

Low FODMAP Diet

Functional Gastrointestinal Disorder (FGID)

Functional gastrointestinal disorders such as indigestion, irritable bowel syndrome (IBS), incontinence, reflux, and chronic constipation are the most common gastrointestinal (GI) disorders in the United States. Many of these GI disorders include pain, bloating, visible abdominal distention, and possible constipation or diarrhea. These symptoms can be caused or worsened by diet and psychological factors such as stress. The cause of most FGIDs is unknown.

What are the symptoms?

Symptoms of FGID are the primary method of diagnosis. These symptoms include:

- Abdominal pain
- Constipation
- Diarrhea
- Nausea
- Vomiting
- Heartburn or indigestion
- Leakage, urgency, or loss of bowel control
- Decreased appetite
- Swallowing problems

How is it treated?

Treatment often involves many different healthcare professionals including physicians, therapists, and dietitians. A special diet called the Low FODMAP diet can be an effective treatment for the GI symptoms associated with FGID.

How does the Low FODMAP Diet work?

FODMAPs are short-chain carbohydrates and sugar alcohols that are found in a wide variety of foods. FODMAPs may be poorly tolerated by individuals with IBS for the following three reasons:

1. FODMAPs foods may be poorly absorbed in the small intestine due to slowed digestion or limited digestive enzymes.
2. FODMAPS are small chain carbohydrates. Their small size draws water into the gut which can create a laxative effect or diarrhea. It can also cause cramping and stomach discomfort.
3. Small, shorter-chain carbohydrates are more quickly fermented by bacteria in the gut, which can lead to gas, bloating and abdominal distention.

What are FODMAPs?

FODMAP stands for Fermentable Oligosaccharides, Disaccharides, Monosaccharides, and Polyols. The short-chain carbohydrates and sugar alcohols include fructose, lactose, oligosaccharides (fructans and galactans), and polyols (such as sorbitol, mannitol, xylitol, and maltitol).

Fructose

Fructose is a simple sugar found primarily in fruit, high-fructose corn syrup, honey, and agave nectar. Absorption of fructose relies on certain enzymes in the intestines and some people lack those enzymes. Many foods contain a combination of glucose and fructose. Foods that contain both glucose and fructose are usually better absorbed than those that contain only fructose or excess amounts of fructose.

Lactose

Lactose is a sugar found in many dairy products. Milk and products made from the milk from cows, sheep, and goats all contain lactose. The body produces an enzyme called lactase which helps break down lactose in the digestive tract. Some people have lower levels of lactase which means they may be able to tolerate small amounts of dairy. Others produce no lactase and must avoid all foods with lactose.

Fructans and Galactans

All humans lack the proper enzymes to break down fructans and galactans. Fructans and galactans are broken down by gut bacteria which can lead to bloating and gassiness. Common sources of fructans are wheat, onions, and garlic. Galactans are commonly found in beans and lentils.

Polyols






Polyols, or sugar alcohols, are poorly digested and not fully absorbed in the intestines. Sorbitol and mannitol are the most common sugar alcohols in people's diets. They are found in some fruits and vegetables naturally as well as sugar-free gums, candies, and mints.

Key concepts to the FODMAP diet:

1. Intake of all FODMAPs should be restricted. Restricting only one of the FODMAPs ignores the likelihood that other FODMAPs in the diet have similar effects in the gut. Restricting all FODMAPs has a far better effect.
2. FODMAPs and other dietary factors do not cause FGID, but they can contribute to GI symptoms. FGID is caused by intestinal hypersensitivity, excess gas production by bacteria in the gut, or motility problems. The FODMAP diet can help reduce symptoms, but cannot cure FGID.
3. The Low FODMAP Diet is not intended to be a long-term or lifetime diet. Most people are able to reintroduce some FODMAPs into their diet in varying amounts.




The FODMAP Diet

The FODMAP diet limits foods with excess fructose, lactose, oligosaccharides (fructans and/or galactans), and polyols.


Food Group	Low FODMAP Foods	High FODMAP Foods
Milk and Milk Products 	<ul style="list-style-type: none"> Milk: lactose-free cow's milk, almond, coconut, rice Lactose-free ice cream (or non-dairy alternatives like sorbet) Lactose-free yogurt, coconut milk yogurt Hard cheeses: brie, feta, cheddar, Swiss, mozzarella, parmesan Condiments: butter, half and half, cream cheese 	<ul style="list-style-type: none"> Milk: cow, sheep, goat, soy, evaporated milk, condensed milk, milk powder Sherbet, ice cream, frozen yogurt Yogurt: cow's milk, goat's milk (Greek yogurt is lowest), soy Soft and fresh cheese: ricotta, cottage cheese, mascarpone Condiments: sour cream, whipping cream
Grains, Breads, and Cereals 	<ul style="list-style-type: none"> Gluten-free grains Oats, oat bran, oatmeal Quinoa Corn, polenta, popcorn Rice, rice bran, rice cakes Tapioca *Crackers, breads, chips, bagels, biscuits, noodles, pancakes, etc. made from allowed grains 	<ul style="list-style-type: none"> Wheat Rye Barley Spelt Bulgur Inulin *Crackers, breads, chips, bagels, biscuits, noodles, pancakes, etc. made from above grains
Legumes 	<ul style="list-style-type: none"> Less than 1/2 cup of canned chickpeas or canned lentils 	<ul style="list-style-type: none"> Kidney beans, baked beans, broad beans, butter beans, soybeans Lentils
Meat, Poultry, Fish, and Eggs 	<ul style="list-style-type: none"> All fresh or frozen: Lamb, beef, pork, wild game, chicken, duck, turkey, fish, shellfish Eggs, cooked plain or with approved ingredients 	<ul style="list-style-type: none"> Breaded meats
Fats and Oils 	<ul style="list-style-type: none"> All *garlic infused oil OK 	None

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Food Group	Low FODMAP Foods	High FODMAP Foods
<p>Nuts and Seeds</p> 	<p>Limit nuts to 10-15, or 2 tablespoons</p> <ul style="list-style-type: none"> • Hazelnuts • Macadamia • Mixed nuts • Pecans • Pine nuts • Peanuts • Walnuts • Chia seeds • Pumpkin seeds • Sesame seeds, • Flax seed (limit to 1 tablespoon) 	<ul style="list-style-type: none"> • Pistachios, cashews, almonds
<p>Fruit</p> 	<ul style="list-style-type: none"> • Avocado (limit to ¼ of whole) • Banana • Blueberry • Cantaloupe • Cherries (fewer than 3) • Clementine • Grapefruit (less than ½, medium) • Grapes, red or black • Guava • Honeydew melon • Kiwi fruit • Lemon juice • Lime juice • Mandarin • Orange • Passionfruit • Prickly pear • Pineapple • Pomegranate (1/4 cup of seeds) • Raspberry • Rhubarb • Strawberry 	<ul style="list-style-type: none"> • Excess fructose and polyols: <ul style="list-style-type: none"> – Apples – Pears – Peaches – Watermelon • Excess fructose: <ul style="list-style-type: none"> – Mango – Canned fruit in natural juice or syrup – Large servings of dried fruit or fruit juice – Polyols: <ul style="list-style-type: none"> – Apricots – Cherries – Nectarine – Plums, prunes • Fructans & Galactans: <ul style="list-style-type: none"> – Rambutan – Persimmon
<p>Sugars and Sweeteners</p> 	<ul style="list-style-type: none"> • Maple syrup • Golden syrup • Sugar, white, brown, (sucrose) • Glucose • Stevia 	<ul style="list-style-type: none"> • Excess Fructose: <ul style="list-style-type: none"> – Honey – Fructose, High fructose corn syrup – Agave • Polyols: <ul style="list-style-type: none"> – Sorbitol – Mannitol, Xylitol – Maltitol – Isomalt – *other sweeteners ending in “-ol”

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<p>Vegetables</p> 	<ul style="list-style-type: none"> • Alfalfa • Artichoke hearts, canned (less than 1/4 cup) • Baby spinach • Bell peppers • Bok Choy • Butternut Squash • Cabbage • Carrots • Celery (less than 1/2 stalk) • Chili, red/green • Chives • Corn (less than 3/4 cob) • Cucumber • Eggplant • Endive leaves • Fennel leaves • Ginger Kale • Lettuce (butter, radicchio, red) • Okra • Olives • Parsnip • Potato • Pumpkin, canned • Radish • Spring onion • Squash • Sweet potato (3/4 cup) • Swiss chard • Tomato (canned, cheery, roma, etc.) • Turnip • Water chestnuts • Yam • Zucchini 	<ul style="list-style-type: none"> • Oligosaccharides: <ul style="list-style-type: none"> – Artichokes – Asparagus – Beetroot – Brussel sprouts – Broccoli – Fennel bulb – Garlic – Green peas – Onions (brown, leek, white, shallots) – Snow peas – Sweet corn • Polyols: <ul style="list-style-type: none"> – Cauliflower – Mushrooms – Snow peas – More than 1/2 stalk celery – More than 1/2 cup sweet potatoes
<p>Beverages</p> 	<ul style="list-style-type: none"> • Espresso, decaf and regular • Instant decaf and regular coffee (less than 2 tsp) • Tea, black, green, peppermint, white • Hot chocolate (less than 2 tsp) • Coconut water • Cranberry juice • Vegetable juice blend (tomato based) • Alcohol (beer, gin, vodka, wine, whiskey) <p>*alcohol is a gut irritant and should be limited</p>	<ul style="list-style-type: none"> • Drinks made with high fructose corn-syrup, honey • Apple juice • Tropical juices or juice blends • Rum • Hard Cider
<p>Spices</p> 	<ul style="list-style-type: none"> • All spice • Cardamom • Chili Powder (less than 1 tsp) • Cloves (less than 1 tsp) • Cinnamon (less than 1 tsp) • Cumin • Curry powder (less than 1 tsp) • Fennel seeds • Mustard seeds (less than 1 tsp) • Nutmeg • Paprika (less than 1 tsp) • Pepper • Coriander seeds • Saffron • Turmeric 	<p>*Some spices may contain other chemicals which may be gastric irritants.</p>

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Food Group	Low FODMAP Foods	High FODMAP Foods
<p>Condiments</p> 	<ul style="list-style-type: none"> • Barbecue sauce (no high fructose corn syrup, garlic or onion) • Chutney (less than 1 Tbsp) • Fish sauce • Mustard • Oyster sauce (less than 2 Tbsp) • Peanut butter • Pickles/relish (less than 1 Tbsp) • Sweet and Sour sauce • Soy Sauce • Tahini paste (less than 1-½ Tbsp) • Worcestershire sauce • Vinegar, rice wine, balsamic 	<p>Any with FODMAP containing ingredients</p>

FODMAP Elimination and Reintroduction

A diet low in FODMAPs should be followed for at least 2-6 weeks or until symptoms resolve. Typically, improvement in symptoms is seen in as little as one week. Work closely with your dietitian to introduce foods gradually to determine what amounts and types of FODMAPs you can tolerate in your diet. It is very important to keep a food journal and to track symptoms when re-introducing foods to your diet.

When reintroducing FODMAPs, continue to follow a low FODMAP diet and choose foods that contain only one type of FODMAP. Introduce one FODMAP at a time over the course of 1-2 weeks, eating the challenge food in the specified amount every 1-3 days. Once tolerance to certain FODMAPs is established, then foods containing more than one type of FODMAP and/or larger portions of challenge foods may be attempted.

Challenge Foods

- Lactose: 1 cup milk, 6 oz container plain yogurt
- Fructose: 1-2 teaspoons honey or agave, ½ mango
- Fructans: 1 garlic clove, 2 dried figs, 2 slices wheat bread, or 1 cup pasta
- Galactans: 15 pistachios, ½ cup lentils or chickpeas, 1 cup soy milk (from soy beans)
- Polyols: Sorbitol, 2 dried apricots, 10 blackberries; Mannitol, ½ cup cauliflower

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Meal Ideas for a Low FODMAP Diet

BREAKFAST

- Cornflakes or rice cereal with lactose-free milk
- Gluten free toast with strawberry jam and egg
- Poached eggs with spinach
- Oatmeal with brown sugar
- Assorted approved fruit

LUNCH

- Sandwich on gluten-free bread with turkey, lettuce or spinach, tomato, sliced cheddar cheese, lactose-free yogurt, ½ cup baby carrots
- Sushi or spring rolls with suitable fillings (rice, tuna, cream cheese, etc.)
- Fresh salad with tuna (or your choice of meat), 1 Tbsp pecans, olive oil, and lemon juice (or salad dressing without high fructose corn syrup)
- Gluten-free pizza with low FODMAP vegetables

DINNER

- Grilled chicken or salmon with baked sweet potato, sautéed spinach and red peppers (prepared in olive oil, salt, pepper, pine nuts), and kiwi fruit
- Baked potato with skin (butter optional), hard cheese, lean bacon, and chives
- Stir fry made with brown rice or rice noodles, your choice of meat, peppers, water chestnuts, bok choy; made without onion or garlic
- Homemade stew: beef or chicken with approved vegetables, rice or quinoa

SNACKS

- Rice cakes with peanut butter
- Lactose-free yogurt with blueberries or strawberries
- Walnuts, peanuts, or pumpkin seeds
- Hardboiled egg
- Mozzarella cheese stick
- Banana and peanut butter

Other Resources

- www.katescarlata.com
- www.ibsfree.net
- <http://www.med.monash.edu/cecs/gastro/fodmap/>

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