use

- As a dietary supplement, mix 13 grams (approx. one scoop) with eight ounces of water per day, or as directed by your health care practitioner. For ease of mixing and best consistency, add powder prior to adding water or other liquid.
- Collagen should not be the sole source of protein, but should be incorporated as part of a diet that contains various complementary proteins. It is considered non-allergenic, a property explained by the fact that it is pre-digested and consists of small peptides that do not have a tri-dimensional shape, and thus does not generally trigger protein allergies.
- Collagen peptides may be added to smoothies, protein powders, or foods and beverages such as coffee, tea, lemonade, cocoa, dairy or non-dairy milks, yogurts, dips, salad dressing, soups, sauces, mashed potatoes/cauliflower, casseroles, and desserts.

Figures 1, 3, 4 & 5 courtesy of GELITA AG

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

http://catalog.designsforhealth.com/assets/itemresources/WholeBodyCollagen_References.pdf

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