



A complete guide to the

low-FODMAP **diet**

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What is the low-FODMAP diet?

The [low-FODMAP diet](#) (LFD) involves restricting foods from the diet that contain certain short-chain carbohydrates including specific fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAPs). These short-chain carbohydrates are poorly digested in the small intestine, rapidly fermented by gut bacteria, and can draw water into the lumen area (empty space inside) of the intestines leading to unwanted gastrointestinal (GI) symptoms.

The purpose of the LFD is to help determine which FODMAP-containing foods may be aggravating these gastrointestinal symptoms.

The low-FODMAP diet has three phases:

1. **Restriction:** involves restricting all high-FODMAP foods from the diet for four to six weeks
2. **Re-challenge:** involves slowly reintroducing high-FODMAP foods to the diet in order identify dietary triggers for your symptoms
3. **Personalization:** involves following an individualized diet that includes well-tolerated foods with some FODMAP content based on individual tolerance

Low-FODMAP diet phases

1 Elimination

Time frame: 4 to 6 weeks

Process: Remove all high-FODMAP foods from the diet.

2 Re-challenge

Time frame: 6 to 8 weeks

Process: Systematically reintroduce high-FODMAP foods into the diet based on the FODMAP subtype with the assistance of your healthcare practitioner. Use a diet and symptom diary to identify your personal trigger foods and tolerance levels.

3 Personalization

Time frame: Ongoing

Process: Based on your individual needs, consume successfully reintroduced (well-tolerated) FODMAP foods as part of your habitual diet going forward.

What are FODMAPs?

The term “FODMAP” (fermentable oligosaccharides, disaccharides, monosaccharides, and polyols) refers to a group of four [carbohydrate](#) (sugar) subgroups. FODMAPs can be found in [dairy](#) products and certain [fruits, vegetables](#), grains, nuts, legumes, sweeteners, beverages, and other sources.

Specifically, the simple sugars included in the FODMAP carbohydrate subgroups are:

- **Oligosaccharides:** fructans and galactooligosaccharides (GOS)
- **Disaccharides:** lactose
- **Monosaccharides:** fructose
- **Polyols (also known as sugar alcohols):** erythritol, isomalt, maltitol, mannitol, polydextrose, sorbitol, xylitol

Did you know?

Typical diets contain approximately 15 to 30 g of FODMAPs per day.

In 2005, a group of Australian researchers first theorized that foods containing these types of carbohydrates may aggravate the symptoms of individuals with [irritable bowel syndrome \(IBS\)](#).



FODMAP subgroups and sources

The table below outlines dietary FODMAPs, their effects, and common dietary sources in which they are found.

Component	Effects	Common dietary sources
Oligosaccharides (e.g., fructans, galacto-oligosaccharides (GOS))	<p>No human enzymes for digestion</p> <p>Highly fermentable; produce gas, bloating, and abdominal pain</p>	<p>Artichokes</p> <p>Allium vegetables (e.g., garlic, leeks, onions)</p> <p>Certain fruits (e.g., ripe bananas, dates, dried apricots, peaches)</p> <p>Certain grains (e.g., barley, rye, wheat)</p> <p>Inulin (found in some dietary supplements)</p> <p>Legumes (e.g., beans, lentils, soy products)</p> <p>Nuts</p>
Disaccharides (e.g., lactose)	<p>Malabsorption occurs if transport proteins are altered or if the individual is enzyme-deficient</p> <p>Unabsorbed components are fermented in the large intestine; may result in gas and bloating</p>	<p>Dairy (e.g., cheese, ice cream, milk, yogurt)</p>
Monosaccharides (e.g., fructose)	<p>Draw water into the bowel contents</p> <p>Leads to pain, bloating, and distension of the small intestine</p> <p>May result in diarrhea</p>	<p>Certain fruits (e.g., apples, cherries, figs, mangoes, pears, watermelon)</p> <p>Certain vegetables (e.g., asparagus, beets, sugar snap peas)</p> <p>High-fructose corn syrup</p> <p>Honey</p>
Polyols (e.g., erythritol, maltitol, mannitol, sorbitol, xylitol)	<p>Likely to draw water into the bowel</p> <p>Leads to pain, bloating, and distension of the small intestine</p> <p>May result in diarrhea</p>	<p>Artificial sweeteners (e.g., chewing gum, mints)</p> <p>Certain fruits (e.g., apples, blackberries, pears, stone fruit)</p> <p>Certain vegetables (e.g., cauliflower, mushrooms, snow peas)</p>

Signs and symptoms associated with FODMAPs

While FODMAPs are generally poorly digested by all humans, it's more common for individuals with functional bowel disorders such as IBS to experience symptoms. FODMAPs are osmotic molecules, meaning they draw water into the lumen area of the intestines, which can lead to intestinal distension (increase in size of the intestine). Poorly absorbed in the digestive tract, FODMAPs are fermented by bacteria in the colon, leading to increased gas production.

These changes are associated with symptoms, such as:

- Abdominal pain
- [Altered bowel habits](#)
- Bloating
- Constipation
- Diarrhea
- Flatulence

Dietary FODMAPs may also negatively affect the [immune](#) response, [gut barrier](#), and gut microbiota. Research suggests that reducing dietary intake of FODMAP-containing foods may decrease intestinal water content as well as fermentation and gas production in the colon. As a result, a low-FODMAP diet may improve symptoms in individuals with GI conditions that are triggered or worsened by these foods.

Who would benefit from the low-FODMAP diet?

The LFD may benefit individuals with certain health conditions, including:

- Athletes with exercise-associated gastrointestinal symptoms
- [Celiac disease](#)
- Fibromyalgia
- Inflammatory bowel disease (IBD)
- [Irritable bowel syndrome](#) (IBS)
- Non-celiac gluten sensitivity (NCGS)



Precautions

It's important to consult your healthcare practitioner before starting a low-FODMAP protocol in order to ensure that it's right for you and your health concerns.

Studies have demonstrated the beneficial effects and safety of the low-FODMAP diet for four to six weeks with a gradual transition back to a standard diet and continued exclusion of FODMAP foods that trigger symptoms.

Phase 1 of the low-FODMAP diet should not be continued for longer than eight weeks because it may decrease the levels of certain gut bacteria, promote constipation, and lead to possible nutritional deficiencies.

In order to prevent possible nutritional deficiencies, the LFD should be followed for a limited time based on the instructions given to you by your healthcare practitioner. For example, restricting fructan-containing carbohydrates for an extended time may lead to low fiber intake, constipation, and inadequate [iron](#) levels. The exclusion of certain vegetables may also lead to a lower intake of [antioxidants](#), such as

[vitamin C](#), carotenoids, and flavonoids, among others. Lastly, by eliminating dairy, a [calcium deficiency](#) is possible.

Many FODMAP-containing foods contain [prebiotics](#), a type of fiber that supports healthy gut bacteria. Restricting these foods may decrease the levels of certain gut bacteria including *Bifidobacterium*, *Clostridium*, *Actinobacteria*, and *Faecalibacterium prausnitzii*. Both *Bifidobacteria* and *F. prausnitzii* are considered beneficial to health as they support carbohydrate digestion and metabolism. Levels of these healthy microbes may be lower in individuals with IBS, suggesting an association with the condition.

[Elimination diets](#) including the LFD may reinforce disordered eating and should be avoided if an individual has an eating disorder. Individuals with gastrointestinal disorders such as IBS, IBD, and celiac disease may also be at a greater risk for disordered eating. If you believe you may be at risk, inform your healthcare practitioner and discuss the best options for you.



Comparing the low-FODMAP diet to other diets

The LFD is similar to several other therapeutic diets that each restrict certain foods and/or dietary components. The following graphic distinguishes between the low-FODMAP, gluten-free, elimination, and specific carbohydrate diets.

Diet	Low-FODMAP	Gluten-free	Elimination	Specific carbohydrate
Description	A dietary intervention that restricts foods containing poorly absorbed carbohydrates known as Fermentable Oligosaccharides, Disaccharides, Monosaccharides, And Polyols	A dietary intervention that restricts gluten, a group of proteins found in certain grains	A dietary intervention in which common irritating or reactive foods are eliminated from the diet in order to uncover food sensitivities	A dietary intervention that restricts most carbohydrates with the intention to reduce fermentation and inflammation associated with undigested carbohydrates
Health benefits	<p>May lower intestinal water content, as well as reduce fermentation and gas production in the colon</p> <p>Used to identify individual FODMAP tolerance</p>	Beneficial in cases of immune reactions associated with gluten, including autoimmune, allergic, and sensitivity reactions	May be used as a diagnostic tool for identifying “trigger foods”	May improve the microbiome, inflammatory markers, and health of the mucosa layer of the gastrointestinal tract



Diet	Low-FODMAP	Gluten-free	Elimination	Specific carbohydrate
Health conditions	<p>Celiac disease</p> <p>IBD</p> <p>IBS</p> <p>NCGS</p>	<p>Celiac disease</p> <p>IBS</p> <p>NCGS</p>	<p>Attention-deficit hyperactivity disorder (ADHD)</p> <p>Autism spectrum disorder (ASD)</p> <p>Functional gastrointestinal disorders (FGIDs)</p> <p>IBS</p> <p>Migraines</p> <p>Non-specific symptoms, such as chronic fatigue</p> <p>Skin conditions, such as urticaria (hives), psoriasis, and atopic dermatitis (eczema)</p>	<p>Celiac disease</p> <p>IBD</p>
Duration	Two to six weeks	Typically ongoing	Minimum of two weeks	Long-term (i.e., 12 weeks or longer; one year of strict restriction with an active disease)
Foods commonly avoided	<p>Certain fruits (e.g., apples, pears, stone fruit)</p> <p>Certain vegetables (e.g., artichokes, beetroot, onion)</p> <p>Certain grains (e.g., barley, rye, wheat)</p> <p>Dairy products</p> <p>Legumes (e.g., chickpeas, lentils, soy products)</p> <p>Sweeteners (e.g., agave, high-fructose corn syrup, honey, sugar alcohols)</p>	<p>Gluten-containing grains and flours:</p> <p>Barley</p> <p>Bulgur</p> <p>Durum</p> <p>Farro</p> <p>Kamut</p> <p>Rye</p> <p>Spelt</p> <p>Triticale</p> <p>Wheat</p>	<p>Alcohol</p> <p>Caffeine</p> <p>Chocolate</p> <p>Citrus fruit</p> <p>Corn</p> <p>Dairy</p> <p>Eggs</p> <p>Food additives</p> <p>Gluten-containing grains</p> <p>Nightshades (e.g., eggplant, peppers, potatoes, tomatoes)</p> <p>Nuts</p> <p>Sesame</p> <p>Soy</p> <p>Sugar and sweeteners</p> <p>Yeast</p>	<p>All dairy (except for hard cheeses and fermented yogurt)</p> <p>All grains</p> <p>All sugars/sweeteners (except honey)</p> <p>Legumes (e.g., chickpeas, soybeans)</p> <p>Potatoes, yams</p> <p>Processed foods</p>

Diet	Low-FODMAP	Gluten-free	Elimination	Specific carbohydrate
Foods to enjoy	<p>Low-FODMAP:</p> <ul style="list-style-type: none"> Fruits Vegetables Grains Nuts Seeds Sweeteners <p>Unprocessed animal proteins:</p> <ul style="list-style-type: none"> Beef Chicken Eggs Fish Turkey <p>Unprocessed oils & fats</p>	<p>Foods naturally free from gluten:</p> <ul style="list-style-type: none"> Fruits Vegetables Proteins Dairy Oils and fats <p>Gluten-free grains, flours, and products:</p> <ul style="list-style-type: none"> Amaranth Buckwheat Millet Oats (gluten-free only) Quinoa Rice Sorghum Teff 	<ul style="list-style-type: none"> All other fruits, vegetables, herbs, spices, legumes, and animal proteins Corn-free and gluten-free grains, flours, and products Seeds and seed butters Oils Natural sweeteners (e.g., honey, stevia) 	<ul style="list-style-type: none"> Animal proteins (e.g., fish, meat, poultry) Lactose-free dairy products Some fresh fruit

The food lists in this graphic are illustrative of the common foods to avoid and enjoy on each diet; however, the lists are not comprehensive.

Following the low-FODMAP diet

As the LFD is a therapeutic dietary protocol, it is best to follow the diet as instructed with guidance from your integrative healthcare practitioner. A qualified practitioner can help you identify your specific trigger foods/ingredients associated with symptoms in order to reduce dietary restrictions. Further, individual support can help optimize the LFD to substitute restricted foods and ensure you're consuming adequate nutrients. In the end, an individualized approach can be more effective and minimize the potential risks associated with the LFD.

You may also consider using a mobile application to track your dietary intake and help identify levels of FODMAPs in foods. For more information, view the list of low-FODMAP diet apps in the Appendix.

Phase 1: Restriction

During the restriction phase, all FODMAPs are restricted from the diet for a period of four to six weeks. During this time, you may notice a change in GI symptoms; however, the degree of improvement and duration needed to see improvement varies by individual.

The foods and dietary components to be eliminated include:

- Certain fruits (e.g., apples, pears, stone fruit)
- Certain vegetables (e.g., artichokes, beetroot, onion)
- Certain grains (e.g., barley, rye, wheat)
- Lactose-containing dairy and dairy products
- Legumes (e.g., chickpeas, lentils, most soy products)
- [Sweeteners](#) (e.g., agave, high-fructose corn syrup, honey, sugar alcohols)

Note that your practitioner may have specific guidance for you to restrict only certain FODMAPs based on their assessment of your typical diet, health history, and [goals](#). Refer to the Appendix for a detailed list of dietary components to eliminate, their common sources, and alternatives to consume, as well as a phase 1 diet and symptom diary to help you track your progress and symptoms during the restriction phase.

If you do not experience an improvement in your symptoms after phase 1, speak with your healthcare practitioner. When this occurs, there are several factors to consider, such as your level of compliance with the dietary restrictions, if unknown/unintended sources of

FODMAPs were consumed, and whether you may be experiencing symptoms due to another condition. Your provider can help you decide whether to continue with the low-FODMAP diet or discontinue the diet and seek alternative treatment options.

Phase 2: Re-challenge

The re-challenge phase, also known as reintroduction, involves reintroducing high-FODMAP foods according to each FODMAP subgroup to identify personal triggers and tolerance levels. Reintroducing even small quantities of FODMAP-containing foods helps improve nutrient intake and diet diversity and may prevent the negative effects of strict long-term dietary restriction on your quality of life and [gut microbiota](#).

Refer to the Appendix for a resource titled “Suggested re-challenge of restricted foods”. This table can be used to guide the foods and portion sizes to use when re-challenging each FODMAP subgroup.

The re-challenge phase typically begins after a four- to six-week period of FODMAP restriction. Before re-challenging, speak with your practitioner about the impact of phase 1 on your symptoms and health status. The phase 1 diet and symptom diary will help indicate your level of improvement and provide a baseline of your symptoms for undertaking phase 2.

During re-challenge, you should maintain the [low-FODMAP](#) restrictions from phase 1 while reintroducing each food. Generally, each food should be challenged on its own, once daily over a three-day period.

However, certain FODMAPs are known to be better tolerated when they are challenged every other day, such as fructans and galacto-oligosaccharides. You may choose to reintroduce the foods containing these FODMAP subgroups every second day at first. If you tolerate the food, you can then challenge it over consecutive days (i.e., once daily for three days).

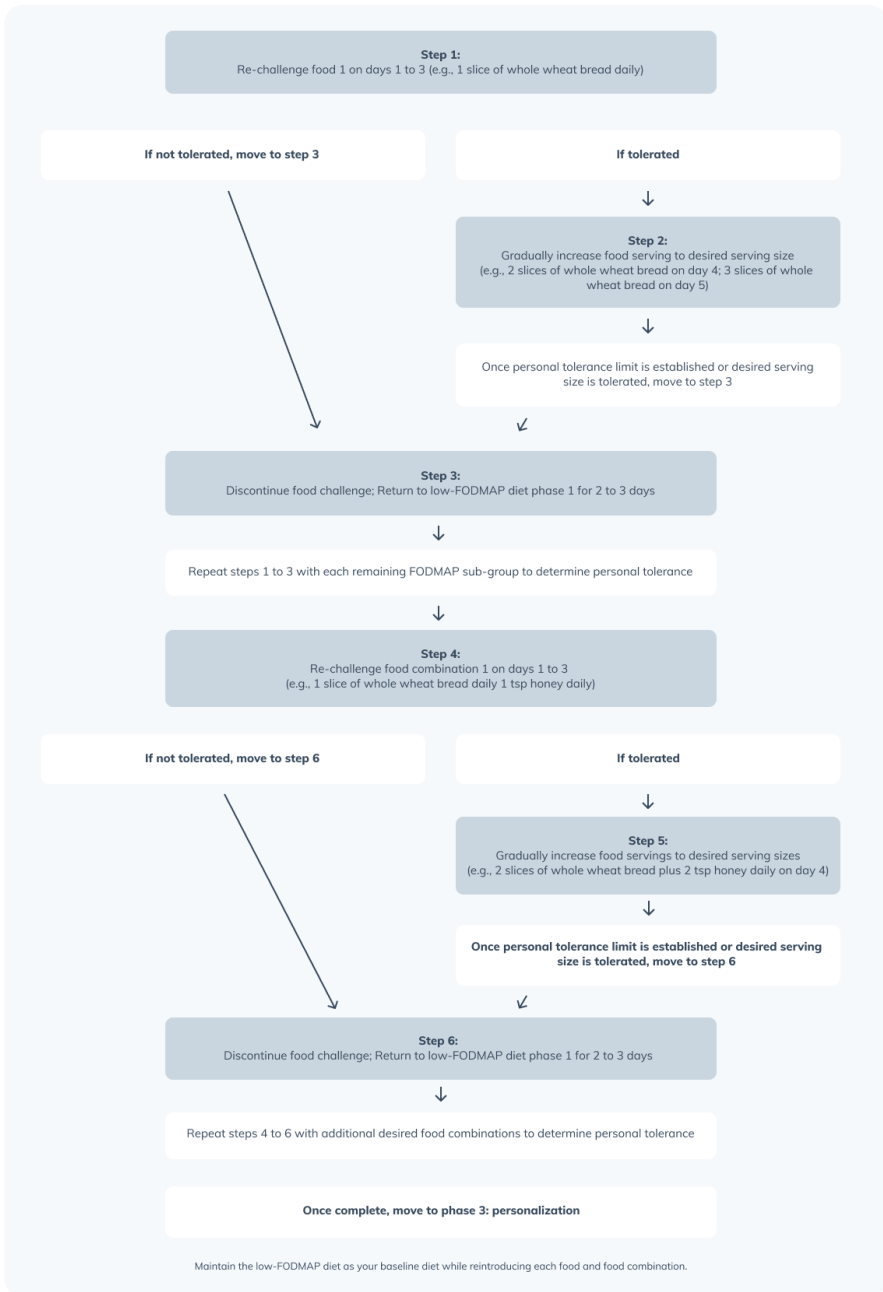
If you are able to tolerate this food challenge after three days, you may gradually increase the portions of the challenge food every day to your desired serving size and continue to monitor for symptoms. This step will help you determine your personal tolerance level for each food.

At any point, if you do not tolerate the food challenge and experience an increase in symptoms, you should discontinue the food challenge and make note of the portion size and frequency that was associated with symptoms.

After each food challenge, return to the low-FODMAP diet for two to three days before reintroducing the next food. This helps ensure that you do not have an additive reaction from the combination of FODMAPs from multiple foods. Repeat this process with each FODMAP group you are reintroducing. Once you have completed the individual food challenges, you can try challenging FODMAP combinations by following the same general steps. For example, if you have re-challenged one slice of whole wheat bread and 1 tsp of honey, you can challenge the combination by having one slice of whole wheat bread spread with 1 tsp of honey, once daily for three days.

The graphic of the next page demonstrates the re-challenge process.





Throughout the re-challenge phase, you should monitor and record any changes in symptoms. An easy way to accomplish this is by using a diet and symptom diary. Refer to the Appendix for a phase 2 re-challenge schedule and diary to help you track your progress and symptoms during the re-challenge phase.

Phase 3: Personalization

The personalization phase involves following a long-term personalized low-FODMAP diet. Most individuals are able to maintain their health status with a more moderate level of restriction.

Once you have re-challenged each of the foods you would like to include as part of your regular diet, you can develop your personalized diet based on these principles:

- Foods that were well-tolerated (i.e., no changes in symptoms occurred): consume freely

- Foods that cause a mild response (i.e., small increase in symptoms): consume when you are able to tolerate symptoms (e.g., are at home, during time off from work, etc.)
- Foods that cause a severe response (i.e., large increase in symptoms): restrict long-term to control symptoms

Over time, you may be able to re-challenge foods to which you had a poor tolerance in the past, following the same process outlined above in phase 2.

Recognizing FODMAPs on food labels

Reading food labels will help you recognize foods that are suitable for a low-FODMAP diet and give you more confidence to plan your meals. Choosing foods without labels (e.g., fruits, vegetables, grains, nuts, seeds, and animal [proteins](#)) is also an easy way to avoid having to read labels altogether. Lastly, using a low-FODMAP support app is a great way to make shopping and cooking for yourself more convenient.

Ingredients: Gluten free oats*, agave nectar*, strawberry pieces* (apple juice concentrate*, apple puree*, strawberry puree*, cherry juice concentrate*, apple pectin, natural flavour*), brown rice

Check the ingredients listed on food labels to ensure the product does not contain high-FODMAP constituents. For example, granola bars may be sweetened with FODMAP-containing fruit juices. Refer to the Appendix for a resource on common sources of hidden FODMAPs.

In the United States, ingredients on food labels are listed in descending order according to quantity, which means that the first ingredient has the highest quantity and the last ingredient has the lowest quantity. In Canada, ingredients on food labels are listed in descending order according to weight. This can be helpful when you are beginning to regularly consume certain FODMAP-containing foods again during the personalization phase.

Identifying sugar alcohols (polyols) on food labels

Read the Nutrition Facts label on food packaging and check for sugar alcohol content. You can identify polyols in foods by looking for “Sugar Alcohols” listed under the “Total Carbohydrates” subheader.

Nutrition Facts		
Serving Size: About 20g		
Servings Per Container: 16		
	Amount Per Serving	% Daily Value*
Total Calories	60	
Calories From Fat	15	
Total Fat	2 g	3%
Saturated Fat	1 g	4%
Trans Fat	0 g	
Cholesterol	0 mg	0%
Sodium	45 mg	2%
Total Carbohydrates	15 mg	5%
Dietary Fiber	4 g	17%
Sugars	4 g	
Sugar Alcohols (Polyols)	3 g	
Protein	2 g	
Vitamin A		0%
Vitamin C		0%
Calcium		2%
Iron		2%

* Percent Daily Values are based on a 2,000 calorie diet.

Low-FODMAP certifications

When following the LFD, look for products that include a low-FODMAP certification logo. Low-FODMAP certified products have been laboratory tested to ensure that all ingredients are low in FODMAPs and are designed to allow individuals following the diet to make informed food choices. The following low-FODMAP certifications can apply to recipes, food products, and restaurants:



Tips and resources for success

Helpful tips

Take the time—your health is worth it!

The LFD requires a commitment of time and effort, but up to 76% of individuals experience IBS symptom improvement when the diet is implemented correctly. Consider when you will be able to dedicate some additional time or whether you are able to reprioritize your responsibilities to make time for the diet protocol. Be patient with yourself and with the LFD process, and be sure to carefully follow the steps outlined in phases 1 and 2 of the diet.

Choose your priority foods to re-challenge

This guide was intentionally designed to [empower](#) you to select the priority of the foods you will reintroduce based on your individual needs and preferences. You may choose to start with the restricted foods that you previously consumed more often.

Generally, it's recommended that you re-challenge the foods that you suspect will trigger symptoms later on in phase 2. There may also be restricted foods that you don't typically consume in your regular diet and may choose not to re-challenge.

Look out for non-food sources of FODMAPS

Certain products, including dietary [supplements](#) and medications, may contain FODMAPS. For example, oligosaccharides such as galacto-oligosaccharides (GOS) and inulin may be added to supplements for their prebiotic effects. Additionally, polyols and high-fructose corn syrup are commonly found in liquid medications such as pain medications and cough syrup. Always read the ingredient [label](#) and, if required, speak with your pharmacist or practitioner about alternative products.

Remember to track your diet and symptoms

When following phases 1 and 2 of the LFD, it's important to keep a diary of the foods you consume and any symptoms experienced. This provides valuable information that can help inform the development of a personalized diet that contains as diverse a range of food as possible. To make this a habit, set a recurring reminder for yourself at least once per day to fill out your diet and symptom diary. Alternatively, certain low-FODMAP diet apps include trackers for foods consumed and your symptoms. Refer to the low-FODMAP diet apps section of this guide for a list of helpful apps.

Get creative in the kitchen

We encourage you to make the most of your experience by trying low-FODMAP foods and recipes that may be new to you. There are numerous LFD recipes found in blogs, cookbooks, videos, and apps designed to help you implement the diet successfully. For the times you prefer not to cook, you can seek out FODMAP-friendly food companies or restaurants to try. Refer to the frequently asked questions section of this guide for advice on eating out at restaurants and the low-FODMAP certifications section for FODMAP-friendly food companies.

Prepare for success

Ensuring you have LFD-compliant food prepared and handy can help you stay consistent with the diet, especially during times when you are busy or will be away from home. Depending on what suits your lifestyle best,

there are many different strategies to choose from, such as:

- Batch cook ahead of time and freeze portions for quick and easy meals.
- Keep snacks handy in your purse, bag, or car so that you have something to eat when on the go.
- Prepare your lunch in the evening for the following day, particularly if you often feel rushed in the morning.
- Save time at the store by ordering your groceries online for pick-up or home delivery.
- Stock store-bought low-FODMAP meals and snacks (look for FODMAP Friendly and Monash University Low-FODMAP Certified logos on the label).
- Set time aside once or twice per week to grocery shop and prepare meals for the week.

Seek support

Dietary and lifestyle changes can be more challenging and feel alienating without social support. Speak to your loved ones about this change and consider sharing why following the LFD is important to you. Your family and friends may be able to help with grocery shopping and cooking or provide support in other ways. You can also find groups, such as social media groups, to connect with other individuals who have tried or are following the diet.



Eating low-FODMAP when your household isn't

You may be following the LFD while others in your household maintain their regular dietary patterns, requiring you to prepare different meals. To make meal preparation easier, try these tips.

Find family favorites

You may find it helpful to decide on a couple of low-FODMAP dishes that your entire family enjoys. You can also try to adapt your own family recipes to be low-FODMAP by substituting ingredients that are high in FODMAPs for low-FODMAP alternatives.

Cook a low-FODMAP dish with additional ingredients on the side

Choose a low-FODMAP recipe that you can serve with toppings or sides that may be higher in FODMAPs for the other individuals in your household. Some examples include:

- A low-FODMAP salad with high-FODMAP ingredients served separately, such as cheese, beans, and onions
- A low-FODMAP tomato-based sauce served over rice pasta (low-FODMAP) or wheat pasta (high-FODMAP)

- Homemade oat granola with [almond beverage](#) (low-FODMAP) or cow's milk (high-FODMAP)
- Roasted meat and vegetable dishes with sauces that contain ingredients such as dairy, garlic, onions, and [mushrooms](#) on the side
- Sandwiches made with gluten-free bread and lactose-free cheese (low-FODMAP) or whole wheat bread and regular cheese (high-FODMAP)
- Soup or stew with ingredients such as cream, beans, leeks, cauliflower, or mushrooms added separately

Consider your portion size

When it comes to FODMAP symptoms, the portion size is often key. After completing phase 2 of the diet, you will be aware of your personal tolerance levels for FODMAP-containing foods. You may be able to eat the same meal as the rest of your household in smaller portions and accompany this with an additional low-FODMAP side.



Frequently asked questions (FAQ)

How long should I follow the low-FODMAP diet?

It's recommended that you follow phase 1 of the diet for up to six weeks and no longer than eight weeks. How long you follow the diet will depend on your individual health goals, health status, and the recommendations given to you by your healthcare practitioner.

Can tests be used to support the low-FODMAP diet?

The hydrogen breath test may be helpful in determining whether lactose, fructose, sorbitol, and mannitol are poorly absorbed in the digestive tract. Breath hydrogen levels are measured and an increased level can indicate malabsorption of a specific FODMAP. However, the degree of malabsorption depends on how much of the food is ingested, and the reproducibility of test results is not always certain.

Does cooking FODMAP-containing foods make them easier to digest?

There is evidence that canning foods under acidic conditions, such as with pickled vegetables, can decrease their FODMAP content. Water-soluble FODMAPs may also be reduced in canned legumes. Lastly, sourdough breads, naturally leavened with a [fermented](#) starter, have been shown to have lower FODMAP content than conventional breads. More research is needed in order to determine whether cooking processes, such as boiling and roasting, can lower FODMAP levels in food. Currently, the best approach is to select low-FODMAP ingredients to consume.

Should I take a probiotic when I am on the low-FODMAP diet?

Since the low-FODMAP diet eliminates a variety of [carbohydrates](#), it may impact the gut microbiome. Restricting fructans and galactooligosaccharides, prebiotics that support gut bacteria, may decrease levels of certain [healthy gut bacteria](#). Probiotic supplements provide beneficial microbes and may improve symptoms of IBS. However, as probiotic products often also contain high-FODMAP prebiotics, be sure to speak with your healthcare provider about supplements to support the LFD.

Why can I sometimes consume a FODMAP-containing food and have no symptoms, while other times experience uncomfortable GI symptoms after consuming that same food?

When you're consuming FODMAP-containing foods, it's important to consider the dose, frequency, and the combination of FODMAP subgroups. For example, if you consume a small amount of honey, it's possible that you will have no reaction to it, but if you consume twice as much honey the next time, you may experience symptoms. Similarly, if you consume honey on its own vs. honey on a piece of bread (foods from two different FODMAP subgroups), the combination of FODMAPs may elicit an uncomfortable GI symptom. Lastly, the frequency at which you consume a FODMAP-containing food (once every few days vs. several days in a row) may impact the severity of symptoms.

How can I add more flavor to my food without garlic and onions?

Garlic and onions are high in FODMAPs and should be excluded during the LFD. However, you may Sauté [garlic](#) or onions in oil, discard the garlic or onions, and use that oil to flavor your meal. This process creates a flavor-infused oil that will not contain any FODMAPs.

What happens if I slip up during the low-FODMAP diet?

If you slip up and consume restricted high-FODMAP foods, don't worry—the primary goal of the diet is to achieve symptom control. Consuming occasional FODMAPs may not induce unwanted symptoms, but if it does, simply return to phase 1 of the diet for two to three days or until you achieve symptom control. From there, you may resume where you were in the diet process.

How do I choose a meal off of a restaurant menu?

The same principles apply to the LFD whether you're enjoying food from a restaurant or made at home. Choose restaurants with simple meal options and those who are open to making substitutions. Read through the restaurant's online menu ahead of time or call the restaurant before visiting to help determine whether there will be an appropriate menu option available. Lastly, if you don't have time to read through a menu before arriving at a restaurant to order a meal, use a low-FODMAP diet support app to help ensure that you're on the right track when choosing a menu option.

Can I follow the low-FODMAP diet if I am vegan or vegetarian?

Many plant-based foods that form the basis of a [vegan](#) or vegetarian diet are restricted on the LFD. For example, the LFD eliminates plant-based protein sources such as beans, lentils, soy products, and certain grains. With careful planning, the LFD can be completed successfully if you are a vegetarian or vegan eater. Refer to the Appendix for a resource on achieving your [protein](#) requirements while following a plant-based low-FODMAP diet. Note that it is especially important to receive individual guidance from your healthcare practitioner throughout the process in order to ensure adequate overall nutrition.

Can I follow the low-FODMAP diet on my own without a practitioner?

It's recommended to follow the LFD with the assistance of a qualified healthcare practitioner. The practitioner plays an important role in helping complete the challenge process, identifying dietary triggers based on symptoms, reintroducing foods based on individual needs, and ensuring you meet your nutritional needs and follow the diet accurately for best outcomes.





Appendix:

Low-FODMAP diet resources

Low-FODMAP diet food list

Levels of FODMAPs may vary in specific foods and food products based on factors such as:

- Cooking and preparation methods
- Food variety
- Growing climate
- Part of the plant consumed (e.g., bulb, leaves, whole plant)
- Quantity of food consumed
- [Seasonal](#) variation
- Storage duration and temperature

The following table is based on individual FODMAP categories and outlines the FODMAP dietary components to eliminate, common sources, and examples of low-FODMAP alternatives to enjoy instead. The examples included in the low-FODMAP alternatives column correspond to a specific FODMAP and may not be low in all FODMAPs.

FODMAP category	Dietary components to eliminate	Common sources	Examples of low-FODMAP alternatives
Oligosaccharides	Fructans	<p>Fruits:</p> <ul style="list-style-type: none"> Banana Peach Persimmon Watermelon <p>Vegetables:</p> <ul style="list-style-type: none"> Artichoke Beetroot Brussels sprouts Chicory Fennel Garlic Jerusalem artichoke Leek Onion Peas Shallot <p>Grains (and products containing these grains and flours):</p> <ul style="list-style-type: none"> Barley Rye Wheat 	<p>Fruit:</p> <ul style="list-style-type: none"> Tomato <p>Vegetables:</p> <ul style="list-style-type: none"> Carrot Celery Eggplant Lettuce <p>Gluten-free grains and products:</p> <ul style="list-style-type: none"> Corn tortillas Gluten-free breads Rice cakes

FODMAP category	Dietary components to eliminate	Common sources	Examples of low-FODMAP alternatives
Oligosaccharides	Fructans	<p>Nuts: Pistachios Cashews</p> <p>Legumes: Chickpeas (garbanzo beans) Lentils</p> <p>Other: Chicory drinks Fructooligosaccharides (FOS) Inulin</p>	See previous page
	Galacto-oligosaccharides (GOS)	<p>Vegetables: Brussels sprouts Cabbage Onion Salsify</p> <p>Legumes: Baked beans Chickpeas (garbanzo beans) Lentils Mung beans Red kidney beans Soy products Split peas</p> <p>Restaurant or store-bought foods high in legumes (e.g., curries, falafels, refried beans, soups)</p>	<p>Vegetables: Bamboo shoots Bell peppers Bok choy Carrot Celery Chives Eggplant Green beans Lettuce Parsnip Pumpkin Swiss chard Spring onion (green part only)</p>
Disaccharides	Lactose	<p>Dairy sourced from cow, goat, and sheep: Custard Ice cream Milk Soft and fresh cheeses (e.g., cottage, ricotta) Yogurt</p> <p>Alcoholic beverages: Beers Cream-based liqueurs or cocktails</p>	<p>Lactose-free dairy products: Butter Cheese Cream Milk Yogurt</p> <p>Dairy alternatives: Almond beverage Rice beverage Soy beverage made from soy protein only</p>

FODMAP category	Dietary components to eliminate	Common sources	Examples of low-FODMAP alternatives
Monosaccharides	Fructose	<p>Fruits:</p> <ul style="list-style-type: none"> Apple Cherries Dates Figs Mango Papaya Peaches Pears Persimmon Watermelon <p>Fruit products:</p> <ul style="list-style-type: none"> Canned fruit in natural juice Dried fruit Fruit juice Other concentrated sources of fruit <p>Vegetables:</p> <ul style="list-style-type: none"> Artichokes Asparagus Beetroot Cucumber Onion Leek Sugar snap peas <p>Sweeteners:</p> <ul style="list-style-type: none"> Agave Fructose High-fructose corn syrup Honey 	<p>Fruits:</p> <ul style="list-style-type: none"> Banana* Cantaloupe Certain berries (e.g., blueberries, raspberries, strawberries) Durian Grapes Grapefruit Honeydew melon Kiwi Lime Orange Passionfruit Pineapple Starfruit (carambola) <p>Sweetener:</p> <ul style="list-style-type: none"> Golden syrup Maple syrup



FODMAP category	Dietary components to eliminate	Common sources	Examples of low-FODMAP alternatives
Polyols	Erythritol Isomalt Maltitol Mannitol Polydextrose Sorbitol Xylitol	<p>Fruits:</p> <p>Apples Avocado Blackberries Lychee Pears Stone fruits (e.g., apricots, cherries, nectarines, plums, prunes) Watermelon</p> <p>Vegetables:</p> <p>Cauliflower Mushrooms Snow peas</p> <p>Used as food additives or sweeteners, particularly in “low-calorie”, “sugarless”, and “diet” products:</p> <p>Candy Certain medications (e.g., liquid cough syrup, pain relief preparations) Chewing gum Mints Soda Toothpastes</p>	<p>Fruits:</p> <p>Banana*</p> <p>Cantaloupe Certain berries (e.g., blueberries, raspberries) Durian Grapes Grapefruit Honeydew melon Kiwi Lemon Lime Orange Starfruit (carambola)</p> <p>Sweeteners:</p> <p>Glucose Sugar</p>

*Note: Bananas are typically high in fructans but low in fructose and polyols. These should only be included in phase 3 if you tolerated the re-challenge of fructan-containing foods in phase 2.





Grocery shopping list

The following list includes foods that should be favored on the low-FODMAP diet.

This list can be printed and used as a resource when shopping.

Dairy

- Dairy alternatives (e.g., almond beverage, rice beverage, soy beverage made from soy protein only)
- Ghee (clarified butter)
- Hard cheeses (e.g., parmesan, pecorino romano)
- Lactose-free milk
- Lactose-free products (e.g., cheese, yogurt)

Meat, fish, & shellfish

- Bacon
- Beef
- Chicken
- Eggs
- [Fish](#) (e.g., anchovies, cod, halibut, haddock, mackerel, salmon, sardines, trout, tuna)
- Lamb
- Organ meats (e.g., kidney, liver)
- Pork
- Sausages (gluten-free; no added sweeteners, garlic, onion)
- Seafood (e.g., crab, lobster, mussels, oysters, shrimp)
- Turkey

Fruits

- Cantaloupe
- Blueberries
- Durian
- Grapes
- Grapefruit
- Honeydew melon
- Kiwi
- Lemon
- Lime
- Orange
- Passionfruit
- Pineapple
- Raspberries
- Starfruit (carambola)
- Strawberries

Vegetables

- Bamboo shoot
- Bell peppers
- Bok choy
- Carrots
- Celery
- Chives
- Cucumbers
- Eggplant
- Green beans
- Lettuce
- Parsnip
- Pumpkin
- Potato
- Swiss chard
- Spring onion (green part only)
- Tomato
- Zucchini

Grains, pseudograins, & products

- Corn flakes
- Corn tortillas
- Gluten-free breads (free from barley, rye, wheat)
- Gluten-free pasta (made from corn, rice, quinoa)
- Oats (gluten-free)
- Rice cakes
- Sourdough spelt bread

Nuts & seeds

- Macadamia nuts
- Peanuts (a legume)
- Pumpkin seeds
- Walnuts

Oils & fats

- Avocado oil
- Chicken fat
- Coconut oil
- Duck fat
- [Extra-virgin olive oil](#)
- Lard

Herbs & spices

- Allspice
- Basil
- Bay leaves
- Black pepper
- Chili
- Cloves
- Cilantro (coriander)
- Cumin
- Cinnamon
- Fennel
- Fenugreek
- Five spice
- Lemongrass
- Galangal
- Ginger
- Mint
- Mustard seeds
- Nutmeg
- Oregano
- Paprika
- Parsley
- Rosemary
- Saffron
- Sage
- Salt (sea salt or pink Himalayan salt is best)
- Star anise
- Tarragon
- Thai basil
- Thyme
- [Turmeric](#)

Beverages

- Coffee
- Herbal teas
- Mineral water
- Tea (e.g., black, [green](#), rooibos)

Sugar and sweeteners

- Golden syrup
- Maple syrup
- Rice malt syrup
- Table sugar

Other

- Dark chocolate
- Tempeh (fermented soybean product)

Notes:

Hidden FODMAPs

Certain FODMAP-containing ingredients can be hidden in products that may appear to be otherwise suitable for the LFD. The following table highlights examples:

FODMAP ingredient to avoid	Potential hidden sources
Chicory	Cereals Coffee substitutes Granola bars Protein powder Yogurt
Fructooligosaccharides (FOS)	Dietary supplements (e.g., prebiotics, probiotics, protein powders)
Fructose and high-fructose corn syrup (HFCS)	Granola bars Bread Jams Liquid medications (e.g., cough syrup, pain medicine) Salad dressing Soft drinks Sports drinks Yogurt
Fruit or fruit juices	Baked goods Cereals Granola bars Yogurt
Garlic and onion	Chips Dips Soup stocks Spice mixes Pasta sauce Other condiments
Honey	Baked goods Bread Cereals Crackers

FODMAP ingredient to avoid

Potential hidden sources

Inulin

Cookies
Dietary supplements (e.g., prebiotics, probiotics, protein powders)
Yogurt

Lactose

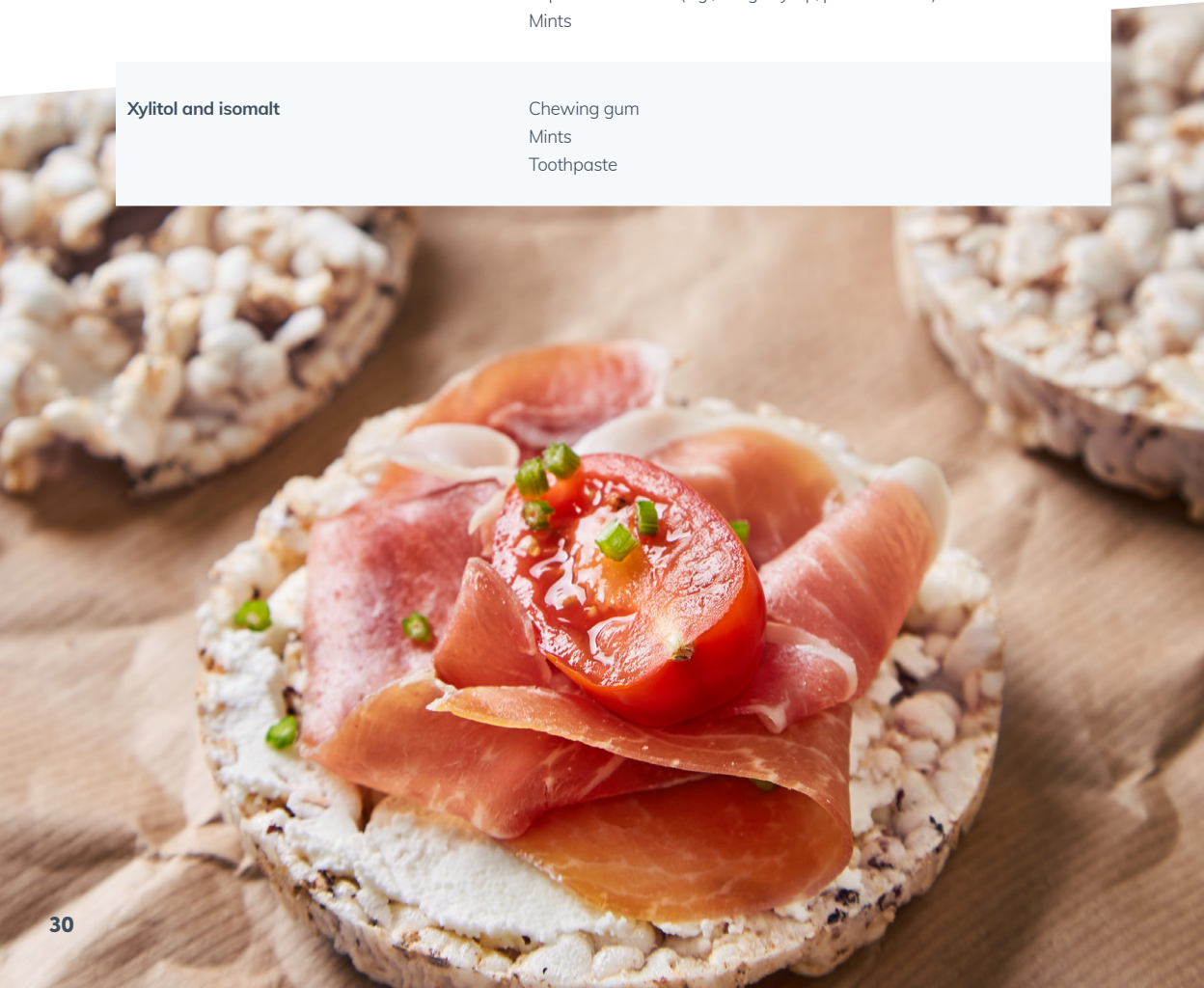
Baking mixes
Beer
Bread
Cereals
Dips
Salad dressings

Sorbitol and mannitol

Chewing gum
Liquid medications (e.g., cough syrup, pain medicine)
Mints

Xylitol and isomalt

Chewing gum
Mints
Toothpaste



Restriction diet and symptom diary

Use one copy of this table to track your food and beverage intake and any symptoms you experience for each week of the restriction phase. Make note of the time foods/beverages are consumed and any associated symptoms (e.g., 10:00 am: two eggs (boiled) with one tomato, 12:00 pm: gas)

Day	Morning intake	Afternoon intake	Evening intake	Symptoms
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				

Suggested re-challenge of restricted foods

This table is intended to be used with the resource titled “Re-challenge schedule and diary” to help you create your custom re-challenge schedule.

FODMAP subgroup	Challenge food	Challenge frequency	Portion size
Fructans	Garlic	Once daily for 3 days*	¼ clove
	Onion		1 ring
	Pasta		1 cup, cooked
	Whole wheat bread		1 slice
galacto-oligosaccharides (GOS)	Chickpeas (garbanzo beans)	Once daily for 3 days*	2 tbsp, cooked
	Lentils		½ cup, cooked
Lactose	Milk	Once daily for 3 days	½ cup
	Yogurt (plain, unsweetened)		½ cup (200 g)
Fructose	Honey	Once daily for 3 days	1 tsp
	Mango		½ mango
Mannitol	Cauliflower	Once daily for 3 days	½ cup
	Mushroom		½ cup
Sorbitol	Apricot	Once daily for 3 days	1 small
	Avocado		1/3 large or ½ small
Other polyols (e.g., erythritol, isomalt, maltitol, polydextrose, xylitol)	These sweeteners are only reintroduced if they were previously regularly consumed.	Once daily for 3 days	Half of the typical serving size recommended on the food label

*These FODMAPs are known to be better tolerated when they are challenged every other day. You may choose to reintroduce these foods once every second day at first and, if tolerated, increase challenge frequency to once daily for three days.



Re-challenge schedule and diary

Use the table on the next page to create your custom re-challenge schedule and track your symptoms during reintroduction. The example below demonstrates how to fill in the table.

To begin, fill in the FODMAP column with each of the FODMAP subgroups, starting with the highest priority for you. The previous table “Suggested re-challenge of restricted foods” will provide you with examples of foods and portion sizes to reintroduce for each FODMAP.

Each time you start a new food challenge, this is considered day 1. Make note of the food challenged (including portion size), the time at which it was consumed, and the nature and time of symptoms you experience (if any). Whenever a food reintroduction is associated with an increase in symptoms, discontinue the challenge. Return to the low-FODMAP diet phase 1 for two to three days, then move on to the next food challenge.

Re-challenge schedule and diary example

FODMAP	Day 1	Day 2	Day3	Day 4	Day 5	Day 6	Day 7
FODMAP: Lactose	½ cup plain yogurt	½ cup plain yogurt	½ cup plain yogurt	¾ cup plain yogurt	1 cup plain yogurt	LFD phase 1	LFD phase 1
Time	9 a.m.	9:30 a.m.	8:45 a.m.	9 a.m.	8 a.m.		
Symptoms	None	None	None	None	Bloating	Bloating	None
Time					9 a.m. onwards	Waking until 2 p.m.	



Re-challenge schedule and diary template

FODMAP	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
FODMAP:							
Time							
Symptoms							
Time							
FODMAP:							
Time							
Symptoms							
Time							
FODMAP:							
Time							
Symptoms							
Time							
FODMAP:							
Time							
Symptoms							
Time							

Achieving your protein requirements while following a plant-based low-FODMAP diet

According to the Institutes of Medicine, the recommended dietary allowance (RDA) for adult men and women is 0.8 g of protein per kg of body weight daily, or 0.36 g per lb of body weight. For instance, the recommended daily [protein](#) intake for a 160 lb (72.6 kg) individual is approximately 58 g.

Certain individuals may have higher protein or specific amino acid requirements, including:

- Athletes
- Infants and children
- Individuals with muscle wasting (e.g., immobile or elderly adults)

Plant-based protein sources for the low-FODMAP diet

If you are a vegetarian or vegan eater following the low-FODMAP diet, include the following [plant-based sources of protein](#) to meet your protein requirements.



Tempeh

17 g per ½ cup (83 g)



Walnuts, halves

4 g per 1 oz (28 g)



Peanuts, roasted

8 g per 1 oz (28 g)



Quinoa, cooked

7 g per 1 cup (170 g)



Pumpkin seeds, roasted, shelled

8 g per 1 oz (28 g)



Hemp seeds, hulled

9 g per 3 tbsp (30 g)



Oats, regular and quick, cooked with water

6 g per 1 cup (234 g)



Sunflower seeds, roasted, shelled

5 g per 1 oz (28 g)

Low-FODMAP diet apps

An online application can be a useful tool for understanding FODMAP content in foods and staying on track with the low-FODMAP diet. Examples of available apps include:

- Fast FODMAP Lookup & Learn ([App Store](#))([Google Play](#))
- FODMAP Friendly ([App Store](#))([Google Play](#))
- Low FODMAP diet A to Z ([App Store](#))([Google Play](#))
- Monash University FODMAP diet ([App Store](#))([Google Play](#))
- Spoonful ([App store](#))([Google Play](#))





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