

Collagen Restore

Comprehensive Collagen Restoration and Protection | VA-124 / VA-920

Key Features:

Collagen Restore is a comprehensive nutrient formula for collagen integrity by providing the **building blocks (amino acids), cofactors (vitamin & minerals), and antioxidants** required for collagen regeneration and protection.

- **L-Proline, Glycine, and L-Lysine** - key components in collagen synthesis.
- **B-Vitamins, Vitamin C, Vitamin A, and Trace Essential Minerals (Zinc & Silica)** - coenzymes and cofactors for connective tissue regeneration and repair.
- Antioxidants – **Trans-Resveratrol, OPCs, CoQ10, Mixed Tocopherols, Lutein, and MSM** - for maximum protection against free radicals & prevention of age spot formation.
- **Bearberry Leaf Extract** – shown to reduce hyperpigmentation by slowing down the melanin-producing process.
- **Omega-3** to help stabilize cellular membrane of cells.

Indications:

- Health aging, skin toning, reduce hyperpigmentation of skin
- Joint deterioration - osteoarthritis, degenerative joint disease

Description:

Essential Nutrients for Collagen Synthesis

Collagen is one of the most abundant structural proteins in humans. It comprises 1/3 of the total protein, accounts for 3/4 of the dry weight of skin, and is the most prevalent component of the extracellular matrix (ECM).

Glycine, L-proline, and L-lysine are the 3 major amino acids required in the synthesis of collagen. Glycine and L-proline first join to form “procollagen”. Procollagen is then modified by the addition of hydroxy-proline and **hydroxy-lysine**, both of which require **vitamin C** as coenzyme. **Each reaction of hydroxylation destroys one molecule of vitamin C.** It is not hard to imagine how much our body consumes vitamin C as the number of hydroxylation reactions is already exorbitant for just daily collagen regeneration, let alone other biochemical reactions.

Other than Glycine, L-Proline, L-Lysine, and Vitamin C,

Quantity: 112 Vegetarian Capsules

Ingredients (per 2 capsules):

L-Lysine.....	100 mg
L-Proline.....	200 mg
Glycine.....	300 mg
Green Tea Extract (<i>Camellia sinensis</i>) (50% EGCG) (50:1)...	100 mg (leaf) (equivalent to 5,000 mg dried herb)
Trans-Resveratrol (99%) (from <i>Reynoutria japonica</i>) (root).....	30 mg
Bearberry Extract (<i>Arctostaphylos uva-ursi</i>).....	30 mg (leaf) (10:1) (equivalent to 600 mg dried herb)
Grapeseed Extract (<i>Vitis vinifera</i>) (seed) (100:1).....	40 mg (95% OPCs) (equivalent to 4,000 mg dried herb)
Coenzyme Q10 (ubiquinone) (KanekaQ10 [®]).....	20 mg
Vitamin A (from vitamin A palmitate) (1,500 mcg RAE).....	5,000 IU
Vitamin B1 (from thiamine HC).....	4 mg
Vitamin B2 (riboflavin).....	4 mg
Vitamin B6 (from pyridoxine HCl).....	4 mg
Vitamin C (ascorbyl palmitate).....	150 mg
Biotin.....	50 mcg
Niacinamide.....	10 mg
Vitamin B5 (from calcium d-pantothenate).....	20 mg
Vitamin B12 (methylcobalamin).....	50 mcg
Folate.....	100 mcg
Zinc (from zinc bisglycinate).....	6 mg
Silica (from <i>Equisetum arvense</i>).....	1.4 mg
MSM (sulfonylbismethane).....	100 mg
Algal Oil (<i>Schizochytrium spp.</i>) (12% DHA).....	20 mg
Lutein (FloraGLO [®]) (from <i>Tagetes erecta</i>) (free form).....	1.5 mg
Mixed tocopherol concentrate.....	30 mg

Non-medicinal Ingredients: Silicon dioxide, L-leucine, hypromellose (capsule)

Suggested Use: Adults - Take 2 capsules, 2 times a day, or as directed by a health care practitioner.

many other key micro-nutrients are required to support the synthesis of collagen and its scaffolding structure.

Vitamin A has been shown to **stimulate collagen synthesis while reducing the expression of matrix metalloproteinases**, enzymes that degrade extracellular matrix including collagen fibers. ^[4]

Vitamin B's are very important in connective tissue formation



by:

1. **ensuring proper metabolism of proteins** and other macro-nutrients
2. being the cofactors involved in **various biochemical modifications of amino acids and peptides**, such as transamination, methylation, and dehydrogenation.

Silica in trace amounts is able to **facilitate the formation of glycosaminoglycans (i.e. hyaluronic acid) and collagen in connective tissues and bones** via its binding of hydroxyl and polyols. [6] Glycosaminoglycans is important in the stability and proper function of ECM.

Bioavailability: Collagen Supplementation vs. Amino Acids

Collagen supplements are commonly sourced from bovine, porcine, chicken, or fish. However, it should be asked - is collagen supplementation really a superior source for collagen construction than essential nutrients such as amino acids, vitamins, and antioxidants?

Collagen, like any other protein, needs to be hydrolyzed into single amino acids, di-, or tri-peptides in the digestive tract in order to be absorbed and recombined by cells according to their needs. Therefore, **its effect is highly dependent on the individual's digestive function** (i.e. adequate HCl and enzyme secretions).

In fact, only hydrolyzed collagen has been shown clinically to help with skin [1],[2] and joint regeneration [3]. It should be noted that **hydrolyzed collagen essentially consists of single amino acids and short peptides, and yet, its marked up cost is much higher than that of amino acid supplements.**

Antioxidant Protection Against Free Radicals

Collagen is the only protein in our body susceptible to **fragmentation by free radicals**. Collagen fibers are good targets for reactive oxygen species because the helix-stabilizing amino acids - 4-hydroxyproline - are easily disrupted by these superoxide anions. [6]

As we age, the body's ability to quench free radicals drastically reduces, resulting in collagen breakdown and loss of scaffolds in the skin tissue, as well as age-spot formation.

Therefore, supplementing various sources of antioxidants, **such as vitamins A and C, trans-resveratrol, OPCs, CoQ10, mixed tocopherols, lutein, and MSM**, is essential in protection against collagen degradation.

Reference:

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5. Kumar S, Sugihara F, Suzuki K, Inoue N, Venkateswarathirukumara S. A double-blind, placebo-controlled, randomised, clinical study on the effectiveness of collagen peptide on osteoarthritis. *J Sci Food Agric* (2015). 95(4):702-7.
6. Varani J, Warner RL, Gharaee-Kermani M, Phan SH, Kang S, Chung JH, Wang ZQ, Datta SC, Fisher GJ, Voorhees JJ. Vitamin A antagonizes decreased cell growth and elevated collagen-degrading matrix metalloproteinases and stimulates collagen accumulation in naturally aged human skin. *J Invest Dermatol.* (2000). 114(3):480-6.
7. Nielsen FH. Update on the possible nutritional importance of silicon. *J Trace Elem Med Biol.* (2014). 28(4): 379-82.
8. Monboisse JC1, Borel JP. Oxidative damage to collagen. *EXS.* (1992). 62: 323-7.

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