

MCT Colada™



—Great-tasting, emulsified MCT oil—

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Supplement Facts

Serving Size 11 grams (approx. 2 teaspoons)
Servings Per Container about 41

Amount Per Serving	% Daily Value	
Calories	50	
Calories from Fat	40	
Total Fat	6 g	9%*
Saturated Fat	6 g	30%*
Total Carbohydrate	2 g	1%*
Medium Chain Triglycerides (from coconut and/or palm oil)	6 g	†

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

Other Ingredients: Water, glycerine, gum arabic, natural flavors, citric acid, xanthan gum, guar gum, potassium sorbate, vitamin E (as d-alpha tocopherol), ascorbyl palmitate, and stevia.

Medium-chain triglycerides are a unique form of fat with some very impressive health benefits. One of the basic ways in which fats are categorized is by their carbon chain length. Compared to long-chain triglycerides (LCTs), the predominant form of fat in the American diet (found in most vegetable oils and animal fats), MCTs are shorter in length, containing 6 to 12 carbons as compared to more than 12 carbons found in their long-chain counterparts. It is this smaller size which sets MCTs apart and which gives them their distinct advantages, allowing for easy and rapid absorption and digestion.

MCTs, which are found mainly in coconut and palm oil, are processed in the body very differently than long-chain triglycerides. MCTs require less energy and enzymes in order to be digested. They get broken down easily by enzymes in saliva and gastric juices, so there is no need for the bile salts and pancreatic enzymes that are usually needed for fat digestion. In the body, MCTs get broken down into *medium chain fatty acids* (MCFAs) and their derivatives *monoglycerides*. They are easily absorbed across the wall of the small intestine into the blood stream and then delivered straight to the liver where they can get burned for energy (instead of being stored as fat). In essence, they act similar to a carbohydrate, but without the requirement of insulin. As a result, MCTs are more readily used as a source of energy, leading to an increase in metabolism and providing quick energy replenishment when needed.

Support for Malabsorption and Digestive Issues

Since MCTs put little strain on the digestive system and the pancreas, they prove to be of tremendous value for those with malabsorption or digestive issues, as they do not require energy for their absorption or utilization.

MCTs have been found to be helpful with the cachexia (uncontrol-

lable weight loss or wasting syndrome) seen in conditions such as cystic fibrosis, Crohn's, pancreatic insufficiency, AIDs, and cancer. MCTs can also be of great benefit in other instances of impaired digestion such as gallbladder disease, diabetes, and even obesity, assisting with proper absorption of nutrients, since nutrients are absorbed from the small and large intestine, a process which obviously requires healthy digestion.

The connection between MCTs and digestion has no boundaries when it comes to age, as they are of benefit for anyone with a decreased ability to absorb long-chain fats. Because of their short length, MCTs are helpful for premature infants, since their digestive system has not yet been fully developed. A study on newborn pigs demonstrated that the rate and extent of digestion and absorption of MCTs was significantly influenced by chain length, with results showing that absorption decreased as chain length increased (Odle J, et al, *J Nutr*, 1991). Yet, they are equally beneficial to the elderly, as it is this population who experiences a natural decrease in digestive enzyme production and the digestive process.

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MCTs and the Brain

Among the many attributes of MCTs, one stellar feature is their role in support of brain function, specifically in enhancing cognition and brain activity. Instead of being stored as fat, MCTs have the distinct capability of being converted to ketones, the body's alternative source of energy made from the breakdown of body fat in the absence of sugar. This phenomenon takes place with a ketogenic diet (a high fat, adequate protein, very low carbohydrate diet). In a ketogenic diet the body, including the brain, is starved of carbohydrates and is forced to use these ketones, or fat by-products, for energy, instead of the preferred glucose. (The only two fuel sources for the brain are glucose and ketones, in that order of preference.)

In certain neurodegenerative diseases, the brain's ability to use glucose is diminished, which is detrimental since glucose is the brain's principal energy source. When neurons are deprived of energy they lose their ability to function and will eventually die. Increasing the brain's levels of ketones through the administration/consumption of MCTs will give the neurons this alternative source of energy and thus help to assist in improving cognitive function and memory where it was otherwise impaired (i.e., post brain injury, epilepsy, autism, childhood cognitive development problems). This ability of MCTs to serve as an alternative source of fuel for the brain, is vital when brain function is declining due to neurodegenerative diseases.

MCTs & Cancer

Dietary choices are critical in cancer. Studies show an impressive therapeutic strategy for cancer patients to help inhibit tumor growth through the consumption of a ketogenic diet whose fat content included medium-chain triglycerides. One study performed on mice showed that tumor growth in those fed a ketogenic diet containing MCTs was significantly delayed when compared to those given a standard diet where the body was not starved for carbohydrates (*Otto C et al, BMC Cancer, 2008*). Another study which looked at pediatric patients with advanced-stage cancer also showed promising results when a ketogenic diet based on MCTs was used to affect tumor growth and metabolism (*Nebeling LC et al, J Am Diet Assoc, 1995*).

In addition to playing a role in inhibiting tumor growth, MCTs can also offer an advantage in fighting cancer-caused cachexia. One of the most startling alterations in cancer cells is the avid increase in glucose consumption (up to fifteen times more than noncancerous cells). It is this fundamental concept of cancer cells feeding on glucose which creates the devastating weight loss known as cachexia. In a study looking at ketogenic diets which compared the ability of medium- vs. long-chain triglycerides to prevent cachexia associated with colon cancer, it was the animals fed MCTs which showed a reduction in tumor size as well as a reduction in their weight loss (*Tisdale MJ et al, Br J Cancer, 1988*). These results suggest that following a ketogenic diet that includes MCTs may provide the best therapy to combat this wasting syndrome. The significance of this cannot be overlooked, as this extreme weight loss/malnutrition is often the crucial factor which makes cancers fatal.

MCTs, Weight Loss, & Thermogenesis

Research shows that a diet containing MCTs leads to less body fat accumulation as compared to one containing long-chain triglycerides. One study examined this comparison of MCTs to LCTs in 78 healthy adults with BMI > or = 23, where all other dietary factors remained the same, such as protein and carbohydrate intakes. The results suggested that the diet with MCTs helped to reduce both body weight and body fat in these individuals, as compared to the LCT diet (*Tsuji H et al, J Nutr, 2001*). A similar study looked at 24 overweight men with a BMI ranging from 25-31. Results showed a greater reduction in adipose tissue as well as an increase in energy expenditure (calorie burning) in those consuming a diet rich in MCTs (*St-Onge MP et al, Obes Res, 2003*).

The key to the role of MCTs in weight loss appears to be due to diet-induced thermogenesis (DIT). Diet-induced thermogenesis is the increase in energy expenditure from the production of heat that occurs after eating. It is also known as the thermic effect of food, and is essentially an insulin-mediated response resulting from fat and glycogen synthesis. Although DIT is the smallest of the three components of energy expenditure (the other two being basal metabolic rate and activity-induced thermogenesis), it is

believed to play an important role in body composition. Studies show that the diet-induced thermogenesis that occurs with a diet rich in MCTs is greater than that of diets with LCTs. The fast rate of oxidation of MCFAs leads to a higher rate of expended energy, resulting in less weight gain and decreased body fat, when compared to LCFAs. Because MCTs help to increase metabolism, they are a perfect adjunct to a healthy weight loss regimen.

Additionally, studies suggest great satiety (the feeling of satisfaction resulting from a full stomach) from an MCT-containing diet. Greater satiety means less hunger and less cravings, which are two important components in the quest for healthy weight management.

Athletes

MCTs are a tremendous asset to athletes and those who engage in diligent weight training. Often, these groups of individuals are drastically restricting their carbohydrate intake; MCTs will provide the missing energy source, a very important key for muscle recovery. Also, protein is of vital importance in the world of weight training. Since MCTs are quickly converted into energy, they offer an outstanding way for the body to spare the amino acids provided by protein from being used as fuel, and thus these amino acids can be used for their main objective, to build muscle. This anticatabolic role is crucial in preserving muscle during intense exercise, especially when a low carbohydrate diet is being followed.

MCTs & Their Antimicrobial Benefits

As mentioned earlier, MCTs get broken down to MCFAs and monoglycerides. MCT Colada™ is comprised of two MCFAs, *caprylic acid* (C8) and *capric acid* (C10), which are lauded for their antimicrobial properties. Caprylic (Octanoic) acid has been shown to have antifungal effects, making MCTs an effective adjunct in helping to combat *Candida albicans* (yeast infection). Capric (Decanoic) acid, which becomes the monoglyceride monocaprin in the body, exhibits antiviral and antibacterial activity, which may prove beneficial in fighting HIV, herpes simplex, chlamydia, and other bacteria infections.

How to Use MCT Colada™

Shake well prior to dispensing. Take 10.5 grams (approx. 2 teaspoons) with food one or more times daily.

MCT Colada™ can be taken alone or mixed in yogurt, juice, or other beverages. Add to your favorite smoothies to make them tastier and frothier.

MCT Colada™ can also be used for cooking and baking, but do not heat above 325°F.

NOTE: High doses may cause laxation (i.e., loose stools). Titrate to allow the body to adjust to the ingestion of MCTs.

For a list of references, click the related research link

http://www.ncbi.nlm.nih.gov/sites/myncbi/collections/public/1zE_b4dSRn5yFkuClytcjSkk/

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