

# KTO-360™ Powder designs for health®

*Keto-friendly, high fat powder featuring collagen peptides and MCTs*

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KTO-360™ Powder is a delicious keto-friendly high fat powder featuring collagen peptides and fats from avocado oil powder, grass-fed butter powder and the medium chain triglyceride caprylic acid C8. Each 2-scoop serving (40 g) of this unsweetened vanilla flavored powder provides 14 g protein from collagen peptides and 16 g total fat per serving, with 6.7 g from C8 and the remainder from avocado and grass-fed butter powders. One serving contains 6 g carbohydrate with 3 g fiber, for just 3 g net carbs per serving.

Individuals following ketogenic diets can use any protein powder low in carbohydrate (such as Designs for Health's Whey Cool™ or PurePea™), but many may be looking for blends that are higher in fat to help provide energy and maintain a higher overall fat intake. KTO-360™ Powder is a unique formulation delivering healthy fats along with high quality protein specifically designed with ketogenic dieters in mind. It is formulated to mimic the fatty acid composition found in the ketogenic diet while providing a convenient and portable protein source.

## **Why keto?**

Ketogenic diets and similar low-carbohydrate, high-fat nutritional strategies have experienced a resurgence as a rapidly expanding body of research supports their use for a number of clinical applications. The very low carbohydrate ketogenic diet (KD) was originally developed as a treatment for refractory epilepsy,<sup>1</sup> but it is now established that this way of eating may be effective for managing type 2 diabetes and metabolic syndrome,<sup>2-7</sup> polycystic ovarian syndrome (PCOS)<sup>8</sup>, and may also be beneficial for individuals with non-alcoholic fatty liver disease (NAFLD),<sup>9,10</sup> as well as those living with migraines,<sup>11-13</sup> gout,<sup>14,15</sup> acid reflux/GERD,<sup>16-18</sup> Parkinson's disease,<sup>19,20</sup> and Alzheimer's disease or its precursor, mild cognitive impairment\*.<sup>21,22</sup> A growing number of athletes are also adopting this very low carb way of eating to support performance in endurance sports.<sup>23-25</sup>

## **Spotlight on MCTs**

Caprylic acid (C8) medium chain triglycerides (MCTs) make up over 40% of the fat in KTO-360™ Powder. MCTs are digested and absorbed differently than other fats. After digestion, their fatty acids are not effective substrates for re-esterification into triglyceride and storage as body fat. They are more readily oxidized in the liver and converted into ketones, even in the presence of dietary carbohydrate.

Medium chain fatty acids (MCTs) are absorbed directly from the intestine into the portal vein and delivered to the liver, bypassing conventional fat entry into the bloodstream via the lymphatic system and making them a quick source of energy.<sup>26,27</sup> The liver may oxidize MCTs but more commonly they are metabolized rapidly into ketones, which are exported for use in other tissues, particularly the heart, skeletal muscle and brain.

C8 may have unique effects that other MCTs lack. For example, it was shown that C8 increased ketogenesis in cultured human astrocytes while C10 did not.<sup>28</sup> It was also shown that capric acid (C10) is oxidized in human neurons at only 20% the rate of C8.<sup>29</sup> Once referred to as "metabolism's ugly duckling"<sup>30</sup>, ketones have since been called "a high-octane fuel for the body"<sup>31</sup> and "a superfuel," because they are more efficient sources of ATP than glucose or fatty acids.<sup>32</sup>

Ketones are well-recognized for crossing the blood-brain barrier and MCTs themselves have also been shown to have this property. It is often stated that fatty acids are not a direct fuel source for the brain, and this may be true but MCTs are metabolized by astrocytes, generating ketones as a byproduct that are exported as fuel for neurons.<sup>28</sup> The rapid conversion of C8 to ketones, and especially the uptake of MCTs and ketones alike into the brain, may explain the mental clarity and sharp cognition many people experience when adding MCT oil or powder to their morning beverage.\*

## KTO-360™ Powder

MCTs have limited potential for storage as triglycerides and enter mitochondria largely independent of the carnitine transport system, making them a rapid source of energy and less likely to contribute to excess body fat stores. A meta-analysis of randomized controlled trials looking at the effects of MCTs on weight loss and body composition found that compared to diets higher in long chain fatty acids, diets enriched with MCTs resulted in small but statistically significant reductions in body weight, waist circumference, and total and visceral fat.<sup>33</sup> A separate meta-analysis came to similar findings<sup>34</sup> and other research suggests that substituting a small portion of long chain fats with MCTs may help slightly decrease body fat in overweight men.<sup>35</sup> It is possible that increased MCT consumption in place of a portion of other fats may be beneficial as part of a multifaceted strategy for fat loss.

KTO-360™ Powder is not a substitute for a low-carb or ketogenic diet for those who require carbohydrate restriction for therapeutic effects. It is intended as an ideal functional food powder for individuals following low carb or ketogenic diets, or anyone who may benefit from a low carb protein source that provides healthy fats, especially MCTs.

### Collagen Peptides

The protein in KTO-360™ Powder is provided as three different patented forms of collagen peptides. Collagen peptides may be beneficial for supporting bone and joint structure as well as supporting healthy connective tissue, hair, skin and nails. Many North Americans favor muscle meats from animal proteins and have a low intake of collagen-rich cuts, such as oxtails, chicken feet, meat on the bone, or broths made from bones and joints. Collagen-rich animal tissues contain a higher proportion of amino acids needed for human collagen synthesis, particularly glycine and proline. (For details regarding the specific collagen peptides in this product, see the tech sheet for Designs for Health's Whole Body Collagen.)

#### Recommended Use:

Recommended Use: Mix 40 grams (approx. two scoops) with 8-10 ounces of water or other liquid per day, or as directed by your health care practitioner.

**Note:** KTO-360™ Powder may also be blended into coffee or other hot or cold beverages for a creamy MCT boost.

## 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	8 g	40%*
Cholesterol	10 mg	3%
Total Carbohydrate	6 g	2%*
Dietary Fiber	3 g	11%
Protein	16 g	32%*
Iron	0.4 mg	2%
Sodium	50 mg	2%
Collagen Peptides	14 g	†
(from FORTIGEL®, VERISOL® and FORTIBONE®)		
C8 (Caprylic Acid) MCT	6.7 g	†

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

†Daily Value not established.

**Ingredients:** Caprylic triglyceride powder (pea protein, tapioca fiber), avocado oil powder, grass fed butter powder, natural vanilla flavor, silicon dioxide, partially hydrolyzed guar gum, rosemary extract (leaf, stem).

**Contains Milk.**

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