The Low FODMAP Diet Program for Irritable Bowel Syndrome

niagarahealth

The Low FODMAP Diet Approach

The low FODMAP diet is a diet that limits foods that are high in **FODMAPs** to help manage the symptoms of Irritable Bowel Syndrome (IBS).

How do FODMAPs increase IBS symptoms?

FODMAPs are short-chain carbohydrates that are found in various types of foods. A common characteristic of FODMAPs, is that they are poorly absorbed in the small bowel. As a result of this poor absorption in the small bowel FODMAPs often reach the large bowel, where they are rapidly digested by bowel bacteria. This rapid digestion by bacteria often causes an increase in gas in the bowel, particularly when larger amounts of FODMAPs are consumed. This a normal part of digestion, however this increase in gas can increase symptoms such as abdominal bloating and distention, abdominal discomfort, and excess flatulence for many people with IBS. Some FODMAPs can also increase the amount of water in the bowel when consumed in larger amounts. Larger loads of water in the bowel can also increase IBS symptoms, including diarrhea and bowel urgency.

Can following a low FODMAP diet cure my IBS?

While following a low FODMAP diet may improve your symptoms, this diet is not considered a cure for IBS. FODMAPs can increase IBS symptoms temporarily due to the increase in gas and water loading in the bowel. Research to date has found that about 3 out of 4 people with IBS see improvement in their symptoms when following a low FODMAP diet.

What are examples of FODMAPs?

There are 5 types of carbohydrates that are considered FODMAPs. These are:

- 1) Lactose
- 2) Fructose
- 3) Fructans
- 4) GOS (galacto-oligosaccharides)
- 5) Polyols

Tolerance of FODMAPs and IBS

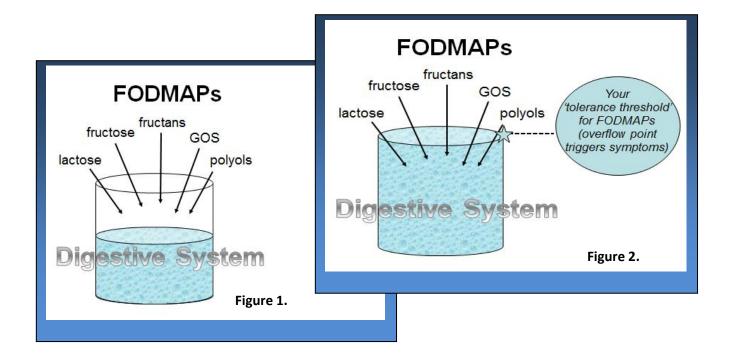
Tolerance of foods that are high in FODMAPs can vary for people with IBS. Some people with IBS can tolerate a larger amount of food high in FODMAPs in their diet, while others may find that consuming a small amount of food high in FODMAPs can increase symptoms.

Tolerance of one FODMAP in particular, lactose, can vary depending on your ability to absorb this carbohydrate. Lactose can often cause symptoms for people with IBS if it is poorly absorbed in the small bowel. This is referred to as *lactose malabsorption*. Lactose malabsorption occurs in about 40% of people with IBS. For people with IBS that do not have lactose malabsorption, lactose is often well tolerated.

To help illustrate the effect of consuming FODMAPs when you have IBS, you can think of your digestive system as a 'cup' (see Figure 1.). All the FODMAPs (lactose, fructose, fructans, GOS, polyols) you consume from different foods go into this same cup, and contribute to the total FODMAP load of this cup. If you consume too high of a FODMAP load, this can cause too much gas production and/or water loading, which can cause your cup can overflow and symptoms to occur (Figure 2).

Different people with IBS can have different sized cups. One person's cup may overflow if a small amount of FODMAPs are consumed, whereas another person's cup may not overflow until a larger amount of FODMAPs are consumed.

If FODMAPs increase your IBS symptoms, it can be a learning process to determine how much of a FODMAP load your digestive system can handle.



The 2 phases of the low FODMAP diet approach

There are 2 phases to the low FODMAP diet approach.

The first phase is *The FODMAP Elimination Diet*. The FODMAP elimination diet is a temporary diet of 4 - 8 weeks. During this period, FODMAPs are avoided in the diet to determine if your symptoms improve with this diet approach.

The second phase is *Re-introducing High FODMAP Foods into your Diet*. This purpose of this second phase is to re-introduce high FODMAP foods into your diet to explore your tolerance and to minimize dietary restrictions where possible.

Your dietitian can help guide you through these 2 phases.

Phase 1: The FODMAP Elimination Diet

During the FODMAP elimination diet phase it is recommended that you consume foods that contain little or no FODMAPs for a period of 4 - 8 weeks to determine if this diet approach is effective for you. Symptom improvement may be seen within 1 - 2 weeks for some people adherent to the diet, while in others it may take up to a few weeks for symptom improvement. About 1 in every 4 people with IBS will see limited or no symptom improvement on a low FODMAP diet.

A table has been provided that lists foods and ingredients that are *Low FODMAP* and *High FODMAP*. When following the FODMAP elimination diet it is recommended you consume only foods from the *Low FODMAP* category where possible.

If you happen to consume high FODMAP food while on the FODMAP elimination diet, try to record the high FODMAP food you consumed and whether this had any effect on your IBS symptoms.

Some food products listed under *Low FODMAP* include the symbol of a magnifying glass . These food products can sometimes contain high FODMAP ingredients. The magnifying glass is a reminder for you to check the ingredient list of these food products before consuming them to confirm whether they contain any high FODMAP ingredients.

Some foods listed under *Low FODMAP* are labelled ^{Moderate}. These are foods that have a moderate amount of FODMAPs (higher than low FODMAP foods, but lower than high FODMAP foods). These foods are often reported to be tolerated, and are therefore allowed on the FODMAP elimination diet. If you notice that any of these foods cause symptoms however, try reducing them to a smaller portion size (e.g. 1/2 portion size) to improve tolerance.

Some foods listed under *High FODMAP* are labelled ^{Lactose}. These are foods that are high in lactose. If you have had a negative test result for lactose malabsorption and it is clear that you can tolerate lactose in your diet, your dietitian will often suggest that you can consume high lactose foods while on the FODMAP elimination diet. If this is the case, it is still a good idea to read the ingredient list of high lactose foods to ensure other high FODMAP ingredients have not been added.

While information regarding the FODMAP content of foods is increasing, there are still some foods where this information is not available. Some foods are therefore not included in the food table. If you notice certain foods are not listed in the food table provided, it is suggested that you also limit these foods while on the FODMAP elimination diet.

If you are aware of any other foods that you have an adverse reaction to, it is recommended that you avoid these foods as well while on the FODMAP elimination diet.

It is best to complete the FODMAP elimination diet during a period when it is practical for you to follow the diet. For example, it can be more difficult to complete the FODMAP elimination diet when there are many stressors, food-related social activities, or other priorities in your life that will prevent you from following the diet.

Symptom scoring tool

A symptom scoring tool is provided to help track your symptom response to the FODMAP elimination diet. The scale on the symptom scoring tool ranges from *0* (*no symptoms*) to *10* (*very severe symptoms*). Consider how severe and also how frequent each symptom is when scoring. For example, a symptom that is severe and frequent would tend to score higher than a symptom that is severe but infrequent.

Record the severity of your symptoms on the scoring tool before you start the FODMAP elimination diet, and then again after you complete the diet. You can compare these scores to help evaluate the effectiveness of the diet for you.

Complete *before* the FODMAP elimination diet

Symptoms						Sym	pto	m so	ore		
	(0	= no	o sy	mp	ton	ns, í	10 =	very	/ sev	ere	symptoms)
Abdominal discomfort/cramping	0	1	2	3	4	5	6	7	8	9	10
Abdominal bloating	0	1	2	3	4	5	6	7	8	9	10
Abdominal distension	0	1	2	3	4	5	6	7	8	9	10
Excess gas	0	1	2	3	4	5	6	7	8	9	10
Diarrhea	0	1	2	3	4	5	6	7	8	9	10
Constipation	0	1	2	3	4	5	6	7	8	9	10
Bowel urgency	0	1	2	3	4	5	6	7	8	9	10
Nausea	0	1	2	3	4	5	6	7	8	9	10
Heartburn	0	1	2	3	4	5	6	7	8	9	10
Other:	0	1	2	3	4	5	6	7	8	9	10
	0	1	2	3	4	5	6	7	8	9	10

Complete after the FODMAP elimination diet

Symptoms						Sym	pto	m so	ore		
, .	(0	= no	sy	mp	ton	ns, 1	LO =	very	/ sev	/ere	symptoms)
Abdominal discomfort/cramping	0	1	2	3	4	5	6	7	8	9	10
Abdominal bloating	0	1	2	3	4	5	6	7	8	9	10
Abdominal distension	0	1	2	3	4	5	6	7	8	9	10
Excess gas	0	1	2	3	4	5	6	7	8	9	10
Diarrhea	0	1	2	3	4	5	6	7	8	9	10
Constipation	0	1	2	3	4	5	6	7	8	9	10
Bowel urgency	0	1	2	3	4	5	6	7	8	9	10
Nausea	0	1	2	3	4	5	6	7	8	9	10
Heartburn	0	1	2	3	4	5	6	7	8	9	10
Other:	0	1	2	3	4	5	6	7	8	9	10
	0	1	2	3	4	5	6	7	8	9	10

Food Type	Low FODMAP Food/Ingredients that are allowed during the FODMAP elimination diet	High FODMAP Food/Ingredients to avoid during the FODMAP elimination diet
Fruit	Limit large servings of fruit. It is recommended to limit low FODMAP fruit to 1 serving at a time and separate each fruit serving by at least 2 hours. One fruit serving equals 1 small/medium sized fruit or 1/2 cup. Limit dried low FODMAP fruit, and concentrated fruit products. If you consume juice from low FODMAP fruit, it is recommended you limit the serving size to 1/3 cup. ✓ banana (very ripe bananas can be higher FODMAP) ✓ blueberries Moderate ✓ cantaloupe ✓ carambola (starfruit) ✓ coconut ✓ cranberries ✓ cumquats ✓ dragon fruit ✓ durian ✓ grapefruit Moderate ✓ grapes* ✓ honeydew melon	<pre>* apple * apricot * avocado * blackberries * boysenberry * cherries * dates * dried high FODMAP fruit * dried high FODMAP fruit bars * figs, fresh and dried * lychee * mango * nectarine * peach * pear * persimmon * plum * pomegranate * prune * watermelon</pre>

	Low FODMAP	High FODMAP
Fruit	 ✓ kiwi ✓ lemon ✓ lime ✓ longan Moderate ✓ mandarin ✓ orange ✓ papaya ✓ passion fruit ✓ pineapple ✓ plaintain ✓ rambutan Moderate ✓ raspberries Moderate ✓ rhubarb ✓ strawberry* * There is some conflicting data on FODMAP content – limit quantity or avoid if these foods cause symptoms. 	
Vegetables	 ✓ alfalfa ✓ bamboo shoots ✓ bean sprouts ✓ bok choy ✓ butternut squash Moderate ✓ carrots ✓ cassava ✓ chicory leaves ✓ choy sum ✓ collard greens ✓ cucumbers ✓ eggplant ✓ endive, leaves ✓ fennel (bulb, leaves) ✓ green beans ✓ green bell pepper 	 asparagus beetroot broccoli* Brussels sprouts cabbage* (nappa cabbage is low FODMAP) cauliflower celery garlic (garlic-infused vegetable oil may be tolerated) globe artichoke leeks (whole or bulb) mushrooms onions peas shallots

	Low FODMAP	High FODMAP
Vegetables	 ✓ kale ✓ kabocha squash ✓ leek leaves (avoid leek bulb, as it is high in FODMAPs) ✓ lettuces (all types) ✓ nappa cabbage ✓ okra ✓ olives ✓ parsnip ✓ potatoes ✓ pumpkin (canned) Moderate ✓ radish ✓ red bell pepper ✓ red and green chilli peppers ✓ rutabaga ✓ seaweed, Nori ✓ spaghetti sqaush ✓ spring onion greens (avoid bulb, as it is high in FODMAPs) ✓ sweet potato Moderate ✓ swiss chard (silver beet) ✓ tomato, tomato paste (avoid tomato sauce with onion or garlic, as it is high in FODMAPs) ✓ turnip ✓ water chestnut ✓ zucchini 	 sugar snap peas tomato (e.g. pasta) sauce with onion or garlic * There is some conflicting data on FODMAP content – avoid for the elimination phase unless your dietitian advises otherwise.
Grain Products	 ✓ arrowroot flour ✓ buckwheat groats, buckwheat flakes, buckwheat flour ✓ field corn (e.g. corn meal, corn thins, corn flour, corn tortilla 	amaranth flourbarleymuesli/muesli barrye bread

	Low FODMAP	High FODMAP
Grain Products	chips, corn tacos, corn puffs, corn polenta, corn bread, corn flakes) (avoid sweet corn, as it is high in FODMAPs) ✓ gluten-free bread (some contain high FODMAP ingredients – check label) ✓ oats Moderate, oatmeal Moderate, oat bran ✓ millet, millet flour, puffed millet ✓ quinoa, puffed quinoa, quinoa flour, quinoa flakes ✓ rice, rice cakes , rice crackers and crisps , rice crackers and crisps , rice crisp cereal e.g. (Rice Krispies) , rice pasta/noodles, cream of rice cereal, rice paper, puffed rice, rice flour, rice bran ✓ tapioca ✓ teff flour	 spelt (e.g. spelt flakes, spelt pasta) sweet corn (e.g. corn on the cob, raw or cooked corn kernels) (products made from field corn are allowed) wheat and products made with significant amounts of wheat flour. For example: breads naan/roti pasta/noodles couscous cereals cakes, baked goods, pastries, cookies crackers, biscuits breadcrumbs, batter wheat bran
Milk and Alternatives	 ✓ almond milk beverage ✓ butter ✓ certain cheeses only (Cheddar, Edam, Limburger, Mozzarella, Romano, Swiss, Parmesan, Provolone, Brie, and Camembert) ✓ coconut milk ✓ coconut milk beverage Moderate ② (avoid coconut water, as it is high in FODMAPs) 	 buttermilk Lactose cream (light cream, half and half, whipping cream) Lactose cream sauces Lactose cream soups Lactose evaporated milk Lactose Feta cheese Lactose fresh cheeses (e.g. Ricotta, Cottage) Lactose ice cream Lactose kefir Lactose

	Low FODMAP	High FODMAP
Milk and Alternatives	 ✓ custards and puddings made with lactose-free milk ✓ hemp milk ✓ ice cream substitutes (e.g. dairy-free gelato, sorbet) ✓ lactose-free ice cream ✓ lactose-free milk ✓ lactose-free yogurt ✓ rice milk beverage ✓ soy cheese 	 malted milk Lactose oat milk processed cheese, cheese spreads Lactose puddings, custards Lactose regular and low-fat milk (cow, goat, sheep) Lactose regular and low-fat yogurt Lactose sherbet Lactose skim milk powder Lactose sour cream Lactose soy milk sweetened condensed milk Lactose whey powder Lactose
Meat and Alternatives	 ✓ chickpeas, canned (limit to ½ cup or less) Moderate ✓ eggs ✓ fish ✓ lentils (limit to ½ cup or less) Moderate ✓ low FODMAP nuts (limit portion to small handful at a time): Brazil nuts chestnuts hazelnuts Moderate pine nuts peanuts macadamia nuts walnuts ✓ peanut butter (limit portion to 1-2 tbsp at a time) 	 almonds cashews legumes, most types except canned chickpeas and lentils (e.g. red kidney beans, baked beans, navy beans, lima beans, butter beans, borlotti beans, mixed beans, split peas, soy beans) pistachio nuts textured soy protein tofu (silken) (note firm tofu is low FODMAP)

	Low FODMAP	High FODMAP
Meat and Alternatives	 ✓ pea protein powder ✓ poultry (chicken, turkey) ✓ red meat ✓ rice protein powder ✓ seafood ✓ seed butters (e.g. sunflower seed butter, pumpkin seed butter) (limit portion to 1-2 tbsp at a time) ✓ seeds (e.g. hemp seeds, flaxseeds, sunflower seeds, pumpkin seeds, sesame seeds, chia seeds) (limit portion to a small handful at a time) ✓ tempeh ✓ tofu (firm) (note silken tofu is high FODMAP) ✓ 100% whey protein isolate 	
Oils and Fats	 ✓ all vegetable oils ✓ flavoured vegetable oils (e.g. garlic-infused vegetable oil, chili-infused vegetable oil) ✓ butter ✓ margarine ✓ mayonnaise 	 cream cheese Lactose cream sauce Lactose sour cream Lactose Caution (check ingredients): commercial salad dressings often contain ingredients that are high in FODMAPs (e.g. garlic, onion)
Sweeteners	 ✓ artificial sweeteners <u>not</u> ending in 'ol' (e.g. Stevia, aspartame, Splenda) ✓ glucose 	* agave syrup* crystalline fructose* fructose* golden syrup

	Low FODMAP	High FODMAP
Sweeteners	✓ maple syrup ✓ rice syrup ✓ table sugar (sucrose) The following are different names of low FODMAP sugars: • beet sugar • brown sugar • cane sugar • castor sugar • coconut sugar • confectioner's sugar • icing sugar • invert sugar • palm sugar • refined sugar • sugar • turbinado sugar Use low FODMAP sugars in moderation	x glucose-fructose (this is how high fructose corn syrup is labelled in Canada) x high fructose corn syrup (HFCS) x honey x molasses x polyols (e.g. sorbitol, mannitol, xylitol, maltitol and isomalt) Caution (check ingredients): sugar-free products (e.g. sugar-free gum) may contain added polyols Caution (check ingredients): the following may contain added glucose-fructose (high fructose corn syrup): - soft drinks - fruit drinks - sweetened beverages - candies - syrups - condiments - sweetened snack products

	Low FODMAP	High FODMAP
Herbs, Spices	✓ chutney ^⑤	barbeque sauce, most types
and	\checkmark fish sauce $^{oldsymbol{\Theta}}$	🗴 garlic salt or powder
Condiments	√ horseradish	× hummus
	✓ lemon and lime juice	× ketchup, sweetened with
	✓ mint sauce	glucose-fructose
	✓ mustard	× onion salt or powder
	✓ oyster sauce 🚇	× relish
	✓ pepper	
	✓ plum sauce ^{Moderate}	
	· ✓ salt	
	✓ soy sauce ^Q	
	✓ vanilla extract, real or imitation	
	✓ vinegars, most varieties	
	(including apple cider	
	vinegar) 🕓	
	✓ wasabi paste/powder	
	wasasi paste, powaei	
	The following spices are low in	
	FODMAPs, but use caution with	
	large amounts of spices:	
	✓ cinnamon	
	✓ chives	
	✓ green leafy herbs (e.g. fresh or)	
	dried basil, parsley, oregano,	
	cilantro, coriander, dill,	
	marjoram, thyme, tarragon,	
	rosemary, mint)	
	✓ ginger root	
	✓ ground chilli powder	
	✓ paprika	
	✓ seed spices (e.g. coriander,	
	mustard, cumin, caraway, dill	
	seed, celery, sesame seed,	
	poppy seed, nutmeg)	
	✓ turmeric	

	Low FODMAP	High FODMAP
Beverages	 beer brewed and instant regular and decaffeinated coffee or espresso black tea chai tea Moderate dandelion tea Moderate green tea white tea peppermint tea unsweetened spirits (vodka, gin, whiskey) red, rose, and white wine sherry (dry) water Alcohol and caffeine can increase IBS symptoms for some people. Your dietitian may therefore advise you to limit alcohol and caffeine during the FODMAP elimination diet.	 chamomile tea coconut water (coconut milk/coconut milk beverage is allowed) dessert wine, ice wine fennel tea fortified wine: port, sherry (sweet) kombucha tea oolong tea rum some alcoholic cocktails (commercial mixes often contain glucose-fructose e.g. pina colada, margarita, coolers)
Other	 ✓ cocoa powder ✓ soy lecithin ✓ ingredients not listed or derived from foods listed under 'High FODMAP' 	 carob powder chicory root extract FOS GOS inulin

Nutrient data used to classify foods in the FODMAP food table was obtained from published studies, USDA nutrient database and the NUTTAB database. In cases where FODMAP composition data was not available foods were classified based on estimates from the Low FODMAP diet education resources prepared by the research team in the Dept. of Gastroenterology, Central Clinical School, Monash University, Australia (booklet, Smartphone application, website blog). FODMAP classification of some foods in this table may vary with other educational resources related to factors such as variance in FODMAP composition data of foods, portion size standards of foods, and clinical experience.

Reading food labels

When you start the FODMAP elimination diet, you will find you need to spend some time reading the ingredient list of food products to see if they contain added high FODMAP ingredients. The magnifying glass of found on foods listed under *Low FODMAP* in the food tables is a reminder to check the ingredient list of these food products, as they can sometimes contain added high FODMAP ingredients.

Nutrition Facts	
Serving size: 1 slice (46g)	
Amount	% Daily value
Calories 142	
Total Fat 2g	2%
Saturated Og	0%
+ Trans Og	
Cholesterol 0mg	
Sodium 160mg	7%
Total Carbohydrate 28g	10%
Fibre 3g	11%
Sugars 6g	
Protein 4g	
Ingredients: whole wheat	flour, inulin
cornmeal, vegetable oil, gu	uar gum, salt,
glucose-fructose , evapora	ted cane juice
High	FODMAP ingredie

Quick reference list for label reading

When reading the ingredient list of food products you can use the quick reference list provided for common high FODMAP ingredients and sweeteners to help you identify foods with high FODMAP ingredients. Some high FODMAP ingredients are likely only an issue if they are present in larger amounts in the food product. These high FODMAP ingredients are listed under: *Avoid if a main ingredient in a food product*. Other FODMAP ingredients may cause

symptoms for some people in only small amounts e.g. a tablespoon or sometimes less. These high FODMAP ingredients are listed under: *Avoid if a minor ingredient in a food product*.

Items on the ingredient list of a food product are listed in order of highest weight to lowest weight. Ingredients that are present in larger amounts in a food product are therefore listed first, followed by ingredients present in smaller amounts. It is often difficult to tell precisely how much of an ingredient is in a food product from the ingredient list alone. As a general guideline, ingredients that are listed first on the ingredient list can be considered **main** ingredients, and ingredients listed last on the ingredient list can be considered **minor** ingredients. If you are not sure whether a food product is low FODMAP, it is sometimes best to simply avoid that food product during the elimination phase.

If a food product has *multiple* high FODMAP ingredients, it is also generally a good idea to avoid this food product during the elimination phase as a precaution unless otherwise advised by your dietitian.

Quick reference list of high FODMAP ingredients and sweeteners

Avoid if a main ingredient in a food product

- **×** apple purée
- almond meal/flour
- amaranth flour
- **×** barley flour
- **✗** buttermilk ^{Lactose}
- chickpea flour
- x cream Lactose
- **≭** curds ^{Lactose}
- dried high FODMAP fruits
- fruit juice concentrate (e.g. concentrated apple juice, concentrated pear juice)
- × pea flour
- **x** pear purée
- × rye flour
- soy or soybean flour (note: soy lecithin and soybean oil are low in FODMAPs and allowed on the FODMAP elimination diet)
- **×** soy milk
- **×** spelt flour
- * textured soy protein
- wheat flour

Avoid if a minor ingredient in a food product

- **x** agave syrup
- carob powder
- chicory root extract
- crystalline fructose
- ✗ FOS (fructo-oligosaccharides)
- **x** fructose
- **x** garlic salt or powder
- ▼ glucose-fructose (term often used in Canada for high fructose corn syrup)
- **x** golden syrup
- **✗** GOS (galacto-oligosaccharides)
- ✗ high fructose corn syrup
- honey
- × inulin
- × isomalt
- lactitol
- ✗ lactose Lactose
- **x** maltitol
- **x** mannitol
- milk solids Lactose
- **x** molasses
- × onion salt or powder
- **×** sorbitol
- **✗** skim milk powder ^{Lactose}
- whey powder or whey protein Lactose (note: '100% whey protein isolate' is low in FODMAPs and allowed on the FODMAP elimination diet)
- × xylitol

Lactose If your dietitian has advised you that you do not need to restrict lactose on the FODMAP elimination diet, you do not need to avoid these ingredients.

Shopping list

It is a good idea to plan a shopping trip before starting the FODMAP elimination diet to purchase many of the foods you will need. In addition to the supermarket, you may find that bulk food stores have a good selection of some low FODMAP food items.

A shopping list of basic staples useful to have on hand for the FODMAP elimination diet is provided below.

Shopping list of staples for the FODMAP elimination diet

- ✓ Low FODMAP vegetables
- ✓ Low FODMAP fruits
- ✓ Potatoes
- ✓ Rice
- ✓ Corn pasta or rice pasta
- ✓ Quinoa
- ✓ Low FODMAP cereals (see low FODMAP food products section)
- ✓ Low FODMAP breads (see low FODMAP food products section)
- ✓ Rice cakes and rice crackers/crisps
- ✓ Milk alternatives (e.g. lactose-free milk, rice or almond milk beverage ⁽³⁾)
- ✓ Lactose-free yogurt

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- ✓ Low lactose cheeses
- ✓ Fresh/frozen fish, poultry, meat
- ✓ Eggs
- ✓ Peanut butter
- ✓ Seed butters (e.g. sunflower seed butter, pumpkin seed butter)
- ✓ Low FODMAP nuts (e.g. walnuts, pecans, peanuts, pine nuts, macadamia nuts, Brazil nuts)
- ✓ Seeds (e.g. sunflower seeds, pumpkin seeds)
- √ Vegetable oil/olive oil
- ✓ Garlic-infused vegetable oil (while garlic is high in FODMAPs, commercial garlic-infused vegetable oil is often low in FODMAPs)
- ✓ Margarine or butter
- ✓ Maple syrup (can be used as a sweetener)
- ✓ Balsamic vinegar and/or lemon juice (for making salad dressings or marinades)
- ✓ Soy sauce (can be used for flavouring dishes)
- ✓ Low FODMAP herbs and seasonings (see low FODMAP food products section)
- ✓ Low FODMAP snacks and treats (see low FODMAP food products section)

Low FODMAP food products

The following is a list of some low FODMAP food products to help save you time when shopping. Note that it is still a good idea to double-check the ingredient list of the food products listed as companies may change the ingredients over time.

Low FODMAP bread	Law FORMAR assessed	Other low FODMAP grain
products	Low FODMAP cereals	products
Compliments:	Bob's Red Mill:	Aurora:
- Gluten-free Sandwich Rolls White	- Brown Rice Farina (creamy rice cereal)	- Traditional Plain Polenta
- Gluten-free White Farmhouse	GoGo Quinoa:	Barilla
Loaf	- Buckwheat flakes	- Gluten-free Pasta (eg. penne,
Edible Options: (local bakery across	- Quinoa Puffs	spaghetti, rotini, elbows, fettuccini)
from St. Catharines hospital):	- Quinoa Flakes	Betty Crocker:
- Gluten-free white and multigrain	- Quinoa Cocoa (puffed cereal) cereal	- Gluten-free Yellow Cake mix
bread*	General Mills:	- Gluten-free Chocolate Brownie mix
- Gluten-free white and multigrain	- Cheerios (original)	- Gluten-free Devil's Food Cake mix
buns e.g. hamburger, hot dog,	- Corn Chex Gluten-free	- Gluten-free Pizza Crust mix
dinner rolls*	- Rice Chex Gluten-free*	- Gluten-free Sugar Cookie mix
- Gluten-free white baguette*	Kellogg's:	Catelli
- Gluten-free faux rye bread and	- Corn Flakes*	- Gluten-free Pasta (e.g. penne,
ryeless rye bread*	- Crispix*	macaroni, fusilli, spaghetti, linguini,
- Gluten-free bagels*	- Rice Krispies	lasagna)
Glutino:	- Rice Krispies Brown Rice Gluten-free	De Healthy Baker:
- Gluten-free White Sandwich Loaf	Cereal	- Gluten-free Pizza Crust
- Gluten-free Cinnamon Raisin	Kashi:	Duinkerken:
bread	- Organic Simply Maize (gluten-free)*	- Gluten-free Waffle/pancake Mix
Kinnikinnick:	Nature's Path:	- Gluten-free Muffin Mix
- Gluten-free White Bread	- Coconut Chia Superflakes	- Gluten-free Cookie Mix
- Gluten-free Hamburger and	- Crispy Rice Cereal*	Food for Life:
Hotdog buns	- Frosted Amazon Flakes	- Brown Rice Tortillas
Udi's:	- Peanut Butter Panda Puffs	Glutino:
- Gluten-free French Baguettes	- Rice Puffs	- Gluten-free Pizza Crust
- Gluten-free Classic French Dinner	President's Choice:	Grimm's:
Rolls	- Corn Flakes	- Gluten-free Rice Tortillas
- Gluten-free Cinnamon Raisin	- Crispy Rice Cereal	Le Veneziane:
Bagels	- Instant Regular Oatmeal	- Gluten-free Corn Pasta
- Gluten-free Plain Bagels	Organics:	Prairie Harvest:
- Gluten-free Classic Hamburger	- Crunchy Corn Cereal	- Gluten-free Corn Pasta
Buns	- Steel Cut Oats	- Gluten-free Rice Pasta
- Gluten-free Hot Dog Buns	- Maple and Brown Sugar Flavour Instant	Old El Paso:
- Gluten-free Cinnamon Raisin	Oatmeal	- Crunchy Shells (taco)
Bread	President's Choice Blue Menu:	Rizopia:
- Gluten-free Double Chocolate	-Instant Oatmeal with Flaxseed	- 100% Rice Pasta
Muffins	- 100% Whole Grain Quick Cooking Steel	Sam Mills:
	Cut Oats	- 100% Corn Pasta
Foods marked with an *	-Regular or Maple & Brown Sugar Flavour	Tostigar:
have only a small amount of	Steel Cut Oats Instant Oatmeal	- Fried Corn Tortilla (tostadas)
molasses and/or amaranth flour	Quaker:	Udi's:
(should be tolerated by most	- Corn Bran Squares	- Gluten-free Pizza Crust
people)		

Low FODMAP snacks and Low FODMAP condiments, Low FODMAP beverages sauces & seasoning treats Astro BioBest: Blue Diamond: Aurora: - Gluten-free Bread Crumbs - Almond Breeze Beverage (Original, - 90% Lactose-free Plain Yogurt **Bulk Barn:** Compliment's: Vanilla, Chocolate) - Banana Chips - Balsamic Vinegar Dream: **Blue Diamond Growers:** Cross & Blackwell: - Rice Dream (Original, Vanilla, - Pecan Nut-Thins - Mint Sauce Chocolate) FODY: - Almond Dream (Original, Vanilla) Chapman's: - Orange Sorbet or Rainbow Sorbet - Arrabbiata Pasta Sauce - Coconut Dream (Original, Vanilla) Dorgel: - Barbeque Sauce, low FODMAP Earth's Own: - Lemon Gelato - Enchilada Sauce - So Nice Organic Almond Beverage Edible Options: (local bakery across - Korean BBQ Sauce and Marinade (Original, Vanilla) from St. Catharines hospital): - Pasta Sauce, Marinara **Gatorade Perform:** - Thirst Quencher (all flavours) - Gluten-free Lemon squares, - Pasta Sauce, Tomato and Basil Shortbread, Chewy Oat cookies, - Salad Dressing, Caesar Lactantia: Breakfast Monster Cookies, Chocolate - Salad Dressing, French - Lactose-free Milk Truffles, Strawberry Truffles, Coconut - Salad Dressing, Garden Natur-a Bomb, French Cruller, Cinnamon Buns - Salad Dressing, Maple - Rice Beverage (Original, Vanilla) Glee Gum - Salsa (mild and medium) - Almond Beverage (Original, Vanilla, - Sesame Ginger Sauce and Marinade Chocolate, Unsweetened) - Peppermint, Tangerine or **Bubblegum Glee Gum** - Taco Sauce Natrel Sugar-free versions of Glee Gum are - Teriyaki Sauce and Marinade - Lactose-free Milk high FODMAP - Tomato Ketchup - Lactose-free Coffee Cream FODY: Glutino: - Lactose-free Whipping Cream - Gluten-free Bread Crumbs - Trail Mix, Mockingbird/Woodpecker GoGo Quinoa: Grace: - Coconut Beverage (Original, - Quinoa Crunchies (original or - Coconut Milk Unsweetened) - Hot Pepper Sauce - Almond Beverage (Original, cinnamon) Glutino **Grey Poupon:** Unsweetened, Vanilla, Dark - Gluten-free Pretzels or Bagel Chips - Prepared Old Style Mustard Chocolate) Hot kid: Hellman's: So Delicious - Rice Crisps - Coconut Milk Beverage (Original, - Real Mayonnaise **logo Probio:** Unsweetened or Vanilla) Kikkoman: - Lactose-free Plain yogurt - Soy Sauce Oikos Lee Kum Kee: - Lactose-free Vanilla Yogurt - Pure Sesame Oil - Lactose-free Hint of Banana Yogurt - Chili Oil Marukan: Orville Redenbacher's: - Butter or Homestyle Microwave - Rice Vinegar Popcorn President's Choice: Oskri: - Roasted Garlic-infused Vegetable Oil - Quinoa Bar* Southern Home-Style: Quaker: - Corn Flake Crumbs - Crispy Minis Rice Cakes ReaLemon: **Real Foods:** - Lemon Juice - Corn Thins (original or sesame) Renee's: **Tic Tacs** - Tangerine and Lime Vinaigrette - Artic Rush, Fresh Mint or Thai Kitchen: Wintergreen - Fish Sauce **Tostitos:** - Tortilla Chips Waterbridge: - Sesame candy - Snickerdoodle Cookies (gluten-free) - Lemon Burst Cookies (gluten-free)

Why are some 'gluten-free' products listed as low FODMAP products?

Gluten is a protein found in wheat, barley, rye, and in some cases, oats. Gluten *does not* need to be limited on the FODMAP elimination diet. However, many grains that contain gluten, such as wheat and rye, also just happen to be high in FODMAPs. In comparison, many of the gluten-free grains or flours used in gluten-free products happen to be lower in FODMAPs, such as rice, field corn, quinoa, and potato flour. Therefore gluten-free products can sometimes be an option to help choose low FODMAP food choices.

Are all gluten-free products low in FODMAPs?

Not all gluten-free products are lower in FODMAPs. Some gluten-free flours such legume flours (e.g. soy, pea, chickpea flour) can be higher in FODMAPs. Also, gluten-free products can sometimes have high FODMAP ingredients added into the product (e.g. chicory root, inulin, agave syrup, honey). Therefore some gluten-free products can be high FODMAP food choices.

If choosing a gluten-free product, it is therefore a good idea to check the ingredient list to make sure it does not contain high FODMAP ingredients (see: *Quick reference list of high FODMAP ingredients and sweeteners*).

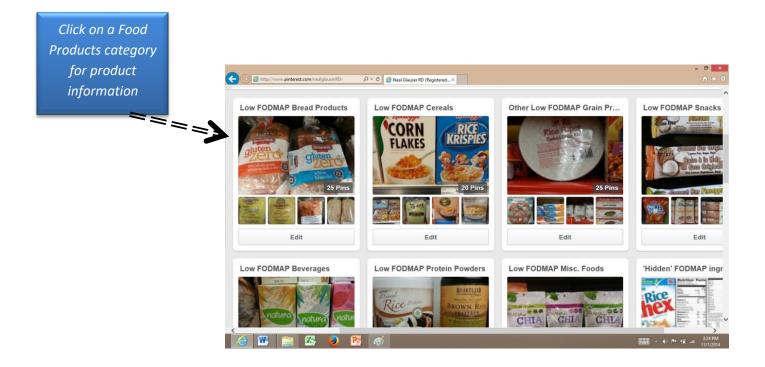
Pinterest Website

A Pinterest website has been created to help you follow the FODMAP elimination diet.

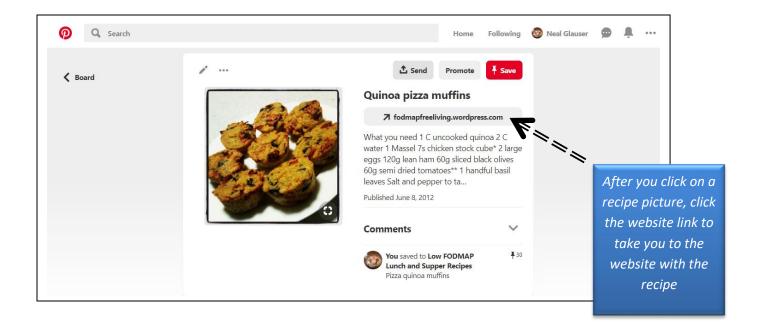
Website address: <u>pinterest.com/nealglauserRD</u> (enter this address in your internet website address bar to visit this Pinterest website)

This Pinterest website provides you with:

✓ *Tips for low FODMAP shopping*. E.g. low FODMAP food products



- ✓ **Tips on label reading for FODMAPs**. This Pinterest website helps identify some foods that have 'hidden' FODMAP ingredients.
- ✓ *Online low FODMAP recipe links*. If you are looking for low FODMAP recipes for meals, desserts, snacks and condiments/sauces, this is a good place to get ideas.



Privacy information. Pinterest is a popular online pinboard site. If you are a member of Pinterest, and you choose the optional feature to 'follow' pinterest.com/nealglauserRD, please be advised that other individuals viewing this website may have access to view your username and your Pinterest boards.

Meal Planning

To assist you in planning your meals while on the FODMAP elimination diet, 7 sample daily menus have also been provided using only low FODMAP foods. These are suggested menus only. You can simply choose the items you like and make your own menus if you prefer.



Breakfast

Rice Krispies cereal with almond or rice milk topped with banana slices

1 - 2 hard-boiled eggs (add margarine, salt and pepper if desired)

Lunch

Tuna salad sandwich melt open-face on plain rice cakes or low FODMAP bread (mix tuna, mayonnaise, chopped green peppers and radishes, salt, pepper; spread on rice cakes/low FODMAP bread; then melt cheddar cheese on top)

Lactose-free yogurt

Afternoon snack

1/2 cup grapes

Rice or almond milk

Supper

Stir-fry

[1 cup of cooked quinoa (or rice), sliced chicken or turkey, low FODMAP vegetables, olive oil (use garlic-infused oil if desired), herbs or soy sauce as desired to flavour]

Evening snack

Small handful of walnuts

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«Low Fodmap Menu»

Breakfast

Oatmeal with rice or almond milk (add maple syrup as sweetener if desired)

½ cup cantaloupe or raspberries

Lunch

Corn or rice pasta with cooked low FODMAP vegetables and cooked shrimp,
tossed in olive oil, parmesan cheese, and herbs or lemon juice

Afternoon snack

Small banana with peanut butter (can sprinkle on shredded coconut if desired)

Supper

Tomato chicken risotto (recipe at: 'pinterest.com/nealglauserRD')

Rice or almond milk

Evening snack

Rice crackers/crisps with cheddar cheese



«Low FODMAP Menu»

Breakfast

Corn flakes with rice or almond milk

Orange wedges

Lunch

Salmon or chicken salad sandwich on low FODMAP bread (mix salmon or chicken with mayonnaise, red bell peppers, salt, pepper; top with sliced tomatoes and lettuce)

Lactose-free yogurt

Afternoon snack

½ cup pineapple

Small handful of sunflower seeds

Supper

Baked turkey breast seasoned with herbs served with oven-roasted red and green bell peppers, and zucchini tossed in garlic-infused olive oil and herbs

Mashed potatoes with margarine (add chives if desired)

Rice or almond milk

Evening snack

Rice cakes with low FODMAP dip (dip recipes at: 'pinterest.com/nealglauserRD')



«Low Fodmap Menu»

Breakfast

Egg omelet made with tomatoes, spinach and herbs (add cheddar cheese if desired)

Hash brown potatoes

1/2 cup papaya or grapes

Lunch

Low FODMAP quinoa and vegetable salad (recipe at: pinterest.com/nealglauserRD)

Rice crackers/crisps

Rice or almond milk

Afternoon snack

Small handful of pecans with brie cheese

Supper

Corn or rice pasta served with pan-fried chicken and low FODMAP vegetables (season with olive oil and herbs)

Rice or almond milk

Evening snack

Plain corn tortilla chips with low FODMAP salsa (salsa recipes at: 'pinterest.com/nealglauserRD')



«LOW FODMAP Memu»

Breakfast

Rice porridge mixed with blueberries and coconut milk beverage (add maple syrup as sweetener if desired)

Lunch

Low FODMAP potato salad (recipe at: 'pinterest.com/nealglauserRD')

Carrot and cucumber sticks

Lactose-free yogurt

Afternoon snack

Small banana with peanut butter or sunflower seed butter

Supper

Baked tilapia or salmon with oven-roasted small potatoes and carrots (season with olive oil and herbs)

Rice or almond milk

Evening snack

Rice crackers/crisps with Swiss or cheddar cheese



«Low Fodmap Menu»

Breakfast

Banana oatmeal shake

(mix in the blender: 1 banana, 1/2 cup cooked oatmeal, 2 tbsp pecans or walnuts, 1/2 cup almond or rice milk beverage, pinch of cinnamon, 2 - 4 ice cubes)

Lunch

Tossed spinach salad with low FODMAP vegetables, shrimp or tuna, and homemade salad dressing

(salad dressing recipes at: 'pinterest.com/nealglauserRD')

Low FODMAP toast with margarine

Rice or almond milk

Afternoon snack

Blueberries in a bowl topped with coconut milk beverage

Supper

Barbeque chicken kabobs (can marinade with olive oil and lemon juice if desired) with low FODMAP vegetables on a bed of rice

Evening snack

Frozen dairy-free sorbet



«Low Fodmap Menu»

Breakfast

Low FODMAP pancakes with maple syrup (recipes at: 'pinterest.com/nealglauserRD')

Lunch

Roast beef or sliced meat sandwich on low FODMAP bread with mayonnaise and lettuce

1 - 2 kiwi fruits

Rice or almond milk

Afternoon snack

A small handful of walnuts with cheddar cheese

Supper

Your choice (visit: 'pinterest.com/nealglauserRD' for different supper recipe ideas)

Evening snack

Peanut butter banana shake (mix in blender: 1 cup almond or rice milk, 1 banana, 1 tbsp peanut butter, 2 - 4 ice cubes)



Quick snack ideas for the FODMAP elimination diet

- ✓ Banana with peanut butter
- ✓ Bowl of raspberries or blueberries with rice or almond milk
- ✓ Carrot sticks (can dip in peanut butter)
- ✓ Corn flakes or Rice Krispies with rice or almond milk
- ✓ Dairy-free sorbet
- ✓ Fruit (low FODMAP choices)
- √ Hard-boiled egg
- ✓ Lactose-free yogurt (can add in low FODMAP fruit)
- ✓ Low lactose cheeses (those listed under 'Low FODMAP')
- ✓ Plain banana chips (portion: handful only)
- ✓ Plain corn tortilla chips
- ✓ Peanut butter spread on rice cakes (can top with sliced banana)
- ✓ Rice cakes topped with sliced tomatoes and melted cheddar cheese
- ✓ Rice cakes with low FODMAP dip (dip recipes at: ′pinterest.com/nealglauserRD′)
- ✓ Rice crackers/crisps and low FODMAP fruit
- ✓ Rice crackers/crisps with cheddar cheese slices
- ✓ Sesame snaps
- ✓ Sliced egg on low FODMAP toast with margarine
- ✓ Sliced red or green bell peppers or cucumbers
- ✓ Small handful of low FODMAP nuts (e.g. peanuts, pecans, walnuts, pine nuts, macadamia nuts, Brazil nuts)
- ✓ Small handful of sunflower seeds
- ✓ Smoothie (mix in blender: almond or rice milk with low FODMAP fruit)

For snack recipe ideas visit: pinterest.com/nealglauserRD

Maintaining your weight on the FODMAP elimination diet

If you are losing weight on the FODMAP elimination diet, and this is not desirable, then you may need to further increase your food or calorie intake to maintain your weight. Some of the low FODMAP foods that are higher in calories that can help you maintain/gain weight include:

- Eggs
- Lactose-free milk
- Lactose-free yogurt
- Low FODMAP foods from the Grain Products category (e.g. rice, corn or rice pasta, quinoa, corn tortilla chips)
- Low FODMAP nuts (e.g. peanuts, pecans, walnuts, pine nuts, macadamia nuts, Brazil nuts)
- Low lactose cheeses (those listed under *Low FODMAP*)
- Maple syrup
- Margarine
- Mayonnaise (low FODMAP, e.g. Hellmann's)
- Peanut butter
- Poultry, fish, meat
- Rice protein powder
- Seed butters (e.g. sunflower seed butter, pumpkin seed butter)
- Seeds (e.g. sunflower seeds, pumpkin seeds)
- Vegetable oils

High calorie/protein low FODMAP shake recipe

You can also try using a high calorie/protein shake made from low FODMAP items. Here is a recipe that you can make in the blender:

- 1 cup of almond or rice milk (can also use lactose-free milk instead)
- 2 tbsp of peanut butter or 1 heaping tbsp of rice protein powder
- 1 tbsp of vegetable oil (e.g. flaxseed, canola)
- 1/2 cup low FODMAP fruit or 1 tbsp of maple syrup
- 2 4 ice cubes

Contains approx: 300 - 450 calories, 8 - 11 grams protein

Evaluating your symptom response to the FODMAP elimination diet

Once you have completed the FODMAP elimination diet phase, take some time to review your symptom response using the symptom scoring tool provided at the beginning of this booklet.

If there is noticeable improvement in your IBS symptoms on the FODMAP elimination diet, this suggests that foods containing FODMAPs were contributing to your symptoms. If your symptoms improved, it is recommended that you proceed to *Phase 2: Re-introducing High FODMAP foods into your Diet*, to test your tolerance to these foods.

If you did not notice any improvement in your IBS symptoms on the FODMAP elimination diet, then FODMAPs may not have been contributing to your symptoms. You can likely add these foods back into your diet. Unless high FODMAP foods provoke symptoms when added back, there is usually no need to restrict these foods in your diet. Keep in mind that FODMAPs are not harmful to the digestive system, rather they can simply increase symptoms for some people with IBS due to increased gas production or fluid loading in the bowel. Many high FODMAP foods are healthy food choices, and therefore they are encouraged in the diet if they are well tolerated. An assessment by your dietitian can determine whether there are further dietary strategies to help manage your IBS symptoms.

Phase 2: Re-introducing High FODMAP foods into your Diet

The FODMAP elimination diet was the first of 2 phases for the low FODMAP diet approach. It was a temporary diet of 4 - 8 weeks to see if your symptoms improve when high FODMAP foods are avoided in your diet.

If your symptoms improved on the FODMAP elimination diet, the second phase of the low FODMAP diet approach is the gradual re-introduction of high FODMAP foods into your diet.

Why re-introduce high FODMAP food into your diet?

Some people with IBS can tolerate a small or modest amount of some high FODMAP foods in their diet. There are a couple reasons for this.

- 1. FODMAPs need to be consumed in a large enough amount in the diet to increase symptoms. Therefore, whether symptoms occur can depend on how much high FODMAP food you consume.
- 2. Certain high FODMAP foods may be less likely to provoke symptoms than other high FODMAP foods. For example, while the FODMAP elimination diet typically removes foods high in any of the 5 FODMAP types (lactose, fructose, fructans, GOS, polyols), individual tolerance to these different FODMAPs may vary.

Benefits of including high FODMAP foods as tolerated in your the diet

Including some high FODMAP foods in your diet that you are able to tolerate, can increase the variety of foods in your diet. This can not only be important for quality of life, but it can help ensure your diet is nutritionally adequate. Including some high FODMAP foods in your diet that you can tolerate, may also help promote healthy microbiota in your digestive system.

Starting the re-introduction of high FODMAP foods

Lactose

Tolerance of one FODMAP in particular, lactose, can vary widely for people with IBS. If lactose was removed from your diet during the elimination phase, and you are not sure whether you can tolerate lactose, then a good place to start is to test your tolerance to lactose before reintroducing other high FODMAP foods.

To help you test your tolerance to lactose, you can complete the 3-day Lactose Challenge provided in this booklet.

If you have previously have had a lactose malabsorption blood test or breath test, and you already have a clear idea of your tolerance to lactose, it is often not necessary to complete a lactose challenge and you can skip this section and proceed to: *Re-introducing other FODMAPs into your diet*.

Completing the Lactose Challenge

See the 3-day Lactose Challenge form provided.

It is recommended that you use cow's milk (skim, 1% or 2%) to test your tolerance to lactose for the Lactose Challenge.

For each day of the lactose challenge, record the following on the 3-day Lactose Challenge form:

- Whether your IBS symptoms changed following consumption of milk (no increase in symptoms, mild increase in symptoms, moderate increase in symptoms, severe increase in symptoms)
- Your stress and/or anxiety score (from 0 10). Stress and anxiety may trigger IBS symptoms in some people. If you have a high stress or anxiety episode that provokes a large increase in your IBS symptoms during the Lactose Challenge, you may need to redo the challenge when the stress/anxiety have subsided to ensure more accurate results.
- If symptoms occurred, how long did it take for the symptoms to start
- If symptoms occurred, how long did the symptoms last

- If your symptoms do increase, specify which symptoms increased in the comment section.
- At the end of the Lactose Challenge there is also a section for you to record your overall observations for your IBS symptom response to the challenge.

During the Lactose Challenge, it is recommended that you continue to consume only low FODMAP foods. This will help to ensure that any symptoms that occur during the challenge are not due to other high FODMAP foods in your diet.

If your IBS symptoms become severe or reach a point that you consider not tolerable on the Lactose Challenge, then it is recommended that you stop the challenge at that point.

3-day Lactose Challenge form

Food challenged	IBS symptoms following Lactose challenge	Stress/anxiety score	Time until symptom onset	Symptom duration	Comment
Day 1 1/2 cup (125ml) milk (total daily amount of lactose ~5g)	Check the most accurate statement for your IBS symptoms: No symptom increase Mild symptom increase Moderate symptom increase Severe symptom increase Stop lactose challenge if IBS symptoms become severe, or you consider symptoms not tolerable	Circle your stress and anxiety level (if applicable) for the day (0=none, 10=very severe): Stress 0 1 2 3 4 5 6 7 8 9 10 Anxiety (if applicable) 0 1 2 3 4 5 6 7 8 9 10	<1hr 1–3hrs 4-6hrs 7-12hrs 13-24hrs >24hrs	<1hr 1–3hrs 4-6hrs 7-12hrs 13-24hrs >24hrs	
Jay 2 3/4 cup (190ml) milk 4-6 hours later: 3/4 cup (190ml) milk (total daily amount of lactose ~15g)	 □ No symptom increase □ Mild symptom increase □ Moderate symptom increase □ Severe symptom increase Stop lactose challenge if IBS symptoms become severe, or you consider symptoms not tolerable 	Stress 0 1 2 3 4 5 6 7 8 9 10 Anxiety (if applicable) 0 1 2 3 4 5 6 7 8 9 10	<1hr 1–3hrs 4-6hrs 7-12hrs 13-24hrs >24hrs	<1hr 1–3hrs 4-6hrs 7-12hrs 13-24hrs >24hrs	
Day 3 1½ cup (310ml) milk 4-6 hours later: 1½ cup (310ml) milk (total daily amount of lactose ~25g) Overall Observation	□ No symptom increase □ Mild symptom increase □ Moderate symptom increase □ Severe symptom increase Stop lactose challenge if IBS symptoms become severe, or you consider symptoms not tolerable	Stress 0 1 2 3 4 5 6 7 8 9 10 Anxiety (if applicable) 0 1 2 3 4 5 6 7 8 9 10	<1hr 1-3hrs 4-6hrs 7-12hrs 13-24hrs >24hrs	<1hr 1–3hrs 4-6hrs 7-12hrs 13-24hrs >24hrs	

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Evaluating the results of the Lactose Challenge

No symptom increase

People with IBS that do not malabsorb lactose can often tolerate lactose in the diet without symptoms. If you completed the lactose challenge with no increase in symptoms, this means you can likely resume consuming lactose-containing foods without any restriction. Note that some lactose-containing foods are high in fat (e.g. cream, some cheeses, sour cream, ice cream). If you tolerated the Lactose Challenge, but have difficulty tolerating some of these foods, the intolerance may be related to the higher fat content versus the lactose content of these foods.

Mild symptom increase

If there was a mild increase in symptoms on this challenge, then it is possible that consuming large amounts of lactose-containing foods may increase symptoms. You are encouraged to include lactose-containing foods in your diet as tolerated, although you may need to be cautious of the overall amount consumed.

Moderate or severe symptom increase

If there was a moderate or severe increase in symptoms on the lactose challenge, this suggests lactose intolerance, and you will likely need to limit the lactose in your diet. Many people with lactose intolerance can often still tolerate a small amount of lactose. Therefore even if you have lactose intolerance, you may be able to include smaller amounts of high lactose foods in your diet without increasing IBS symptoms. It may take some trial and error to figure out how much high lactose food you can tolerate in your diet.

Lactase enzyme supplements

If you have lactose intolerance, you can try taking a lactase enzyme supplements (e.g. Lactaid® tablets) before consuming a high lactose food to help improve tolerance. These supplements are available over-the-counter at most pharmacies. Follow the directions on the product label if used.



A list of high lactose foods is provided below. If you have lactose intolerance, you may find it helpful to record your tolerance to any high lactose foods re-introduced into your diet in the areas provided (*Tolerated, Mild or variable intolerance, High intolerance*) to help you keep track of your tolerance to high lactose foods.

Lactose

Food and ingredients that are high in Lactose	Tolerated	Mild or variable intolerance	High intolerance
Blue cheese Moderately high			
Buttermilk High			
cream cheese Moderately high			
Colby cheese Moderately high			
cow's milk High			
cream (light cream, half and half, whipping cream) High when used in larger amounts e.g. more than 1/3 cup			
cream sauce High			
cream soup			
evaporated milk High			
Feta cheese Moderately high			

fresh cheeses (e.g. Ricotta, Cottage) Moderately high		
goat's milk ^{High}		
Gouda cheese Moderately high		
ice cream ^Q High		
kefir* High		
milk powder High		
processed cheese Moderately high		
pudding, custard High		
Roquefort cheese Moderately high		
sherbet Moderately high		
sour cream Moderately high		
sweetened condensed milk High		
whey powder Moderately high		
yogurt* High		

Foods labelled Moderately high may be better tolerated than lactose foods labelled High (Foods labelled High have more than 4g lactose/serving).

^{*} Bacteria in yogurt and kefir aid in the digestion of lactose, therefore these foods are often better tolerated despite high lactose content.

Re-introducing other FODMAPs into your diet

As you re-introduce foods that are high in the other FODMAPs (fructose, fructans, GOS, polyols) into your diet, you will learn about your tolerance to these foods. The following is meant to be a general guide to re-introducing foods high in these FODMAPs. Your dietitian may have specific recommendations for re-introducing high FODMAP foods in your particular situation.

There are some key points to remember as you start to re-introduce high FODMAP foods.

• Portion size of high FODMAP food

Whether or not you tolerate a high FODMAP food can depend on how much you consume of that food. The larger the portion of a high FODMAP food you consume, the higher the FODMAP load, and the more likely you are to have symptoms. Smaller portions of high FODMAP foods are therefore less likely to increase symptoms than larger portions.

• Total FODMAP load of your diet

Your tolerance to high FODMAP foods can be influenced by the amount of other high FODMAP foods in your diet. For example, you may be more likely to tolerate a high FODMAP food at a meal if the other foods at that meal are low FODMAP. If you consume multiple high FODMAP foods at a time or during the course of the day, the total FODMAP load in your digestive system increases, and symptoms are more likely to occur.

The type of high FODMAP food you consume

You will likely find that you tolerate some high FODMAP foods better than others.

You may find that your tolerance to a high FODMAP food depends on the type of FODMAP(s) that it contains. For example, certain FODMAPs may increase symptoms more than other FODMAPs for some people.

Additional considerations when re-introducing high FODMAP foods

How much high FODMAP food you will be able to tolerate in your diet may take some time for you to figure out. In clinical practice, it has been noted that people with IBS can often maintain symptom improvement when 80-90% of their diet is low FODMAP foods. Given that you may only be able to tolerate a limited amount of high FODMAP foods in your diet, you may want focus on including the high FODMAP foods that are most important. This may include foods that:

- add important nutrition to your diet
- you miss the most, or that are your favourite foods
- you are finding very difficult to restrict

The initial goal is to be able to add back some high FODMAP foods that are important for you, while maintaining adequate symptom control.

You may want to review with your dietitian which high FODMAP foods are the most important to introduce as you start this re-introduction phase. You can list these high FODMAP foods below:

Important high FODMAP foods to re-introduce

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Getting Started

As you start to re-introduce high FODMAP foods back into your diet, it is recommended that you add back high FODMAP foods gradually. By adding back high FODMAP foods gradually, this will help you clarify your tolerance to the high FODMAP foods as they are re-introduced. This can also help you maintain better control of your symptoms. If you add back high FODMAP food in very large amounts or too quickly, it can be more difficult to maintain symptom control.

Testing Tolerance

When testing your tolerance to a specific high FODMAP food, it is often helpful to re-introduce this high FODMAP food over a 3-day period. During this 3-day period you can monitor and record your symptoms to see how you tolerate the food. With the exception of the high FODMAP food you are testing, it is a good idea to consume only low FODMAP foods during these 3 days to ensure accurate results (e.g. to ensure any symptoms that occur are not due to other high FODMAP foods in your diet).

It is recommended to use a smaller portion size on Day 1 (e.g. ½ your usual portion size) when testing your tolerance to a high FODMAP food. If your symptoms do not increase, then try consuming your usual portion size of the high FODMAP food on Day 2. On Day 3, do not consume any of the high FODMAP food and monitor for any delayed symptoms. If at any time during the 3 days your symptoms increase to a point that is not acceptable for you, then stop re-introduction of that high FODMAP food, record you symptoms, and wait until the symptoms subside before testing tolerance to another high FODMAP food.

Testing tolerance to a high FODMAP food

Day 1

Try 1/2 your usual portion of the high FODMAP food

Day 2

Try your usual portion of the high FODMAP food

Day 3

Break day - monitor for delayed symptoms

Monitor and record symptoms

Sample 3-day Tolerance Test Forms (more forms are provided at the end of the booklet)

Day 1	Day 2	Day 3
Food:	Food:	Break day
Amount:	Amount:	
Symptom Record:		
Day 1	Day 2	Day 3
Food:	Food:	Break day
Amount:	Amount:	=
7 IIII Garier) (Allinosina)	
Symptom Record:		
Symptom Record.		
Day 1	Day 2	Day 3
Food:	Food:	Break day
Amount:	Amount:	
Symptom Record:		

FODMAP Food Tables

FODMAP food tables are provided that list foods high in the different FODMAP types: fructose, fructans, GOS, polyols. These food tables can help if you are trying to test tolerance to foods high in a particular FODMAP type e.g. to help determine if you tolerate certain FODMAP types better than others. For example, if you wanted to test your tolerance to food high in fructans, you can start with choosing foods from the list *Food and ingredients that are high in Fructans*.

Note that some foods listed in the FODMAP food tables are high in more than one type of FODMAP. These foods are labelled ^{XF} (XF = e**X**tra **F**ODMAPs). For example, red kidney beans ^{XF} (Fructans,GOS) would be high in both fructans and GOS. If foods labelled ^{XF} increase symptoms, consider the different FODMAPs contained in that food.

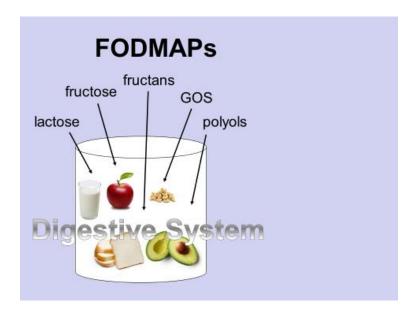
Foods labelled are food products that *may* have additional high FODMAP ingredients added. If one of these foods provokes symptoms, it is a good idea to check the ingredient list of the food product to see if there are any added high FODMAP ingredients that may have contributed to the symptoms.

To help you further keep track of your tolerance of high FODMAP foods, you can mark down your tolerance to specific high FODMAP foods in the areas provided in the FODMAP food tables: *Tolerated, Mild or variable intolerance, High intolerance.*

Managing your FODMAP load longer-term

Re-introducing high FODMAP foods is a learning process that helps determine which high FODMAP foods are most problematic for you. This process also helps you to learn how large a FODMAP load you can tolerate in your diet. It is important to remember that the *total* load of all the FODMAPs in your digestive system (from the different high FODMAP foods you consume) influences your symptoms. Long term maintenance of symptoms requires managing this total load.

You can think again of the cup analogy to help you visualize this. For example, to help manage your FODMAP load you may have to decrease your intake of some high FODMAP foods to make room in the your cup to tolerate other high FODMAP foods.



Once you have a more clear picture of your tolerance to the different FODMAPs, this can help you plan how FODMAPs can fit into your diet for the longer term. As low FODMAP foods are often the least likely to increase IBS symptoms it is recommended that these foods form the foundation of your diet. What high FODMAP foods you will include in your diet will depend on which ones you find you tolerate best, as well as which foods are most important for you to include in your diet based on your preferences and nutritional needs.

If you start to develop bothersome IBS symptoms at a certain point, it is suggested you return to only low FODMAP foods until your symptoms subside. You can then resume re-introducing high FODMAP foods as desired. Most of the time symptoms will subside in 2-48 hours. Keep in

mind that FODMAPs are not harmful to the digestive system, rather they can simply increase symptoms temporarily due to increased gas production or fluid loading in the bowel.

Note that it is possible that your tolerance of high FODMAP foods may fluctuate at different times. For example, during periods of high stress or uncontrolled anxiety, IBS symptoms can increase. Other unknown factors may also cause your IBS symptoms to increase. During these periods, you may have to be more careful about controlling the amount of high FODMAP foods in your diet to help you manage your IBS symptoms.

Are there any supplements you can take which can help improve your tolerance of FODMAPs?

If you are having difficulty tolerating foods high in GOS (e.g. beans, legumes) you can try taking a supplement with the enzyme *alpha-galactosidase* before eating a high GOS food, which may help you digest GOS and improve tolerance. Beano® is an example of a product that contains this enzyme. Note this product will not help you digest any other FODMAPs besides GOS. Beano® is available over-the-counter in the pharmacy department of most drug and grocery stores. Follow the directions on the product label if used.



FODMAP food tables

Fructose

Food and ingredients that are high in Fructose	Tolerated	Mild or variable intolerance	High intolerance
agave syrup			
apple purée ^{XF (Fructose,Polyols)}			
appleXF (Fructose,Polyols)			
asparagus ^{XF (Fructose,Fructans)}			
baked beans XF (Fructans,GOS,Fructose)			
soft drinks and other beverages than contain glucose-fructose			
candies that contain glucose-fructose			
canned packing juice from high fructose fruits			
cherries XF (Fructose,Polyols)			
concentrated apple juiceXF (Fructose,Polyols)			
concentrated pear juiceXF (Fructose,Polyols)			
dessert wine			
dried high fructose fruit bars 🚱			
dried high fructose fruits			
fortified wines: sherry (sweet), port			
fructose, crystalline fructose			
fruit juice made with high fructose fruits			

fruit paste and sauces made with high fructose fruits		
glucose-fructose (also known as high fructose corn syrup)		
honey		
mango		
molasses XF (Fructose, Fructans)		
pear purée ^{XF (Fructose,Polyols)}		
pear ^{XF (Fructose,Polyols)}		
rum		
sugar snap peas		
watermelon ^{XF (Fructose, Polyols, Fructans)}		

Fructans

Food and ingredients that are high in Fructans	Tolerated	Mild or variable intolerance	High intolerance
asparagus ^{XF (Fructose,Fructans)}			
baked beans XF (Fructans, GOS, Fructose)			
banana, common type (if very ripe)			
beetroot XF (Fructans,GOS)			
borlotti beans XF (Fructans, GOS)			
Brussels sprouts			
cabbage (savoy)			
carob/carob powder			
chamomile tea			
chicory root extract			
couscous			
dates			
fennel tea			
figs, fresh and dried			
FOS (fructo-oligosaccharides)			
garlic			
garlic powder, garlic salt			
globe artichoke			
golden syrup			
hummus XF (Fructans, GOS)			

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inulin (fibre that is added to some products)		
kombucha tea		
leek (bulb portion, whole)		
molasses XF (Fructose, Fructans)		
muesli, muesli bars 🕓		
nectarine ^{XF (Polyols, Fructans)}		
onion		
onion powder, onion salt		
oolong tea		
persimmon		
plum ^{XF (Polyols, Fructans)}		
pomegranate		
prune XF (Polyols, Fructans)		
red kidney beans XF (Fructans,GOS)		
rye, rye flour-based products		
shallots		
snow peas XF (Polyols,Fructans)		
split peas ^{XF (Fructans,GOS)}		
watermelon ^{XF (Fructose,Polyols,Fructans)}		
wheat/wheat flour-based products (e.g. breads, pasta, cereals, crackers) (some wheat products may also contain higher amounts of GOS)		

GOS (galacto-oligosaccharides)

Food and ingredients that are high in GOS (galacto-oligosaccharides)	Tolerated	Mild or variable intolerance	High intolerance
almonds			
baked beans XF (Fructans, GOS, Fructose)			
beetroot XF (Fructans,GOS)			
borlotti beans XF (Fructans, GOS)			
butter beans			
cashews			
chick peas, dried			
chickpea flour			
GOS (galacto-oligosaccharides)			
hummus XF (Fructans, GOS)			
lima beans			
navy beans			
peas			
pistachio nuts			
red kidney beans ^{XF (Fructans,GOS)}			
soy beans			
soy milk 🝛			
soybean flour			
split peas ^{XF (Fructans,GOS)}			
textured soy protein XF (Fructans,GOS)			

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tofu (silken) (note firm tofu is low FODMAP)			
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Beans and legumes tend to have a lower GOS content when they are purchased canned (pre-cooked) compared to if they are purchased dried and then cooked.

Polyols

Food and ingredients that are high in Polyols	Tolerated	Mild or variable intolerance	High intolerance
apple purée ^{XF (Fructose,Polyols)}			
appleXF (Fructose,Polyols)			
apricot			
avocado			
blackberries			
cauliflower			
celery			
cherries XF (Fructose,Polyols)			
coconut water			
concentrated apple juiceXF (Fructose,Polyols)			
concentrated pear juiceXF (Fructose,Polyols)			
corn (sweet corn)			
isomalt			
lactitol			
lychee			

maltitol		
mannitol		
mushroom		
nectarine ^{XF (Polyols, Fructans)}		
peach		
pear purée ^{XF (Fructose,Polyols)}		
pear ^{XF (Fructose,Polyols)}		
plum XF (Polyols, Fructans)		
prune XF (Polyols, Fructans)		
snow peas XF (Polyols,Fructans)		
sorbitol		
sugar-free gum that contains polyols		
watermelon ^{XF (Fructose,Polyols,Fructans)}		
xylitol		

3-day Tolerance Test Forms

Day 1 ood: mount:	Day 2 Food: Amount:	Day 3 Break day
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Day 1 Food: Amount:	Day 2 Food: Amount:	Day 3 Break day
ymptom Record:		
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Day 1 Food: Amount:	Day 2 Food: Amount:	Day 3 Break day
Symptom Record:		
Day 1 Food: Amount:	Day 2 Food: Amount:	Day 3 Break day
Symptom Record:		
Day 1 Food: Amount:	Day 2 Food: Amount:	Day 3 Break day
Symptom Record:		

Day 1 Food: Amount:	Day 2 Food: Amount:	Day 3 Break day
Symptom Record:		
Day 1 Food: Amount:	Day 2 Food: Amount:	Day 3 Break day
Symptom Record:		
Day 1 Food: Amount:	Day 2 Food: Amount:	Day 3 Break day
Symptom Record:		

Day 1 Food: Amount:	Day Food: Amount:	2	Day 3 Break day
Symptom Record:			
Day 1 Food: Amount:	Day Food: Amount:	2	Day 3 Break day
Symptom Record:			
Day 1 Food: Amount:	Day Food: Amount:	2	Day 3 Break day
Symptom Record:			

Day 1	Day 2	Day 3
Food:	Food:	Break day
Amount:	Amount:	
Symptom Record:		
Day 1	Day 2	Day 3
Food:	Food:	Break day
Amount:	Amount:	Diedk ddy
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Symptom Record:		
Day 1	Day 2	Day 2
Day 1	Day 2	Day 3
Food:	Food:	Break day
Amount:	Amount:	
Symptom Record:		

Day 1 Food: Amount:	Day 2 Food: Amount:	Day 3 Break day
Symptom Record:		
Day 1	Day 2	Day 3
Food: Amount:	Food: Amount:	Break day
Amount	Amount	
Symptom Record:		
Day 1	Day 2	Day 3
Food:	Food:	Break day
Amount:	Amount:	
Symptom Record:		

Day 1 Food: Amount:	Day 2 Food: Amount:	Day 3 Break day
Symptom Record:		
Day 1	Day 2	Day 3
Food:	Food:	Break day
		Break day
Amount:	Amount:	
Symptom Record:		
7		
Day 1	Day 2	Day 3
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Day 1 Food:	Day 2 Food:	Day 3 Break day
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Symptom Record:		
Day 1 Food: Amount:	Day 2 Food: Amount:	Day 3 Break day
Symptom Record:		
Day 1 Food: Amount:	Day 2 Food: Amount:	Day 3 Break day
Symptom Record:		

Notes	
	
Registered Dietitian:	
905-378-4647 ext	HOW ARE WE DOING? You can provide feedback or suggestions for Niagara Health Clinical Nutrition services at:
	www.niagarahealth.on.ca/en/clinical-nutrition