

EATING PLAN FOR TYPE 2 DIABETES

This eating plan is low in refined grains and sugar, low in saturated and trans fat and high in fibre. It focuses on eating regularly timed meals and selecting low glycemic index foods.

Type 2 Diabetes affects how your body uses and stores glucose. Glucose comes from digestion of sugars and starches in the foods we eat. Our body produces a hormone called insulin that it uses to remove glucose from our blood. In Type 2 diabetes our body may not be making enough insulin or our body is not properly responding to the insulin it is making. Glucose levels in our blood rise and can cause both short term and long-term effects on our body.

- Symptoms include: unusual thirst, frequent need to urinate, weight change, lack of energy, blurred vision, frequent infections, cuts and bruises that are slow to heal, tingling in the hands and feet.
- Risk factors include: being overweight, a parent or sibling with diabetes, having diabetes while pregnant (gestational diabetes), impaired glucose tolerance or impaired fasting glucose, high blood pressure, high cholesterol, polycystic ovary syndrome, being of Aboriginal, Hispanic, Asian, South Asian or African descent.

Did You Know?

More than **3 million Canadians have diabetes** and more than **90% of these have Type 2 Diabetes**.

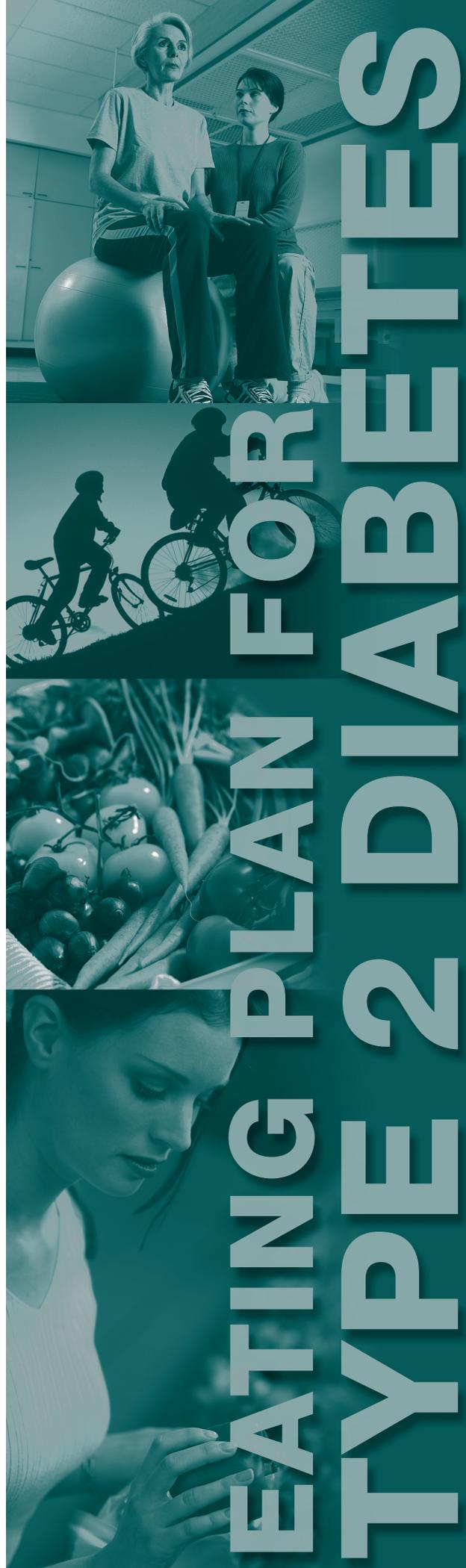
Tips to Help Keep Your Blood Sugar levels in a Healthy Range

1. Eat three balanced meals per day, no more than six hours apart. Limit added sugars and sweets.
2. Eat a combined total of at least 7 servings of vegetables and fruit each day.
3. Eat your fruit rather than drinking it as juice.
4. Include small portions of whole-grain starchy foods at each meal.
5. Eat lower glycemic index foods. See 'Go Low GI'.
6. Drink water instead of regular pop and fruit drinks. Tea, coffee and low calorie juices and beverages are great too.
7. Include lean protein choices at each of your meals.
8. Make lower fat choices, avoid frying your foods and limit add on fats such as butter, margarine and oil.
9. Move your body for at least 30 minutes every day – walking is great!
10. If you are overweight, try to lose 5 to 10% of your present weight.

Blood Glucose Target Ranges

Fasting: 4.0 -7.0 (empty stomach or no food for at least 3 hours)

Postprandial: 5.0-10.0 (2 hours after a meal)



EATING PLAN FOR TYPE 2 DIABETES

Type 2 Diabetes FACTS – Focus on Carbohydrate, Fibre and Glycemic Index

- Over time, high blood sugar causes damage to your blood vessels and can result in blindness, heart disease, kidney problems, circulation problems, nerve damage and erectile dysfunction.
- By choosing appropriate portions of carbohydrate containing foods and selecting ones that have more fibre and a lower glycemic index, you help improve your blood glucose control.

Go Low GI – Foods and Their Glycemic Index

Glycemic index is a scale (0-100) ranking how quickly a carbohydrate containing food will digest into glucose in our blood. High GI foods break down quickly whereas low GI foods break down slowly. With low GI foods you feel full longer and your body's insulin has more time to perform its job and remove glucose from the blood.

Hint: Hint low GI foods are generally 'close to the farm.'

LOW GI FOODS (55 OR LESS) CHOOSE MOST OFTEN	MEDIUM GI FOODS (56-69)	HIGH GI FOODS (70+) CHOOSE LESS OFTEN
Whole grain bread	Couscous	White bread
Pumpernickle bread	Rye bread	Instant mashed potatoes
Oatmeal	Instant Oatmeal	Corn Flakes, Rice Krispies
All-Bran cereal	Shredded Wheat	Refined, sweetened cereals
Converted rice	Cream of Wheat	Instant rice
Brown & Basmati rice	Whole grain crackers	Bagels
Bulgur, Barley, Quinoa	Pita bread	Waffles/pancakes – made with white flour
Firm cooked pasta	Long grain white rice	Soda crackers
Beans, peas, lentils	Apricot, banana	French fries
Apples, peaches, pears	Cantaloupe	Dried dates/figs
Grapefruit, oranges	Pineapple, raisins	Sweetened fruit juice
Berries, cherries, grapes	Canned fruit in juice	Parsnips, pumpkin
Kiwi, Mango, Plum	Cranberry juice	Rutabaga, turnip
Avocado	New potatoes	Broad beans
Sweet Potato	Beets	Refried beans
Carrots, broccoli	Sweetened condensed milk *Adapted from "The GI Diet" Rick Gallop	Ice cream
Cauliflower, corn		Soft drinks
Leafy vegetables		Glucose
Low fat milk, soymilk, yogurt and cottage cheese		

Tips for using the Glycemic Index

- Think low and slow - choose from the low and medium GI foods most often.
- Balance your choices with lean protein choices and healthy fats. Protein and fat also slow the digestion, keep you feeling full and slow the release of glucose into your blood.
- More details can be found online at www.gidiet.com or www.diabetes.ca/files/glycemicindex_08.pdf

Did you know?

The Glycemic Index diet was developed by David Jenkins, a professor of nutrition and researcher at the University of Toronto.

Balancing Carbohydrates ('Carbs')

Along with the glycemic index approach, it is important to understand and control the amount of carbohydrates you eat and drink to better manage your blood glucose.

Here are some tips:

1. Carbohydrate is the nutrition term used for starch, sugar and fibre.
2. Spacing your carbohydrates over the day helps your body to keep a stable glucose level.
3. Starch choices that are higher in fibre contribute less to raising your blood glucose. Use the Nutrition Facts panel to choose cereal, bread, crackers, rice and other grain or starch choices that have at least 2 grams of fibre per serving.
4. Breakfast should be 1/3 starch or grain, 1/3 fruit and 1/3 protein.
5. Lunch and supper should be 1/2 vegetables, 1/4 starch and 1/4 protein.
6. Snack choices can help prevent dips in blood glucose that can occur if your meals are more than 4 hours apart or if you are very active.
7. Choose snacks with about 20 grams of carbohydrate. Fruit, vegetables, high fibre granola bars, whole grain crackers with cheese or peanut butter are just a few options.

Sugar and Refined Starches

- Table sugar, brown sugar, honey, maple syrup and molasses are all simple sugars and they all have 5 grams of carbohydrates or "carbs" in a teaspoon.
- Simple sugars such as these and 'white' or refined starches break down quickly and cause blood glucose to rise quickly.
- A quick rise in blood glucose can often be followed by an equally quick drop.
- This can lead to cravings for more sugary foods and feelings of hunger and fatigue.
- Aim to choose packaged foods with less than 10 grams of sugar per serving
- Avoid adding sugar, reduce the amount or substitute a non-sugar sweetener for baking such as Splenda (sucralose)



See it to Believe it!
1 tsp = 5 grams sugar

The Canadian Diabetes Association has an excellent summary sheet on sugars and sweeteners.

Find it on line at www.diabetes.ca/files/en_sweeteners_final.pdf or call 1-800-BANTING to request a copy.

Did you know?

A standard can of regular pop contains the equivalent of 10 tsp of sugar and a 2L bottle of pop has 1½ cups of sugar! Water is the best beverage for quenching your thirst.

Decoding Food Labels

The Nutrition Facts table found on the side of packaged food can help you make better food choices. Always check the serving size first and consider this in relation to how much of the food you usually eat.

Nutritional Facts	
Per 125 mL (87 g)	
Amount	% Daily Value
Calories 80	
Fat 0.5 g	1 %
Saturated 0.5 g	
+ Trans 0g	0 %
Cholesterol 0 mg	
Sodium 0 mg	0 %
Carbohydrate 18 g	6 %
Fibre 2 g	8 %
Sugars 2 g	
Protein 3 g	
Vitamin A 2 %	Vitamin C 10 %
Calcium 2 %	Iron 2 %

Look for choices with less fat, saturated fat, cholesterol and sodium. Look for choices that give you more fibre.

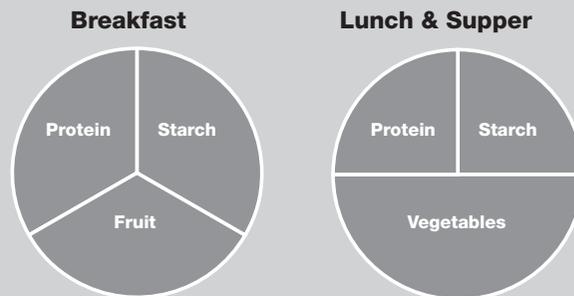
Learn more about using food labels to make healthy choices on the web:
Health Canada – www.hc-sc.gc.ca/fn-an/label-etiquet/nutrition/cons/index-eng.php
Healthy Eating Is In Store for You – www.healthyeatinginstore.ca

Did you know?

Fibre is a carbohydrate that does not raise blood sugar. Using the Nutrition Facts, you can subtract the grams of Fibre from the grams of Carbohydrate. Only count the remaining carbohydrate toward your meal plan.

Portions to Live By

- One serving of whole grains is 1/2 cup cooked, not the 3 or more cups served in most restaurants! Too much of a good thing is not a good thing.
- For more details on healthy portions see **Eating Well with Canada's Food Guide** online at www.healthcanada.gc.ca/foodguide.



How Many carbs are right for me?

- Carbs are one of the energy nutrients. We all have different energy needs based on our activities, age, gender, goals to maintain or lose weight just to name a few.
- In general, most adults need 45 to 60 grams of carbohydrates per meal.
- Using food labels will help you to choose foods to provide about this amount of carbohydrate per meal.
- To plan your meal you should know that in each of the following foods there are about 15 grams of carbs:
 - 1 slice of bread (the size of a CD case)
 - 1/2 cup of cereal
 - 1 piece of fruit (the size of a tennis ball)
 - 1 cup of low fat milk
- Vegetables are very low in carbs and are often considered 'free' – load up!

Exchange lists indicating the portions of food to provide 15 grams of carbohydrate are available. Ask a registered dietitian for more details.

If you are using insulin to control your blood sugars, you may want to learn more about balancing your carbohydrates with an approach called Carbohydrate Counting. Ask to speak with a registered dietitian.

Fibre

- When reading food labels look for foods higher in fibre.
- Bread choices should have at least 2 grams per slice. Cereal choices should be 4 grams or more per serving.
- Gradually increase your fibre intake and aim for 30 grams each day.
- Fibre is a carb that does not digest. When reading the Nutrition Facts table, subtract the fibre grams from the total grams of carbs to determine the carbs that contribute to your meal.

To Reduce Weight

If you are overweight a gradual reduction of 5-10% of your initial weight can improve blood glucose control. Suggestions include:

- Eat smaller portions of foods and remember the balance of foods on your plate: 1/4 protein, 1/4 starch (including potatoes), 1/2 vegetables for lunch and supper
- Eat 3 meals per day, no more than 6 hours apart. Don't skip meals. Snack with fruit between meals.
- Choose foods lower in fat and sugar. Eating strategies including low glycemic index choices can be helpful. Learn more from a registered dietitian.
- Aim for a maximum weight loss of 1- 2 lbs (0.5 -1 kg) per week.

“Waist loss” is as important as weight loss. For tips on how to trim your waist see our ‘Waisting Away – Healthy Weight Management’ nutrition fact sheet.

Staying Healthy with Diabetes

Being overweight or obese makes your body more insulin resistant. This makes controlling blood sugars more challenging. Excess weight and diabetes are both risk factors for heart disease.

For more details on Weight Management, Cholesterol or Hypertension see: **Eating Plan for Hypertension, Eating Plan for High Cholesterol** and **Waisting Away - Healthy Weight Management**. All are available from the Ottawa Cardiovascular Centre website. Go to www.ottawacvcentre.com.

Type 2 Diabetes Eating Plan

Choose Low Glycemic Index Foods Whenever Possible!

FOODS TO CHOOSE

Whole Grains

- Whole and multi grain breads, whole wheat pasta, brown rice
- Low-fat and multigrain crackers
- Low-sugar, whole-grain cereals
- Oatmeal, bran, bulgur, buckwheat
- Low-fat, whole grain baked goods with added bran or oat bran

FOODS TO LIMIT OR AVOID

- White breads, croissants, sweet rolls, high-fat white crackers, waffles
- Short-grain and minute rice – white rice
- Sweetened refined cereals
- Commercial muffins, cakes, doughnuts, Danish pastries, high-fat cookies
- Avoid “white” foods (white flour, white sugar)

Vegetables and Fruit – with lots of colour

- Dark green leafy vegetables
- Eat an abundance fresh/frozen vegetables
- Unsweetened, fresh, frozen or canned fruits

- Parsnip, pumpkin, white potatoes (high GI)
- Dried fruits and fruits in heavy syrup
- Sweetened fruit juices

Milk and Alternatives

- Dairy products with less than 1% fat
- Cheese should be 10-20% MF

- Milk products higher than 1% fat
- Cheese higher than 21% MF and creams

Meat and Alternatives

- Fish (canned in water, fresh, frozen), seafood
- Skinless chicken and turkey
- Lean meats with fat trimmed, wild game
- Lean cold cuts (but watch the salt content)
- Legumes, tofu
- Eggs (up to eight per week)

- Fish with butter or breading
- Fried chicken, poultry with skin, wings
- Fatty marbled meats, ribs, regular ground meats, organ meats
- High fat processed and canned meats: bacon, sausages, patés, bologna, salami, wieners

Meat and Alternatives

- Olive, canola, soybean, sesame, sunflower oils (3 tsp or less per day)
- Non-hydrogenated soft margarines Low-calorie dressings and mayonnaise
- Light peanut butter, nuts (watch salt and calories)
- Unsalted seeds: flax, pumpkin, sunflower
- Defatted gravy and low-sugar condiments
- Cocoa powder or a small piece of dark chocolate

- Hydrogenated oils, coconut and palm oils
- Shortening, butter, lard, hard margarines
- Peanut butter with palm or hydrogenated fat
- No more than 1/4 cup nuts per day (high calories)
- Heavy gravy, cream sauces, high-sugar condiments
- Chocolate and carb

Sweets (in very small amounts)

- Sugar substitutes and artificial sweeteners, low sugar jams/jellies/syrups
- Sugar-free candies, gelatins, gum
- Low-sugar and high fiber baked goods
- Low-fat and low-sugar frozen dessert

- Sugar and regular jams, jellies, syrups, candies, gelatins, gum, honey
- Regular cakes, pies, cookies
- No “white” foods (white flour, white sugar)
- Regular frozen desserts

Snack Foods

- Popcorn without salt, butter, or hydrogenated oils
- Choose low fat, low sugar snack foods

- Regular popcorn, chips, pretzels, cheesies, corn chips

Alcohol

- Limit alcohol to less than 2 drinks per day (1 drink = 12 oz beer or 1.5 oz liquor or 4 oz wine)
- Alcohol is not recommended if you:
 - have high triglycerides (type of blood fat)
 - have liver problems
 - are pregnant or breastfeeding
- If you choose to drink alcohol, remember:
 - To drink with your meal or snack (not on an empty stomach)
 - To drink slowly or dilute with water or diet soda
 - That liqueurs, sweet wines and dessert wines have more sugar
 - To wear your MedicAlert indicating that you have diabetes – alcohol can cause a low blood sugar reaction which, if left untreated, may require medical attention

Supplements

Check with your Doctor, Dietitian or Pharmacist before starting a supplement.

- **Heart Healthy Mixture** = 1/3 ground flax, 1/3 oat bran and 1/3 psyllium. Use 2 Tablespoons per day added to foods or beverages. The fibre in this blend is good for both your heart and blood glucose control.
- **For high triglycerides** (a type of fat in the blood more commonly high with diabetes):
Omega 3 supplements – adding 2000 to 4000mg of EPA+DHA from fish oil. This should be done under the supervision of your doctor.

Move your body, burn the glucose

- Aim to be active for 30 minutes at least 5 days per week (150 minutes/wk). Start with brisk walking for 10 minutes a few times per day and increase gradually from there. Be sure to have your doctor's approval before engaging in an exercise program.
- Strength exercises can be included 2 -4 times per week to keep the bones strong and build lean muscle.
- A leaner body is better able to use the insulin it produces to manage blood glucose.
- Measure your blood sugar before and after exercise. Typically your readings after exercise will be lower.
- Be prepared in case your blood sugar drops too low during or after exercise. Treatments are listed below.
- If you take medications that have a risk of causing low blood sugar it is best to exercise with someone and take a cell phone with you for emergencies. Let someone know where you will be and approximately when you will return. Take emergency glucose with you and wear your MedicAlert.

Keeping active can lower your blood sugar, lower your blood pressure, help you lose weight, help you feel better reduce the amount of medication you need, relieve tension or stress, improve your heart and lung function and improve your muscle tone! Look at all those benefits!

Recognize and be ready to treat low blood glucose

Usually we are concerned about blood glucose being too high but certain medications*, exercise, a missed meal or an illness can cause you to experience a low blood sugar.

- What is low? A blood glucose below 4.0
- Symptoms: shakiness, fatigue, excessive hunger, headache, blurred vision or dizziness, cold clammy or sweaty skin, pale colour in face, weakness.
- Treatment:
 - Take 15 grams of fast acting carbohydrate such as glucose tabs, 3 packets of sugar dissolved in water, ¾ c fruit juice or regular pop, 6 LifeSaver candies or 1 tablespoon of honey. Wait 15 minutes. If symptoms do not resolve treat again.
 - If symptoms resolve but the next meal is more than an hour away, have a snack with 15 to 20 grams of carbohydrate and some protein such as ½ a sandwich or cheese and crackers.

* Medications more likely to cause a low blood sugar include Amaryl, Diabeta, Diamicon, Gluconorm and Insulin.

Other Nutrition Fact Sheets Available:

Eating Plan for Hypertension
Eating Plan for High Cholesterol
Eating Plan for Heart Failure
Healthy Weight Management
Potassium Modified Eating Plan

Please visit www.cvtoolbox.com for more information

Ottawa Cardiovascular Centre

502-1355 Bank Street
Ottawa, ON K1H 8K7
Phone: (613) 738-1584
Email: admin@ottawacvcentre.com

www.cvtoolbox.com



Eating Plan for Type 2 Diabetes, December 2010

Danielle Aldous, BSc, RD (From Original 2006 Helene Charlebois, BSc, RD & Jasna Robinson, DI)
© Continuing Medical Implementation © Inc.