KTO®-Collagen DF

Dairy-free Collagen Shake with C8 & Macadamia Nut Powder

designs for health®

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KTO®-Collagen DF a is dairy-free and keto-friendly high-fat powder featuring collagen peptides and fats from macadamia nut powder and the medium-chain triglyceride (MCT), caprylic acid (C8), specifically designed to support ketogenic diets.* Each 40-gram serving of this delicious vanilla flavored powder provides 16 grams of fat (with 7 grams from C8 and the remainder from macadamia nut powder), 14 grams of collagen peptides, and only 5 grams of net carbohydrates. Due to its specific fatty acid composition, KTO®-Collagen DF is uniquely formulated to help implement a ketogenic or low-carbohydrate diet while providing a convenient, high quality, and portable protein source.*

KTO®-Collagen DF is not intended as a meal replacement, but as an adjunct protein and fat source for those following a low-carbohydrate or ketogenic diet. It is also ideal for individuals who may benefit from the health-promoting effects of additional monounsaturated fatty acids (MUFAs) and MCTs.

Benefits*

- Helps promote ketogenesis and nutritional ketosis
- Supports cellular energy production
- May promote mental clarity and healthy cognitive function
- Supports connective tissue health

Formula Highlights

- Contains 14 grams of collagen peptides from Fortigel®, Fortibone®, and Verisol®
- Provides 7 grams of C8 MCTs
- Contains monounsaturated fatty acids from macadamia nut powder
- Sweetened with PhytoSweet™ — a proprietary blend of organic Reb A stevia and rebaudioside steviol glycosides from *Stevia rebaudiana* leaf with no unpleasant aftertaste
- Delicious vanilla flavor
- Suitable for ketogenic or low-carbohydrate diets
- Non-GMO
- Gluten-free, dairy-free, and soy-free
- Contains no fructose, sucrose, or artificial sweeteners

Supplement Facts

Serving Size 40 grams (approx. two scoops)
Servings Per Container 15

Amount Per Serving		% Daily Value
Calories	230	
Total Fat	16 g	21%
Saturated Fat	7 g	37%
Total Carbohydrate	6 g	2%**
Dietary Fiber	1 g	4%**
Protein	15 g	0%**
Iron	0.3 mg	2%

Amount Per Serving		% Daily Value
Sodium	60 mg	3%
Collagen Peptides (from FORTIGEL®, FORTIBONE®, and VERISOL®)	14 g	*
C8 (Caprylic Acid) MCT	7 g	*

**Percent Daily Values are based on a 2,000 calorie diet.
*Daily Value not established.

Ingredients: Collagen peptides, caprylic triglyceride powder (pea protein, tapioca fiber), macadamia nut powder, natural flavor, partially hydrolyzed guar gum, PhytoSweet™ blend (rebaudioside M, steviol glycosides [from *Stevia rebaudiana* leaf]).

Why Keto?

Ketogenic diets (KD) and very low-carbohydrate, high-fat nutritional strategies have experienced a resurgence as a rapidly expanding body of research supports their use for several clinical applications. The KD diet (with less than 10% of energy from carbohydrates) was originally developed in the 1920s as a treatment for refractory epilepsy,[1,2] but it has been established in scientific research that a very low-carbohydrate, high-fat diet may be beneficial for supporting individuals with type 2 diabetes,[3-5] metabolic syndrome,[5-7] obesity,[5,7] polycystic ovary syndrome,[8] nonalcoholic fatty liver disease,[9] migraines,[10] gout,[11] acid reflux/gastrointestinal reflux disease,[12] autism spectrum disorder,[13] and neurodegenerative diseases such as Alzheimer's.[14] Findings from a meta-analysis of randomized controlled trials showed that a KD diet significantly improved metabolic parameters (weight reduction, glycemia, and lipid profiles) in obese and overweight patients compared to low-fat diets.[5] A growing number of athletes are also adopting a KD diet to support sport and exercise performance.[15]

MCTs

C8 MCTs supply more than 40% of the fat in KTO®-Collagen DF. MCTs are digested and absorbed differently than other fats. After digestion, the fatty acids are not effective substrates for re-esterification into triglycerides and storage as body fat. They are more readily oxidized in the liver and converted to ketones, even in the presence of dietary carbohydrates. MCTs are absorbed directly into the portal vein from the intestine and delivered to the liver, bypassing conventional fat entry into the bloodstream via the lymphatic system, which makes them a quick source of energy.[16] The liver may oxidize MCTs, but they are commonly and rapidly metabolized into ketone bodies that are exported and used in other tissues as an alternative source of energy, particularly the heart, brain, and skeletal muscles.[17]

C8 may have unique physiological effects that other MCTs lack. In cultured human astrocytes (glial cells in the central nervous system), C8 increased ketogenesis, whereas capric acid (C10) did not.[18] C10 was shown to be oxidized in human neurons at only 20% the rate of C8.[19] Ketones are more efficient sources of adenosine triphosphate than glucose or fatty acids, particularly in individuals who have a neurodegenerative disease or for those who are at risk of this type of disease.[20] A review found that MCTs aid in compensating for glucose hypometabolism in the Alzheimer's brain and have neuroprotective properties on amyloid-β pathogenicity, oxidative stress, cognition, and inflammation.[21] Ketones can cross the blood-brain barrier, acting as a direct fuel source for the brain. MCTs are metabolized by astrocytes, generating ketones that are exported as fuel for neurons.[18] The rapid conversion of C8 to ketones and their uptake into the brain may support mental clarity and cognitive function.*

Macadamia Nut Powder

Macadamia nuts contain the highest amount of total fat (75%) by weight, 80% of which are palmitoleic acid, or MUFAs in comparison to other tree nuts.[22] MUFA consumption is associated with lower blood cholesterol.[23] Evidence shows that a macadamia nut-rich diet may help reduce the risk of cardiovascular-related diseases[23] and may reduce total and low-density lipoprotein (LDL) cholesterol levels in mildly hypercholesterolemic subjects compared with controls after consuming an average American diet.[24] In young, healthy female students, 3 weeks of macadamia nut intake significantly reduced serum total and LDL cholesterol levels and decreased body mass index and body weight.[25]

Collagen Peptides

Collagen is the primary structural component of connective tissue and accounts for as much as 30% of the body's total protein. Collagen peptides may be beneficial for supporting bone and joint structures and healthy connective tissues, hair, skin, and nails.* The standard American diet favors muscle meats from animal proteins and is low in collagen-rich cuts, such as oxtails or broth made from bones and joints. Collagen-rich animal tissues contain a higher proportion of amino acids required for human collagen synthesis; they are rich in the modified amino acid, hydroxyproline, and they have a high content of proline and glycine. The amino acid and peptide profiles of dietary collagens are very similar to human collagens, making dietary collagen peptides ideal for supporting body collagen turnover and renewal.*

Various human studies have demonstrated bioactive collagen peptides to promote skin elasticity, rebuild lost cartilage tissue, increase lean body mass in elderly men, improve bone mineral density in postmenopausal women, and strengthen tendons and ligaments.[26] In young athletic adults with functional knee pain, collagen peptide supplementation for 12 weeks significantly improved activity-related joint pain.[27]

Recommended Use: Mix 40 grams (approximately two scoops) in 8 to 10 ounces of water or as directed by your health-care practitioner.

KTO®-Collagen DF can also be blended into coffee or other hot or cold beverages.

For a list of references cited in this document, please visit:
https://www.designsforhealth.com/api/library-assets/literature-reference---kto-collagen-df

***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.**

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