



Low FODMAP (Fermentable Oligo-, Di- and Monosaccharides and Polyols) Diet

What are FODMAPs?

FODMAPs are a type of carbohydrate (or “sugar”) found in certain foods. Some people may have trouble digesting FODMAPS, especially patients with irritable bowel syndrome, a slow moving gut, or other bowel disorders. This is because FODMAPS are not easily absorbed by the bowel. Symptoms include: abdominal discomfort, distention, bloating, fullness, nausea and/or pain after eating foods containing FODMAPS.

The table below lists the names of the carbohydrates that are considered FODMAPs.

<u>Fructans and Galactins</u>	<u>Polyols</u>
<ul style="list-style-type: none"> • Fructose • Lactose • Fructooligosaccharides • Galactooligosaccharides 	<ul style="list-style-type: none"> • Sorbitol • Mannitol • Xylitol • Maltitol

Fructose* and Glucose

Fructose is a naturally occurring sugar found in fruit, vegetables, and honey. Fructose intolerance can occur in people with irritable bowel syndrome and other bowel disorders. Fruits and fruit juices with higher levels of fructose may cause gas, bloating, abdominal cramping, and diarrhea.

Glucose is also a naturally occurring sugar. Fruits and juices with more glucose (and less fructose) may be more “intestine friendly”. The tables in the following section list which fruits, juices and other foods may be better choices for patients with FODMAP intolerance.

High Fructose Corn Syrup (HFCS) *

HFCS is an ingredient in many processed foods. HFCS is made up of almost half glucose and half fructose. HFCS may be easily digested by some patients. Therefore, items with HFCS, such as soft drinks, may be tolerated well if they are limited to 12 oz per day and are taken with a meal.

** In some patients, even a small amount of processed fruit juice or HFCS may cause intestinal discomfort and/or malabsorption.*

Sorbitol

Sorbitol (or sorbose) is a sugar alcohol that is found naturally in fruits and fruit juices. It is used as an artificial sweetener. It can also be found in many "diet foods" or "diabetic" foods (such as diet soft drinks, sugarless gum, sugar-free jelly/jam, and other sugar-free foods). It may also be found in liquid medications. Sorbitol often creates similar symptoms as fructose – especially when fructose and sorbitol are ingested together.

General Guidelines

- Eliminate products with ingredients that list fructose, crystalline fructose (not HFCS), honey, and sorbitol on the label.
- Avoid sugar alcohols. These include sorbitol, isomalt, lactitol, maltitol, mannitol, xylitol, erythrytol, and lactatol. These are often found in "diet" or "diabetic foods" such as diet drinks, ice cream, candy, processed goods, etc.
- Limit drinks with HFCS. If used, drink less than the recommended serving size--less than 12 oz of soda (may help to drink with a meal).
- Check your medications for fructose and sorbitol. They are not always listed on the label, so check with your pharmacist or the manufacturer.
- Keep in mind the amount of fructose found in 2 apples (or 2 oz of honey) is the same as the amount of fructose in 1 can of soda (note: apples have other nutritional benefits).
- Follow guidelines below to choose fruits, vegetables, and other foods that are friendlier to your intestines!

Fruits:

- Serving size is ½ cup
- Limit to 1 to 2 servings per day.
- Fresh or fresh frozen fruit may be better tolerated than canned fruit.
- Keep in mind tolerance may depend on the amount you eat at one time.
- Limit concentrated sources of fruit--such as dried fruit and fruit juices
- Avoid eating large amounts of any fruit.

The foods listed as "Foods to Avoid" should not be eaten because of their high FODMAP content. These are otherwise healthy foods.

Intestine Friendly	Foods to Avoid if FODMAP Intolerant	Questionable Foods/Foods to Limit
Bananas*, blackberries, blueberry, grape, grapefruit, honeydew, kiwifruit, lemons, limes, mandarin orange, melons, oranges, papaya, passionfruit, pineapples, raspberries, rhubarb, strawberries, tangelos	Apples, apple cider, apple juice, applesauce, apricots, cherries, dates, grapes, lychee, mango, peaches, pears, pear juice, plums, prunes, watermelon	Other fruit juices or drinks, sugar-free jam/jelly, dried fruit, canned fruit in heavy syrup, other fruits

Vegetables:

- Serving size is ½ cup (most vegetables) or 1 cup of leafy green vegetables
- Limit to 1 ½ to 3 servings per day.
- Cooked vegetables may be tolerated best as cooking causes a loss of free sugars.
- Keep in mind tolerance may depend on the amount you eat at one time.

Intestine Friendly	Foods to Avoid if FODMAP Intolerant	Questionable Foods/Foods to Limit
Bamboo shoots, bok choy, carrots, cauliflower*, celery, cucumber*, eggplant*, green beans*, green peppers*, leafy greens, parsnip, pumpkin, spinach, sweet potatoes, white potatoes, other root vegetables	Artichokes, asparagus, some beans (baked beans, chickpeas, kidney beans, lentils) beetroot, broccoli, Brussels sprouts, cabbage, cauliflower, fennel, garlic, sugar snap peas, leeks, soy products, okra, onions, peas, shallots	Avocado, corn, mushrooms, tomatoes, other beans

Other Foods and Food Additives:

Intestine Friendly	Foods to Avoid if FODMAP Intolerant	Questionable Foods/Foods to Limit
<ul style="list-style-type: none"> • All meats • All fats • Yogurt and hard cheeses • All eggs • Aspartame (Equal® and Nutrasweet®) • Saccharin (Sweet 'n Low®) • Sucrose (table sugar) • Glucose • Maple syrup 	<ul style="list-style-type: none"> • Honey • Flavorings with fructose or sorbitol • Desserts (ice cream, candy, cookies, bars, popsicles) sweetened with fructose or sorbitol • Cereal or other processed foods with sorbitol or fructose on the label • Sherry and port wine • Sweeteners such as sorbitol, mannitol, xylitol, maltitol, and isomalt used in sugar-free gum, candies and mints 	<ul style="list-style-type: none"> • Limit products with HFCS if symptoms still continue • If you experience symptoms with lactose, try limiting milk, cottage cheese, and other lactose-containing foods (see Lactose Intolerance handout)

*** Possible gas forming foods may need to be avoided**

Medications:

Many liquid medications and some personal care items may contain lactose or the sugar alcohols (sorbitol, mannitol, xylitol, maltitol, isomalt). Examples include: liquid pain relievers (including liquid gel caps), cough medicines, and cough drops. If possible, choose a tablet or caplet form instead of liquid medication. If you have eliminated FODMAPs from your diet and are still having symptoms, talk to your pharmacist to see if any of your medications contain lactose or sugar alcohols.

Additional Resources:

Visit: www.GInutrition.virginia.edu

- **Go to Nutritional Issues in Practical Gastroenterology**
- **Scroll down to the 2007 articles: "Clinical Ramifications of Malabsorption of Fructose and Other Short-chain Carbohydrates"**