

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 re-introducing 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 <i>(total daily amount of lactose ~5g)</i>	Check the most accurate statement for your IBS symptoms: <input type="checkbox"/> No symptom increase <input type="checkbox"/> Mild symptom increase <input type="checkbox"/> Moderate symptom increase <input type="checkbox"/> Severe symptom increase <i>Stop lactose challenge if IBS symptoms become severe, or you consider symptoms not tolerable</i>	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	
Day 2 3/4 cup (190ml) milk 4-6 hours later: 3/4 cup (190ml) milk <i>(total daily amount of lactose ~15g)</i>	<input type="checkbox"/> No symptom increase <input type="checkbox"/> Mild symptom increase <input type="checkbox"/> Moderate symptom increase <input type="checkbox"/> Severe symptom increase <i>Stop lactose challenge if IBS symptoms become severe, or you consider symptoms not tolerable</i>	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 1¼ cup (310ml) milk 4-6 hours later: 1¼ cup (310ml) milk <i>(total daily amount of lactose ~25g)</i>	<input type="checkbox"/> No symptom increase <input type="checkbox"/> Mild symptom increase <input type="checkbox"/> Moderate symptom increase <input type="checkbox"/> Severe symptom increase <i>Stop lactose challenge if IBS symptoms become severe, or you consider symptoms not tolerable</i>	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	
Overall Observations:					

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 supplement (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 🍷 High			
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  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			
<p>Foods labelled Moderately high may be better tolerated than lactose foods labelled High (Foods labelled High have more than 4g lactose/serving).</p> <p>* Bacteria in yogurt and kefir aid in the digestion of lactose, therefore these foods are often better tolerated despite high lactose content.</p>			

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

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Getting Started

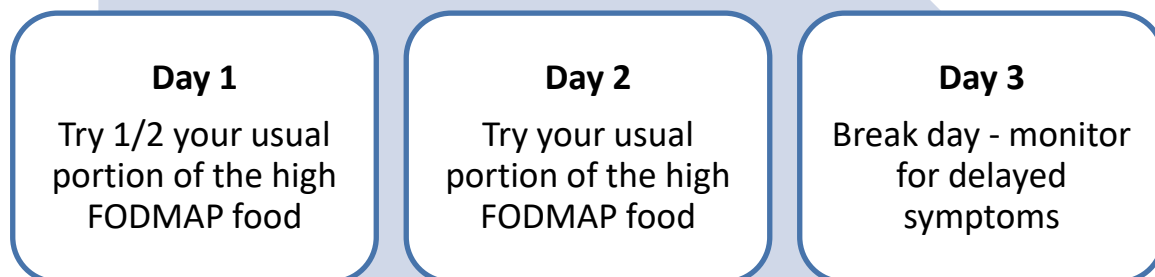
As you start to re-introduce high FODMAP foods back into your diet, it is recommended that you add back high FODMAP foods gradually. By adding back high FODMAP foods gradually, this will help you clarify your tolerance to the high FODMAP foods as they are re-introduced. This can also help you maintain 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 your symptoms, and wait until the symptoms subside before testing tolerance to another high FODMAP food.

Testing tolerance to a high FODMAP food



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: Amount:	Food: Amount:	Break day
Symptom Record:		


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

Day 1	Day 2	Day 3
Food: Amount:	Food: Amount:	Break day
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 = eXtra FODMAPs). 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.

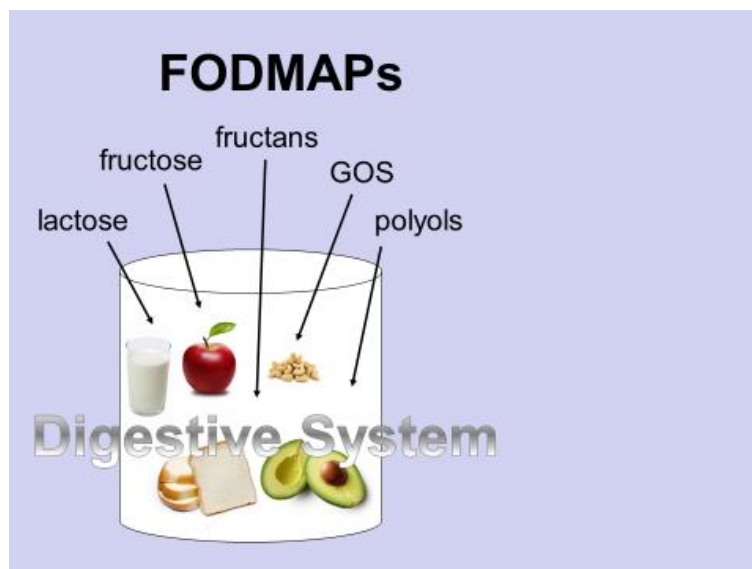
Foods labelled  are food products that *may* have additional high FODMAP ingredients added. If one of these foods provokes symptoms, it is a good idea to check the ingredient list of the food product to see if there are any added high FODMAP ingredients that may have contributed to the symptoms.

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 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)			
apple ^{XF} (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 juice ^{XF} (Fructose, Polyols)			
concentrated pear juice ^{XF} (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)			

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)}			

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)			
apple ^{XF} (Fructose, Polyols)			
apricot			
avocado			
blackberries			
cauliflower			
celery			
cherries ^{XF} (Fructose, Polyols)			
coconut water			
concentrated apple juice ^{XF} (Fructose, Polyols)			
concentrated pear juice ^{XF} (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

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

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Day 3

Break day

Symptom Record:

Day 1

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Day 2

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Day 3

Break day

Symptom Record:

Day 1

Food:

Amount:

Day 2

Food:

Amount:

Day 3

Break day

Symptom Record:

Day 1
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Day 2
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Day 3
Break day

Symptom Record:

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Day 3
Break day

Symptom Record:

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Day 3
Break day

Symptom Record:

Day 1

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Day 2

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Day 3

Break day

Symptom Record:

Day 1

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Day 3

Break day

Symptom Record:

Day 1

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Day 2

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Day 3

Break day

Symptom Record:

Day 1
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Break day

Symptom Record:

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Day 3
Break day

Symptom Record:

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Day 3
Break day

Symptom Record:

Day 1

Food:

Amount:

Day 2

Food:

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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

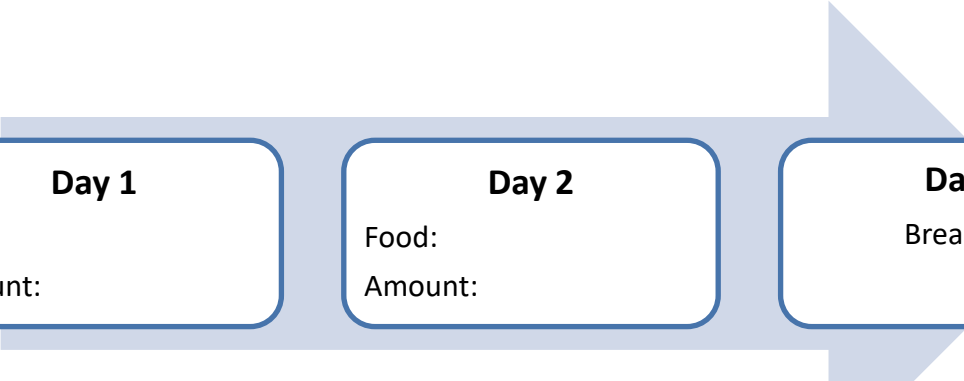
Food:

Amount:

Day 3

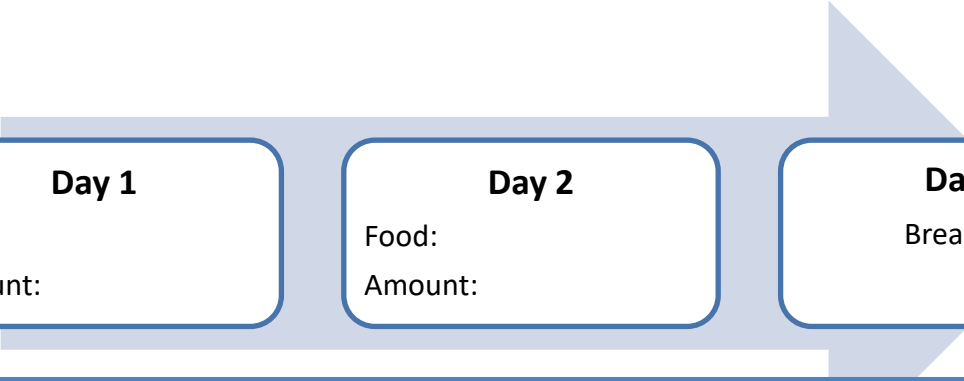
Break day

Symptom Record:



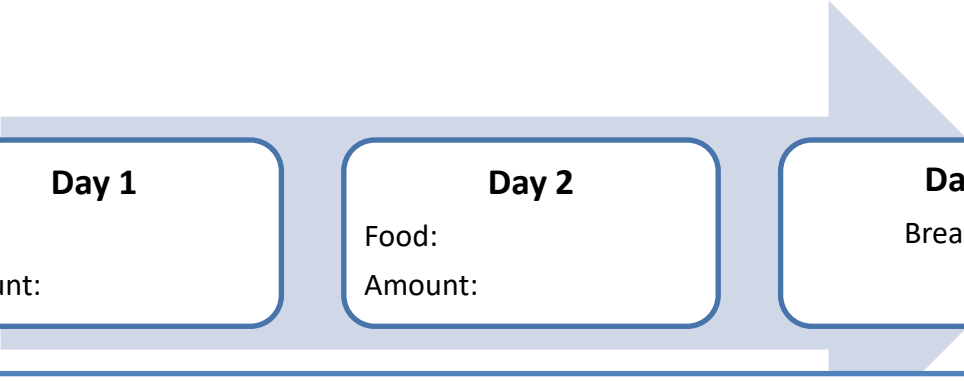
Day 1	Day 2	Day 3
Food:	Food:	Break day
Amount:	Amount:	

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:	

Symptom Record:

Notes

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on the right side, suggesting it's resting on a surface.

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