## **Elemental Diets**

According to the dictionary definition, hypoallergenic is designed to reduce or minimize the possibility of an allergic response, as by containing relatively few or no potentially irritating substances. However, there are currently no Federal standards or definitions that govern the use of the term "hypoallergenic." For a product to maintain hypoallergenicity, ingredients derived from potentially allergenic sources should be eliminated throughout the entire supply chain. Common allergens include corn, dairy, soy, shellfish, eggs, fish, peanuts, tree nuts, wheat, and gluten.

An elemental diet consists of macronutrients broken down into their elemental form requiring little to no digestive functionality allowing time for the gut to rest and heal. Although some elemental diets claim to be hypoallergenic and lactose free, some products do not indicate dairy-free and use maltodextrin from corn as a source of carbohydrates. A hypoallergenic elemental diet product may contain corn-free maltodextrin and contain no common allergens. Other products used in place of elemental diets, such as targeted protein powders are also usually not hypoallergenic. Intact protein themselves are potentially irritating to the gastrointestinal and digestive systems. Proteins are large molecules and have four different levels of structure – primary, secondary, tertiary, and quaternary.

While all of this is quite elegant biochemically, physiologically, proteins cause problems when they cross the selectively permeable intestinal mucosa into the blood stream. This is where the immune system gets involved and irritation begins. Thus, intact protein products have a higher immune system reaction potential than free form amino acids as seen in elemental diets.

Elemental diets have been in use since the 1940's in hospital settings; however, recent research has resurfaced the benefits of using it as a dietary intervention to treat patients with compromised digestive systems. The elemental diet is a medically supervised, sole nutrition dietary management given to individuals with moderate to severe impaired gastrointestinal function for 14-21 days. Some elemental diets are also considered medical foods.

Clinical evidence supports the use of elemental diets in the dietary management of gastrointestinal/digestive impairments including SIBO, Irritable Bowel, and Crohn's disease. The diet consists of macronutrients broken down into their elemental form requiring little to no digestive functionality allowing time for the gut to rest. Elemental formulations are believed to be entirely absorbed within the first few feet of small intestine.

Products designed for the Elemental Diet contain anywhere from 14-18% of calories from protein in the form of amino acids, 42-76% calories from carbohydrate in the form of monosaccharaides, and 6-43% of calories from fat in the form of fatty acids. The micronutrient composition of an elemental diet is complex because it must be sufficient for up to 3 weeks, but not exceed safe levels of ingestion even for impaired individuals.

Elemental diets require minimal digestive functionality for assimilation and meet the distinctive nutritional requirements of individuals with impaired gastrointestinal function. Elemental diets offer complete nutrition in an easily digestible and absorbent liquid form.

Elemental diets are often confused between a variety of other diet plans and products. Semi-elemental diets are a perfect example. Semi-elemental diets are diets that make up a subset of an elemental diet as they use hydrolyzed protein in their formula. These diets are used for less severe cases of gastrointestinal/digestive impairment including SIBO and Crohn's disease.

Meal replacement products are also commonly compared to elemental diets. While both an elemental diet and meal replacement product can be used as sole nutrition, meal replacements are designed primarily for weight loss or weight gain. Meal replacements also contain whole proteins which are not suitable for comprised systems.

Targeted protein products also contain whole proteins. These products are not designed to be a sole source of nutrition for an individual and are not indicated for severely impaired GI dysfunction.

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