

Eat Healthy

Chapter 3

Fibre and Glycemic Index

You Will Learn About:

1. Fibre
 - a. The types of fibre
 - b. How much fibre you need to manage your diabetes
 - c. How to get more fibre in your day
 - d. How much fibre there is in plant foods
2. Glycemic Index
 - a. What the glycemic index is
 - b. How low glycemic index foods can help you manage your diabetes
 - c. What factors affect the glycemic index of foods

1. What Is Fibre?

Fibre is the part of the plant that your body cannot digest or break down. It is often called 'roughage'. Fibre is only found in plant foods.

Eating fibre helps you manage your health. You should eat a lot of fibre to:

- Lower your blood sugar
- Lower your LDL (bad) cholesterol
- Lower your blood pressure

Fibre also helps you feel full longer, after a meal. Feeling full longer can help you eat the right amount of food for your body (and not too much).

- As fibre passes through your bowels, it attaches to fat and sugar. This delays absorption into your body. The waste is then removed from your body when you have a bowel movement (poo). Regular bowel movements also keep your digestive tract healthy.

What are the types of fibre?

Two types of fibre found in food are: soluble and insoluble. Eating plant foods will give you both types of fibre.

What is soluble fibre?

Foods with soluble fibre absorb water. The water makes the fibre swell and thicken to form a sticky gel. Soluble fibre can help:

- Manage your blood sugar
- Lower your blood cholesterol

Some examples of food that are high in soluble fibre include:

- Barley
- Okra
- Eggplant
- Ground flax seed
- Legumes (beans, chickpeas, and lentils)
- Oats
- Avocado
- Pectin-rich fruits (apples, pears, berries, and citrus fruits like oranges)
- Psyllium
- Squash
- Sweet potato
- Turnip

What is insoluble fibre?

Foods with insoluble fibre do not absorb water. Insoluble fibre:

- Helps prevent constipation (not able to poo)
- Keeps your digestive system healthy
- Prevents some types of cancers

Insoluble fibre is found in the bran portion of whole grains and the skins of fruit and vegetables. Some examples include:

- Bran cereal
- Broccoli
- Brown rice

- Cabbage
- Celery
- Corn bran
- Green beans
- The skin on kidney beans and other legumes
- Leafy green vegetables
- Nuts
- Raisins
- Root vegetable skins
- Seeds
- Wheat bran
- Whole grains (such as wheat and rye)

How much fibre do I need to manage my diabetes?

Aim to eat 25 to 50 grams of fibre every day to keep your body healthy and manage your blood sugar.

If you do not eat 25 to 50 grams of fibre every day, you should increase the amount of fibre that you eat to this amount.

- Increase the amount of fibre you eat slowly, over time. This will help prevent gas and bloating
- As you eat more fibre, make sure you drink more water. This will help the fibre work better. It will also help prevent gas and bloating

Use the charts and tips below to help you eat more fibre.

Here is a sample day's menu showing the plant foods at each meal.

Breakfast:

- 1 cup cooked oatmeal
- ½ cup berries
- 1 Tablespoon chia seed
- Total fibre is 7.5 grams

Lunch:

- 2 cups mixed green salad with 1 cup chickpeas
- 1 slice whole grain bread
- ½ cup cherry tomatoes
- 1 banana
- Total fibre is 13.5 grams

Dinner:

- 1 cup cooked quinoa
- 1 and 1/2 cups steamed vegetables
- Total fibre is 9.7 grams

Total Fibre for the day is 30.7 grams

How can I eat more fibre?

There are many ways to eat more fibre in your diet. Below are tips on how to increase the amount of fibre you eat.

- Start your day with a cereal that is high in fibre. Try steel cut oats, Bran buds® or Fibre 1® cereal
- Add foods that are high in fibre to your cereal and yogurt. These foods include:
 - Fruit
 - Nuts
 - Ground flax seeds
 - Chia seeds
 - Psyllium or oat bran
- Add high fibre foods (like the ones listed above) to recipes when you cook or bake
- Plan your meals and snacks to always include fresh or frozen fruit and vegetables
- Aim to fill half your plate with vegetables. The more colour on your plate, the more fibre and the more nutrition you get
- Add other foods that are high in fibre to meals. For example, add legumes, such as beans, dried peas, chickpeas, or lentils. Try adding kidney beans or chickpeas to salads or rice dishes. Put lentils or black beans in soups. Include a bean salad as a side dish

How Much Fibre is in Plant Foods?

Below is a list of plant foods and the amount of fibre each one contains. Use this table to help increase the amount of fibre you eat. Recall that you should eat 25 to 50 grams of fibre every day.

Food	Serving Size	Total Fibre (g)
Vegetables		
Artichoke, cooked	medium	4.7
Asparagus, cooked	6 spears	1.8
Beans, green cooked	125 mL (½ cup)	5.6
Beets, skinless	125 mL (½ cup)	1.8
Broccoli, cooked	125 mL (½ cup)	2.0
Brussels sprouts, cooked	125 mL (½ cup)	3.0
Carrots, cooked	125 mL (½ cup)	2.2
Carrot, raw	1 medium	1.5
Collard greens, cooked	125 mL (½ cup)	2.8
Corn	125 mL (1/2 cup)	1.6
Eggplant	125 mL (½ cup)	1.3
Kale, cooked	125 mL (1/2 cup)	1.4
Okra, cooked	125 mL (½ cup)	2.1
Peas, green, cooked	125 mL (½ cup)	5.6
Pepper, green or red	medium	1.1
Potato, white, with skin, baked	1 small	3.8
Rapini, cooked	½ cup	1.8

Food	Serving Size	Total Fibre (g)
Vegetables (continued)		
Spinach, cooked	½ cup	2.3
Spinach, raw	1 cup	1.4
Sweet Potato, cooked, skinless	125 mL (½ cup)	1.7
Squash, cooked	125 mL (1/2 cup)	1.3
Turnip, cooked	125 mL (½ cup)	1.6
Fruit		
Apple with skin	1 medium	2.6
Apricots, raw, with skin	3	2.1
Apricots, dried	60 mL (¼ cup)	1.2
Avocado	1/2 fruit	6.7
Banana	1 medium	2.1
Blueberries	125 ml (1/2 cup)	2.0
Figs, dried	2	1.6
Fig, fresh	2	2.9
Mango	½ fruit	1.9
Nectarine, raw with skin	1 medium	2.3
Orange	1 medium	2.3
Peach, raw with skin	1 medium	1.9
Pear, with skin	1 medium	5.0
Pineapple	125 mL (1/2 cup)	1.1
Prunes, dried	3	1.8
Plum, with skin	1 medium	1.1

Food	Serving Size	Total Fibre (g)
Fruit (continued)		
Raspberries	125 mL (½ cup)	4.2
Strawberries	125 mL (1/2 cup)	3.0
Grains & Cereals		
Bran Buds (with Psyllium)	30 g (1/3 cup)	11.4
Barley, pearled, cooked	125 mL (½ cup)	2.0
Bread, whole grain	30 g (1 slice)	2.6
Brown rice, cooked	125 mL (½ cup)	1.1
Bread, rye	35 g (1 slice)	1.2
Bran cereal (non flake)	30 g (1/2 cup)	10.1
Crisp bread crackers	3 crackers	5.0
Melba toast, whole wheat	6 crackers	1.5
Oat bran, cooked	175 mL (¾ cup)	5.1
Oatmeal, cooked	175 g (3/4 cup)	3.5
Cheerios™	30 g (1 cup)	2.6
Pasta , cooked (whole wheat)	125 mL (½ cup)	2.1
Quinoa, cooked	125 mL (1/2 cup)	2.0
Meat Alternatives- Plant Proteins		
Almonds	24 g (1/4 cup)	2.5
Black beans, cooked	250 mL (1 cup)	5.2
Chickpeas, cooked	250 mL (1 cup)	4.0
Cashews	33 g (1/4 cup)	1.1
Edamame, (soybean, green, cooked)	125 mL (½ cup)	4.0

Food	Serving Size	Total Fibre (g)
Meat Alternatives- Plant Proteins (continued)		
Flax seed, milled/ground	15 ml (1 Tbsp)	2.0
Kidney beans, cooked	250 mL (1 cup)	12.0
Lentils, cooked	250 mL (1 cup)	8.9
Lima Beans	250 mL (1 cup)	8.0
Soybean, cooked	250 mL (1 cup)	11.4
Sunflower seeds, dry roasted	60 mL (1/4 cup)	3.0
Tofu, fried pieces	175 mL (3/4 cup)	3.9
Peanuts	60 mL (1/4 cup)	2.9

Source: "Canadian Nutrient File 2010." <http://www.hc-sc.gc.ca/fn-an/nutrition/fiche-nutri-data/index-eng.php> [Accessed March 23, 2013]

2. The Glycemic Index and Diabetes

What is the glycemic index (GI)?

The glycemic index (GI) ranks carbohydrate foods using a scale from 0 to 100. This scale is used to see how quickly the carbohydrates in these foods raise your blood sugar after eating them compared to a standard food (glucose or white bread).

Foods with a high GI digest and absorb quickly into your body and can cause a rise in your blood sugar after eating. Limit the amount of food you eat that has a high GI number.

Foods with a low GI digest and absorb more slowly. These foods take a longer time to raise your blood sugar and cause a lower rise.

Often, foods with more fibre have a low GI. Eat foods with a low to medium GI instead of foods with a high GI.

The glycemic index does not rank foods based on nutrient content. This means that some foods may have a low GI, but may not be high in nutrition. It is best to eat foods with a low GI and that are high in nutrients.

How can low GI foods help me manage my diabetes?

Research shows that eating foods that have lower GI can help you:

- Manage your blood sugar better
- Lower LDL (bad) cholesterol and triglycerides (a type of fat in your blood)
- Lower your risk of getting heart disease
- Feel full longer, after eating
- Check your blood sugar 2 hours after you start eating a meal. This can help you understand how the GI of foods affects your blood sugar

What other factors affect the GI of foods?

There are 4 main factors that impact the GI of foods:

1. Food preparation. The more processed food is, the higher the GI.

Processed foods have a high GI because much of the nutrients and fibre have been removed or broken. This makes the nutrients and fibre digest quickly and absorb in your body. These foods include:

- Instant noodles
- Instant rice
- Instant mashed potatoes
- White bread
- Soda crackers
- French fries
- Baking potatoes

These foods are high in GI and are not high in nutrients. Eat whole, fresh

foods instead of processed foods. For example:

- Choose steel cut oats instead of instant oatmeal
- Choose long-grain rice, such as basmati or brown rice, instead of instant short-grain or sticky rice
- Choose sweet potatoes or yams instead of instant mashed potatoes
- Choose to eat legumes (such as kidney beans, lentils, split peas and chickpeas) more often
- Choose fresh or frozen fruit instead of fruit juice. Juice is the processed form of fruit and will quickly raise your blood sugar

2. Cooking time. The longer you cook food raises the GI. Overcooking food also raises the GI.

- For example, cook pasta al dente. Al dente refers to pasta cooked only to the point that it is still firm when eaten. Soft or overcooked pasta will have a higher glycemic index. This means that you should avoid overcooking foods

3. Fat and Protein. Adding fat and protein helps to lower the GI. For example, Russet potatoes have a high GI. Adding some olive oil, non-hydrogenated margarine or plain Greek yogurt to a baked potato can lower the GI. If you eat foods that are high in GI, add fat and protein to them.

4. Portions. The amount you eat can affect your blood sugar even if the food has a low GI. For example, eating a large portion of a low GI food such as pasta can still result in a high blood sugar reading. Keep your portions small.

Summary

- Try to eat 25 to 30 grams of fibre each day
- Fibre is only found in plant foods such as vegetables and fruit, whole grains and cereals, legumes, nuts and seeds
- Fibre helps you manage diabetes by lowering your blood sugar, LDL (bad) cholesterol and blood pressure
- The glycemic index (GI) ranks carbohydrate foods using a scale from 0 to 100. Try to eat more foods with a low GI number
- If you plan to eat a food with a high GI number add fat or protein to your meal