MEDIUM-CHAIN TRIGLYCERIDES (MCT)

Description
Commercial medium-chain triglycerides (MCT) are composed of 8 to 10 carbon fatty acids synthesized from palm kernel and coconut oils. MCT provide 8.3 kcal per gram and 116 kcal per tablespoon. MCT oil is available in 960 ml/bottle 7.7 cal/ml and may be added into the diet of cystic fibrosis patients.

Indications
MCT are indicated in conditions where long-chain triglycerides (LCT) are not well tolerated. MCT are commonly used in fat-controlled diets to provide increased calories and improve the palatability of a reduced-fat diet. The following properties of MCT may make it useful in disorders where LCT is problematic:

- Absorption can occur despite pancreatic lipase deficiency.
- Bile salts or micelles are not required for dispersion in water and subsequent absorption.
- Transport across the intestinal mucosa occurs more readily than with LCT.
- MCT are not dependent upon chylomicrons for transit and consequently do not require lipoprotein lipase for oxidation.
- Transport does not occur through the lymphatic system. MCT travel directly to the liver via the portal vein, as free fatty acids bound to albumin.
- MCT brakes down to fatty acids more quickly and oxidizes more rapidly and efficiently than LCT.
- MCT may be adjunctive to a fat-controlled diet in the following conditions:
  □ Pancreatic insufficiency
  □ Cystic fibrosis
  □ Intestinal resection
  □ Hepatobiliary disease

Contraindications
Under normal physiologic conditions, MCT are ketogenic. Therefore, MCT are contraindicated in persons who are prone to diabetic ketoacidosis.

In cirrhosis, MCT accumulate in the blood, resulting in a condition that presents with symptoms similar to hepatic encephalopathy, including hyperlactacidemia, hyperammonemia, hyperventilation, and altered EKG findings.

Planning the Diet
- MCT are available as MCT oil or in formulas containing MCT.
- MCT should be introduced slowly to avoid the abdominal distention and pain, nausea, vomiting, and diarrhea associated with rapid infusion or high dose.
- MCT in divided doses of no more than 15 to 20 mL (3 to 4 tsp.) at a time are generally well tolerated. Patients should initially receive no more than 20 to 30 mL per day, increasing by 5 to 10 mL per day as tolerated until the MCT goal is met.
- To incorporate MCT into the diet, the following are suggested:
- Add 1 tsp. MCT oil to 4 oz. formula, milk, beverages, juices, or flavored drinks.
- Substitute an equal amount of MCT oil for other fats when cooking and baking.
- Prepare salad dressings with MCT oil.