

## **FODMAP DIET**

A low-**FODMAP** diet aims to reduce overall FODMAP intake. FODMAPs are:

1. **Fermentable**
2. **Oligosaccharides** (eg. Fructans and Galactans)
3. **Disaccharides** (eg. Lactose), **Monosaccharides** (eg. excess Fructose) and
4. **Polyols** (eg. Sorbitol, Mannitol, Maltitol, Xylitol and Isomalt)

A reduction of FODMAP intake reduces symptoms because FODMAPs (in those whom experience relief on a low-FODMAP diet) are poorly absorbed in the small intestine. These carbohydrates then move along into the large intestine without being appropriately digested, reacting chemically there with our (healthy and unhealthy) bacteria to produce unwanted gas. FODMAPs also act like a sponge in the large intestine, where they draw and hold excess fluid. These behaviors manifest themselves physically and most notably in the form of bloating, farting, loud and volatile digestive noises, and other unwanted symptoms.

### **The most common FODMAP is fructose.**

#### **What is fructose?**

Fructose is a monosaccharide, or single sugar. It is found in three main forms in the diet as:

1. fructose in fruits, honey and some root vegetables
2. part of the disaccharide, or double sugar, sucrose. Sucrose is made up of glucose and fructose.
3. Sucrose is also known as table sugar.
4. fructans in some vegetables and wheat. Fructans are short chains of fructose. They are also called inulins and fructo-oligosaccharides.

Fructose is the sweetest of all naturally occurring carbohydrates. For this reason it is often added as a sweetening ingredient in prepared foods. Since it is sweeter than table sugar, smaller amounts of fructose are needed to get the same sweetness.

#### **How do I go on the FODMAPs diet?**

During your elimination trial, it is recommended that you eliminate all FODMAPs either significantly or entirely. Most patients will begin to feel significantly better within a few hours and a few days, but will take up to two weeks to feel fully healthy. A minority of patients have reported that it took up to three months to fully recover. After recovery, you can begin to gradually reintroduce foods using the steps outlined at the end of this article.

Many IBS sufferers with generally mild symptoms will find that a general reduction of fructose intake alone significantly relieves them of their symptoms. Other individuals will find that they must significantly reduce their intake of all FODMAPs to experience relief. You may find over time that eating certain FODMAPs does not bother you.

Finally, it should be noted that fructose – the ubiquitous simple sugar – is often allowed in “safe foods” if the food also contains a glucose-to-fructose ratio greater than one. This is because research shows that ingesting glucose at the same time as fructose (and in the same quantities as fructose) eases fructose absorption.

#### **Is it dangerous to limit fructose intake?**

In short: **NO**. While carbohydrates are an essential source of energy, refined sugars are anything but and current research shows that fructose may be best ingested in strict moderation<sup>1</sup>.

Further, some sources report that a modern diet contains upwards of ten times the amount of sugar humans ingested for much of evolution. This may help to explain why fructose malabsorption is found in up to 40% of inhabitants of western countries<sup>2</sup>.

You will still be ingesting a significant level of glucose and other carbohydrates. Overall, limiting your fructose intake will likely be beneficial to your health. But when in doubt, listen to your body (and, of course, doctor).

It is also not inherently dangerous to limit other FODMAPs, but missing out on whole food groups could easily lead to a diet missing in nutrients and lacking in vitamins (When I first started on a low-FODMAP diet, I was so happy to be asymptomatic that I almost certainly spent too long eating mostly rice and chicken with too few fruits and vegetables).

### **Which foods contain FODMAPs?**

The best way to determine the fructose content of a given food is to [use publicly available USDA data](#) (note: this website does not display non-fructose FODMAP quantities).

To save you some time, and to bring your attention to foods which contain non-fructose FODMAPs, the list below names some foods that you will definitely want to avoid at least initially.

It should be noted that this list is constantly undergoing alterations, and within several weeks will be replaced with a spreadsheet that contains much more information (with the potential for individualization).

### **Fruits**

Most fruits which are excluded are excluded due to excessive fructose content, or greater than a 1:1 Fructose:Glucose ratio. Also, some contain Polyols.

1. Apples
2. Apricots
3. Cherries
4. Mango
5. Pears
6. Nectarines
7. Peaches
8. Pears
9. Plums and prunes
10. Watermelon
11. High concentration of fructose from canned fruit, dried fruit or fruit juice

### **Grains**

1. Rye
2. Wheat

### **Lactose-Containing Foods**

1. Custard
2. Ice cream
3. Margarine
4. Milk (cow, goat, sheep)
  - A. Evaporated milk

- B. Condensed milk
- C. Milk powder
- 5. Soft cheese, including cottage cheese and ricotta
- 6. Yogurt
  - A. Greek yogurt

### **Legumes**

Many legumes contain Galacto-Oligosaccharides (GOS).

1. Baked beans
2. Chickpeas
3. Lentils
4. Kidney beans
5. Bortolotti beans

### **Sweeteners**

Sweeteners which end in -ol are excluded because they are fermentable polyols.

1. Fructose
2. High fructose corn syrup
  - A. It should be noted that HFCS actually only contains marginally more fructose than glucose as compared to refined sucrose. It is included in this list only because it was found on another list (better safe than sorry), and because it still has a F:G ratio greater than 1. The accuracy of this entry will be checked soon for validity.
3. Corn syrup solids
  - A. See above
4. Palm sugar
5. Honey
6. Agave nectar
7. Isomalt
8. Maltitol
9. Mannitol
10. Sorbitol
11. Xylitol

### **Vegetables**

Vegetables may be on this list for containing fructans.

1. Artichokes
2. Asparagus
3. Avocado
4. Beets
5. Broccoli

6. Brussel sprouts
7. Cabbage
8. Cauliflower
9. Garlic
  - A. Garlic is possibly okay to consume, but should not be ingested in large quantities.
10. Fennel
11. Leeks
12. Mushrooms
13. Okra
14. Onions
  - A. Onions have recently been reported to be especially troublesome. It is best to completely avoid them.
15. Peas
16. Radicchio lettuce
17. Scallions (white parts)
18. Shallots
19. Sugar snap peas
20. Snow peas

### **So, what's safe to eat?**

It's best to obtain your calories principally from a source that is indisputably fodmap-friendly (such as white rice, or meat). In moderation, however, the following foods are safe to eat on a low-FODMAP diet.

#### **Fruits**

1. Banana
2. Blueberry
3. Grapefruit
4. Grapes
5. Honeydew melon
6. Kiwi
7. Lemon
8. Lime
9. Mandarine oranges
10. Orange
11. Raspberry
12. Strawberry

#### **Sweeteners**

1. Artificial sweeteners that do not end in -ol

2. Glucose
3. Maple syrup
4. Sugar (sucrose)

### **Lactose Alternatives**

1. Butter
2. Hard cheeses
3. Brie (exceptional cheese)
4. Camembert (exceptional cheese)
5. Lactose-free products, such as lactose-free ice cream and yogurt
6. Gelato
7. Rice milk
8. Sorbet

### **Vegetables**

1. Bok choy
2. Carrots
3. Celery
4. Corn
5. Eggplant
6. Green beans
7. Lettuce
8. Parsnip
9. Scallions (green parts only)
10. Tomato

## **Reintroducing foods/Moving beyond the elimination phase**

Once you are symptom-free, you may attempt to reintroduce foods in order to determine exactly what was causing your symptoms. There are really no established guidelines on how to best do this – it varies from individual to individual. Key concepts, however, follow:

1. Write it down! Be scientific. Keep a food diary. Your future self will thank you.
2. Only reintroduce one food at a time
3. Wait ~72 hours for symptoms to reappear before moving on to the next food.