



Low Fructose Diet

What is Fructose?

Fructose is a natural sugar found in fruit, fruit juices, honey, and agave syrup. It is also found in some vegetables and wheat products in another form called fructans (fructose sugars in a long chain). High fructose corn syrup (HFCS) is another form of fructose commonly used in processed foods.

What is Fructose Intolerance?

Fructose intolerance, also called dietary fructose intolerance or fructose malabsorption, happens when a person cannot properly absorb normal amounts of fructose (>25 grams per meal).

What are common symptoms?

Unabsorbed fructose that reaches the large intestine can be fermented (converted into gas) by bacteria causing symptoms like abdominal pain, gas, belching, and bloating. Unabsorbed fructose can also pull water back into the colon, increasing gut motility and causing diarrhea. Less common symptoms of fructose intolerance can include reflux, depression, fatigue, brain fog, headache, weight loss, and sugar cravings.

How is Fructose Intolerance diagnosed?

Anyone can develop fructose intolerance, but it is more common among individuals with irritable bowel syndrome (IBS) or other gastrointestinal disorders. A Hydrogen Breath Test is used to diagnosis fructose intolerance. An abnormal (positive) test indicates the need for a low fructose diet.

What is a Low Fructose Diet?

A low fructose diet reduces the amount of fructose consumed by limiting or avoiding foods with **excess** fructose (foods that contain more than half of their natural sugar as fructose), foods with high fructose (more than 3 grams), and foods that are a significant source of fructans (chains of fructose).

How long does this diet need to be followed?

A low fructose diet should be followed until symptoms improve, typically 2-6 weeks. Some people will have symptom improvement within a few weeks while others may need more time.

Once symptoms improve, foods with high/excess fructose and fructans should be reintroduced to the diet in small amounts or as tolerated until a personal tolerance is determined. Foods should be reintroduced one at a time, waiting 1-3 days in between reintroductions. The end goal is to consume the most varied and least restrictive diet possible while keeping fructose intake to a level that does not produce major symptoms.

Other Important Sugars

- **Glucose:** Glucose is a natural sugar that aids in fructose absorption. Foods with equal amounts of fructose to glucose are generally well tolerated. Foods with more glucose than fructose are considered to be "gut friendly". Eating foods with excess glucose with a food with excess fructose can minimize symptoms.



- **Sugar (sucrose):** Sugar contains equal parts of glucose and fructose and therefore is tolerated in small quantities. Large amounts can be problematic.
- **Sugar alcohols:** Sugar alcohols are often used in “diet” and sugar-free foods such as gum, mints, and cough drops. Common sugar alcohols include isomalt, malitol, mannitol, sorbitol, and xylitol. Sugar alcohols don’t contain fructose, but they can inhibit fructose absorption therefore should be avoided.
- **Sugar substitutes:** Sugar substitutes (Aspartame, Splenda, Equal) do not contain fructose but may not be well tolerated.

Helpful tips:

- Read ingredient lists carefully.
- Eat low fructose foods in small amounts and as part of a meal or snack to slow down digestion.
- Check medications and vitamins for fructose and/or sorbitol. Ask your pharmacist or the manufacturer for assistance as this information is not always included on the label.
- Keep a food journal and document symptoms, especially during the reintroduction phase, to help identify which fructose containing foods are most problematic for you.
- If you have constipation, talk to your doctor about a bowel management program.

Low Fructose Diet Guidelines:

For 2-6 weeks, avoid high fructose foods as much as possible. Choose low fructose alternatives.

Category	High Fructose Foods	Low Fructose Alternatives
<p>Fruits</p> <p><i>*Since all fruits contain some fructose, low fructose fruits should still be limited to 1-2 servings/day.</i></p> <p><i>*Serving size is ½ cup or 1 small piece.</i></p>	<ul style="list-style-type: none"> • Apple (all forms) • Banana (ripe) • Boysenberry • Canned fruits packed in apple or pear juice • Cherries • Dried fruits (apricot, dates, figs, goji berries, mango, pineapple, prunes, raisins) • Figs (fresh) • Fruit juices • Grapefruit • Guava • Mango • Nectarine • Pear (all forms) • Persimmon • Plum • Pomegranate • Tamarillo • Watermelon 	<ul style="list-style-type: none"> • Avocado • Banana (firm) • Blackberries • Blueberries • Cantaloupe • Clementine • Cranberries • Coconut • Grapes • Honeydew • Kiwi • Lemon • Lime • Mandarin Orange • Orange • Papaya • Pineapple • Raspberries • Rhubarb • Strawberries

	<ul style="list-style-type: none"> • White Peaches 	<ul style="list-style-type: none"> • Tangelo
Vegetables	<ul style="list-style-type: none"> • Artichoke hearts (canned) • Artichoke, Globe and Jerusalem • Asparagus • Beetroot • Brussels sprouts • Garlic • Leek bulb • Onion • Savoy cabbage • Scallions/spring onions (bulb/white part) • Shallots • Sugar snap peas • Tomato products (paste/ketchup) 	<ul style="list-style-type: none"> • Alfalfa sprouts • Arugula • Bamboo shoots • Bean sprouts • Bell peppers (all types) • Broccoli (limit ½ cup) • Bok Choy • Carrots • Cabbage (common, red) • Corn • Celery • Chives • Chili pepper • Collard greens • Cucumber • Eggplant • Endive • Fennel • Ginger • Green beans • Kale • Leek (green leaves only) • Lettuce (all types) • Olives (green, black) • Parsnip • Potato • Radish • Rutabaga • Scallions (green part only) • Spinach • Seaweed (nori) • Summer squash • Sweet potato • Swiss chard • Turnips • Tomato • Water chestnuts • Zucchini
Meats/Meat substitutes	<ul style="list-style-type: none"> • Marinated, seasoned, breaded, and processed meats containing wheat, onion, garlic, and high fructose sweeteners 	<ul style="list-style-type: none"> • Plain, unprocessed meats prepared without breading or sweetened sauces • Deli meats and processed meats made without honey or high fructose corn syrup

		<ul style="list-style-type: none"> • Eggs • Tofu (firm)
<p>Grains/Starches</p> <p>*Always check ingredient lists carefully for high fructose sweeteners!</p>	<ul style="list-style-type: none"> • Grains: wheat, rye, barley • Bread: white, wheat, rye, multigrain • Baked goods: made with white, wheat, rye or multigrain flour • Cereal: cereals made with wheat, rye, or barley including bran flakes, shredded wheat; cereals with raisins or dried fruit • Crackers: made with wheat or rye • Flours: all-purpose, enriched, graham, rye, semolina, white, wheat • Tortillas: flour tortillas • Pasta: white or whole wheat • Others: couscous • High fiber: bread, cereal, and granola bars with chicory root/inulin 	<ul style="list-style-type: none"> • Wheat-free grains and flours: amaranth, arrowroot, buckwheat, corn meal, millet, oat, rice, quinoa, sorghum, tapioca, and teff • Bread: cornbread, gluten-free bread, sourdough bread • Cereal: corn, rice, or oat based cereals such as plain Cheerios and Corn/Rice Chex; gluten-free cereals with low fructose sweeteners, oatmeal, grits, cream of rice • Pasta: gluten-free noodles, rice noodles, pasta made from corn and quinoa • Rice: all varieties • Tortillas: corn • Crackers/snacks: crackers made from corn or rice, gluten-free crackers, tortilla chips, corn chips, popcorn, potato chips
<p>Dairy/Dairy substitutes</p>	<ul style="list-style-type: none"> • Flavored or sweetened milks • Coconut milk and cream • Any dairy product, lactose free dairy product, or dairy free alternative made with high fructose fruits, honey, high fructose corn syrup, chicory root/inulin, or fruit juice concentrates. <p>**Be particularly careful with flavored coffee creamers, yogurts, and ice creams.</p>	<ul style="list-style-type: none"> • All dairy products, lactose free dairy products, and dairy free alternatives made with low fructose ingredients and sweeteners
<p>Fats and oils</p>	<ul style="list-style-type: none"> • Commercial salad dressings made with onion, garlic, fructose, fruit juice concentrate, or high fructose corn syrup 	<ul style="list-style-type: none"> • All oils, butter, margarine • Commercial salad dressings without fructose or high fructose corn syrup
<p>Nuts and seeds</p>	<ul style="list-style-type: none"> • Cashews, Pistachios 	<ul style="list-style-type: none"> • All others
<p>Beverages</p>	<ul style="list-style-type: none"> • Fruit juices • Soda and other sweetened beverages containing agave syrup, honey, fructose, high fructose corn syrup or sorbitol. • Sports drinks made with fructose or high-fructose corn syrup. 	<ul style="list-style-type: none"> • Water, carbonated water • Soda and other sweetened beverages made with cane sugar • Sports drinks made with glucose • Coffee and tea

	<ul style="list-style-type: none"> • Coffee and teas with chicory root • Fortified wines such as sherry and port • Rum 	<ul style="list-style-type: none"> • Spirits (limit to 1 ounce): gin, vodka, whiskey, tequila. • Wine (limit to 4-6 ounces): white or red wine • Beer (limit to 12 ounces)
Desserts	<ul style="list-style-type: none"> • Dried fruit bars • Baked products made with dried fruit or fruit juice concentrate. • Desserts made with fructose, high fructose corn syrup, honey, or high fructose fruits • Desserts made with wheat flour (all-purpose, whole wheat, or multigrain) 	<ul style="list-style-type: none"> • Desserts sweetened with sucrose (sugar) • Wheat free cakes, cookies, doughnuts, muffins with appropriate sweeteners • Sherbet and sorbet made with low fructose fruits
Sweeteners	<ul style="list-style-type: none"> • Agave nectar, honey, fructose, high fructose corn syrup (HFCS), molasses • Fruit juice concentrates • Sugar alcohols: erythritol, isomalt, malitol, mannitol, sorbitol, xylitol 	<ul style="list-style-type: none"> • Any sweetener not listed as high fructose. Safe examples include: <ul style="list-style-type: none"> • Brown Rice Syrup • Brown Sugar • Cane sugar/syrup • Confectioner's sugar • Corn syrup (not high fructose) • Corn syrup solids • Dextrin • Dextrose • Glucose and glucose syrups • Lactose • Maltose • Pure Maple Syrup • Raw sugar • Sucrose (table sugar) • Stevia
Condiments, seasoning other ingredients	<ul style="list-style-type: none"> • Chicory root extract or fiber • Fructooligosaccharides (FOS) • Garlic salt/powder • Inulin • Onion salt/powder • Sweetened sauces or sauces made with fructose: BBQ sauce, ketchup, jam, marmalade, pancake syrup, relish, sweet and sour sauce 	<ul style="list-style-type: none"> • All herbs and seasoning blends (without onion/garlic) • Baking powder • Baking soda • Condiments/sauces with low fructose sweeteners



Sample meal and snack ideas for a low fructose diet:

Breakfast:

- Oatmeal topped with things like: ½ cup fresh fruit, chopped nuts, cinnamon, and brown sugar.
- Egg omelet filled with baby spinach, red pepper and cheddar cheese.
- Scrambled eggs, 2 slices of bacon and 1 slice sourdough toast with butter.
- Udi's white bread or Sourdough bread toasted with 2 tablespoons peanut butter.
- Cheerios (plain) cereal with milk and ½ cup blueberries
- Banana Walnut Pancakes: Bisquick Gluten free Pancake Mix prepared with ½ mashed banana, 1 tablespoon chopped walnuts and cook as directed. Top with pure maple syrup.
- Plain Greek yogurt topped with ¼ cup Bear Naked V'nilla Almond Fit Granola and ½ cup berries.
- Smoothie: ½ cup frozen blueberries, 3-4 ounces plain Chobani Greek yogurt blended until frothy.

Lunch and Dinner:

- "Rice Bowl": scoop of rice, grilled chicken or shrimp, topped with lettuce, fresh tomatoes, and scallion (green part only), and grated cheddar cheese. Add fresh lime juice and olive oil drizzle for dressing.
- Tuna Salad Lettuce Wraps: Tuna mixed with Hellman's mayonnaise, splash of fresh lemon juice, chopped celery and fresh dill, served on sourdough bread or in lettuce leaves.
- Grilled ham and cheese sandwich (use Udi's White or sourdough bread)
- Gluten free pasta tossed with fresh chopped tomatoes, garlic infused oil, and fresh basil.
- Stuffed peppers: Brown and cook thoroughly ground turkey or beef. Season with sea salt & pepper. Toss with equal amounts of cooked rice or quinoa. Blend in small amounts of feta cheese, chives and parsley. Stuff peppers and bake in covered casserole dish until pepper is soft and cheese is melted.

Snacks:

- Snyder's of Hanover pretzels (gluten free) and cheddar cheese
- Rice cake with peanut butter
- Rice crackers, Swiss cheese slice and ½ cup grapes
- Hard boiled egg
- String cheese with handful of almonds
- Chobani vanilla yogurt with ½ cup blueberries
- ½ sandwich with Udi's white bread with sliced chicken, lettuce and tomato slice.
- Lundberg Rice Chips (sea salt), handful of peanuts and a few baby carrots
- Crunchmaster Multi-seed crackers, string cheese and an orange
- Cottage cheese with ½ cup pineapple
- Baby carrots and sliced cucumber wedges with dill dip (Blend ½ cup cottage cheese with fresh chopped dill, sea salt, pepper in blender until creamy)
- Banana slices with spoonful of almond butter or peanut butter.
- Go Macro protein replenishment peanut butter bar or 88 Acres chocolate and sea salt bar.
- Nature Valley crunchy granola bar (Acceptable flavors: peanut butter, cinnamon, maple brown sugar, and pecan).
- Boom Chicka Pop popcorn (Acceptable flavors: sea salt, lightly sweet, kettle corn, white cheddar).

Adapted from Kate Scarlata, RDN (www.katescarlata.com)