Meal Planning for People With Diabetes

Votre gouvernement

Québec

Meal Planning for People with Diabetes

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Graphic design: Larochelle et Associés

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Masculine pronouns are used generically in this document.

Legal deposit
Bibliothèque et Archives nationales du Québec, 2017
Library and Archives Canada, 2017

ISBN: 978-2-550-82423-7 (Print)
ISBN: 978-2-550-78130-1 (PDF)

Cette brochure existe également en version française.

Diabetes Québec's mission is to inform, promote awareness, educate, provide services, foster research, and act as an advocate for the rights of people with diabetes.

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Authors' Note

A new edition of this guide was necessary as new food products are constantly appearing on supermarket shelves, while others are disappearing, and nutrition labels will start to change soon.

A balanced diet is the cornerstone of diabetes treatment. This guide is intended to help dietitians/nutritionists and people with diabetes create a personalized meal plan that can be integrated into daily life. Effectively controlling blood glucose and lipid levels, achieving and maintaining optimum weight and adopting a healthy, delicious diet are the primary objectives of this meal plan.

We wish to thank the following dietitians/nutritionists for helping to write and edit this guide:

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What is the Exchange System?

The exchange system is the basis of your meal plan.

It includes seven food groups: starches, fruits, vegetables, milk and alternatives, other foods, meat and alternatives, and fats.

Within each group, foods are ranked according to their carbohydrate, protein, and fat content. Foods in the same group, when eaten in the amounts indicated, represent **one exchange** for this group. For example, a starch exchange equals 75 mL cooked rice or one slice of bread (see p. 14).

To use the exchange system,

1) Ask your dietitian/nutritionist to complete your daily meal plan.

2) Familiarize yourself with the different food groups and the amounts indicated in your **meal plan**.

3) Use your meal plan at mealtime to choose the recommended number of exchanges from each food group.

Foods whitin the same group can be exchanged in the amounts indicated. **Sometimes**, you can also exchange foods from two different groups, for example, by eating a starch instead of a fruit. However, you must pay attention to the carbohydrate content of the substituted food because it is important that **your total carbohydrate intake stay the same** to avoid large fluctuations in blood glucose levels (blood sugar). To help you, the average carbohydrate content is given for each food group.

Keep In Mind

If the **DAILY MEAL PLAN** page in your guide has not been completed by a dietitian/nutritionist, you are missing a key element for effectively controlling your condition or promoting proper weight loss. Only a qualified dietitian/nutritionist can create a meal plan based on:

- your specific nutritional needs, based on your age, height, bone structure, gender, and degree of physical activity;
- your personal preferences and eating habits;
- your medication (antidiabetic pills and insulin);
- diabetes-related conditions, such as hypertension (high blood pressure), heart problems, and dyslipidemia (change in blood lipid levels, including cholesterol and triglycerides).

Reading Labels

The exchange system proposes a list of the most common foods in each group which is why some foods may not appear on the list. You can still eat these foods provided you check their carbohydrate content so that you will know how to include them in your meal plan.

To find out the amount of carbohydrates and other nutrients in store-bought food not mentioned in this guide, refer to the nutrition facts table on the packaging. You must use the **total carbohydrate content**, as shown in the example below. Since dietary fibre has no effect on blood glucose levels (glycemia), it can be subtracted from the total carbohydrate.

This is the method that was used to calculate the food servings in this guide.

A new nutrition facts table will gradually replace the existing one. You can see both versions on the next page.

To find out the amount of carbohydrates and other nutrients in a basic food (e.g., fresh fruit) whose nutritional information is not provided, refer to the booklet, Nutrient Value of Some Common Foods, which can be downloaded from Health Canada's website at **http://www.hc-sc.gc.ca/fn-an/nutrition/fiche-nutri-data/nutrient_value-valeurs_nutritives-eng.php**

Example: Whole wheat bread- nutrition facts for two slices (81 grams)

Current

Valeur nutritive
Nutrition Facts
For 2 slices (81 g)

Teneur / Amount	% Valeur quotidienne % Daily Value
Calories / Calories 190	
Lipides / Fat 3 g	4 %
Saturés / saturated 0,4 g + trans / Trans 0 g	2 %
Cholestérol / Cholesterol 0 mg	
Sodium / Sodium 360 mg	15 %
Glucides / Carbohydrate 33 g	11 %
Fibres / Fibre 6 g	24 %
Sucres / Sugars 2 g	
Protéines / Protein 11g	
Vitamine A / Vitamin A	0 %
Vitamine C / Vitamin C	15 %
Calcium / Calcium	20 %
Fer / Iron	15 %

Total amount of carbohydrate, that includes fibre, sugars and starch.

Includes added sugars **and** other sugars found naturally in foods.

New

Valeur nutritive
Nutrition Facts
For 2 slices (81 g)

Calories 190	% Valeur quotidienne* % Daily Value*
Lipides / Fat 3 g	4 %
Saturés / saturated 0,4 g + trans / Trans 0 g	2 %
Glucides / Carbohydrate 33 g	
Fibres / Fibre 6 g	21 %
Sucres / Sugars 2 g	2 %
Protéines / Protein 11g	
Cholestérol / Cholesterol 0 mg	
Sodium 360 mg	16 %
Potassium 190 mg	4 %
Calcium 220 mg	17 %
Fer / Iron 2,1 mg	12 %

* 5% ou moins c'est **peu**, 15 % ou plus c'est **beaucoup**
* 5% or less is a **little**, 15 % or more is a **lot**

Total amount of carbohydrate, that includes fibre, sugars and starch.

Includes added sugars **and** other sugars found naturally in foods.

Remember to substract the fibre from the total carbohydrate amount.
In this example, two slices of bread weigh 81 grams and contain 33 grams of carbohydrate minus 6 grams of fibre, which equals 27 grams of available carbohydrates (that have a direct effect on blood glucose level).

Food Groups and Exchanges

On the following pages, you will find a **food list** for each of the seven food groups. Each portion indicated represents one exchange for that food groop (e.g., 75 mL pasta = 1 starch exchange; see p.14). Pay **special attention** to **serving size**. To begin, we recommend measuring your food. Gradually, at a glance, you'll develop the ability to estimate serving size. Then you'll only have to weigh your food occasionally to make sure your eyes aren't playing tricks on you!

The table below summarizes the average nutritional value of one exchange from each food group.

	Nutritional Value of One Exchange			
Food Group	Carbohydrate (g)	Protein (g)	Fat (g)	Calories
Starches	15	3	0	70
Fruits	15	0	0	60
Vegetables	5	2	0	25
Milk and Alternatives	12 to 15	8	0 to 9	90 to 160
Other Foods	15	Variable	Variable	Variable
Meat and Alternatives	0	8	3	60
Fats	0	0	5	45

Food Groups and Exchanges

- Starches
- Fruits
- Vegetables
- Milk and Alternatives
- Other Foods
- Meat and Alternatives
- Fats

*Note: Foods with an **asterisk (*)** are high in salt and should thus be eaten in moderation. However, some of these foods are now available in low-salt versions, such as natural peanut butter and low sodium V-8®.*

Starches

Whole-grain products are recommended because they are more nutritious than refined products and contain **fibre**. **Fibre** promotes the proper functioning of the intestine and helps stabilize blood glucose levels. When it comes to whole-grain cereals, those with little or no added sugar are the best choice.

One starch exchange = 15 g carbohydrate
3 g protein
0 g fat
70 calories

Each serving in the list below represents 1 Starch exchange

Crackers and snacks

Grissol® bread sticks	3 sticks or 2 packs
Melba® toast, rectangular	4
Popcorn, plain	750 mL
Quaker® rice cakes - Plain, cheddar	 2
Ryvita®, Wasa® crispbreads	2
Salted pretzels*	35 sticks or 6 twists
Soda crackers*	7
Swedish toast (Krisprolls®)	2
For these choices, also calculate 1 Fats exchange: Breton®*, Triscuits®, original crackers	 5
Ritz®* crackers	8
Vinta®, original crackers*	5

Breakfast cereals containing at least 2 g of fibre per serving

All Bran Buds with psyllium (Kellogg's®)	125 mL
All Bran Flakes (Kellogg's®)	250 mL
All Bran, original (Kellogg's®)	125 mL
Cheerios (General Mills®) - plain, whole grain, and multigrain	175 mL
Corn Bran (Quaker®)	175 mL
Fibre 1 (General Mills®)	175 mL
Mini-Wheats (Kellogg's®)	8 biscuits
Müslix (Kellogg's®)	75 mL
Oat Bran hot cereal (Quaker®) - Uncooked	75 mL
Oatmeal Crisp (General Mills®)	75 mL
Oatmeal squares (Quaker®)	75 mL
Oatmeal, plain - Uncooked	75 mL
Puffed Wheat (Quaker®)	375 mL
Raisin Bran (Kellogg's®)	75 mL
Shredded Wheat (Post®)	1 biscuit
Shreddies (Post®)	75 mL

Spoon Size Shredded Wheat 'N Bran (Post®)	125 mL
Weetabix®	1 biscuit
Wheat germ (Quaker®)	75 mL
For this choice, also calculate 1 Fats exchange:	
Harvest Crunch, original (Quaker®)	75 mL

Other breakfast cereals

Corn Flakes (Kellogg's®)	175 mL
Cream of Wheat (Kraft®)	1 pack
Instant oatmeal, flavored	1/2 pack
Rice Krispies (Kellogg's®)	150 mL
Special K (Kellogg's®)	175 mL
- Special K Red Berries	125 mL

Flour

Oat	60 mL
Wheat, buckwheat, millet, barley, spelt	45 mL
Rice, corn	30 mL

Starch

Corn Starch	30 mL

Vegetables

Corn	
- On the cob	1/2 cob
- Creamed	75 mL
- Kernel	125 mL
Jerusalem artichoke, raw	125 mL
Parsnip, raw	175 mL
Peas, green, boiled	250 mL
Plantain	1/4 or 75 mL
Potato	
- Boiled or baked	1/2 medium-sized
- Mashed	125 mL
Squash, cubed and cooked	
- Buttercup	125 mL
- Butternut, Hubbard, acorn	250 mL
- Spaghetti	500 mL
Sweet cassava, raw	60 mL
Sweet potato	
- Mashed	60 mL

Yam, raw	125 mL
For this choice, also calculate 1 Fats exchange:	
French fries	10 medium
For this choice, also calculate 2 Fats exchanges:	
Chips*	15
Restaurant-style corn chips (Tostitos®)	6

Legumes

For these choices, also calculate 1 Meat and Alternatives exchange:	
Beans (black, mung, pinto, red, white), lentils, chickpeas or broad beans, cooked	125 mL
Pea soup*	250 mL
For this choice, also calculate 1 Meat and Alternatives exchange + 3 Fats exchanges:	
Hummus	125 mL

Breads

Bagel (90 g)	1/3
Bread crumbs	45 mL
Bread, light (e.g., Weight Watchers®)	2 slices

Bread: white, white enriched with fibre, whole wheat, multigrain, rye, raisin	1 slice (30 g)
Croutons, plain	125 mL
English muffin, hot dog or hamburger bun, pita (18 cm in diameter)	1/2
French bread (baguette)	1 slice 5 cm long (30 g)
Salad roll	1 (30 g)
Tortilla, corn or wheat (18 cm in diameter)	1
For these choices, also calculate 1 Fats exchange:	
Croissant	1/2 medium (30 g)
Taco (shell 13 cm in diameter)	2

Pasta and other cooked grains

Barley, couscous, millet, and rice	75 mL
Bulgur, quinoa	125 mL
Egg noodles, rice noodles	75 mL
Japanese soba noodles	125 mL
Pasta, white or whole wheat (macaroni, spaghetti, etc.)	75 mL

Soups

Cream of tomato, canned, prepared with an equal amount of milk*	150 mL
Cream soup, dry, prepared with milk* (asparagus, cauliflower, leek)	375 mL
Soup with noodles, rice, or any another starch *	250 mL
For these choices, also calculate 1 Fats exchange:	
Ramen noodles, prepared with water*	175 mL
For these choices, also calculate 1 to 2 Fats exchanges:	
Cream of celery or mushroom, canned, prepared with an equal amount of milk*	250 mL

Flour-based products

Crepe, thin (10 cm in diameter)	1/2
Pizza crust (30 cm in diameter, 2 cm thick)	1/12 (35 g)
For this choice, also calculate 1 Fats exchange:	
Frozen waffle (10 cm in diameter)	1
French toast	1 slice
For these choices, also calculate 2 Fats exchanges:	
Pie crust (23 cm in diameter)	
- Double (top and bottom)	1/8 pie (40 g)
- Single (top or bottom only)	1/4 pie (40 g)

Fruits

Fruits are high in **vitamins, minerals and fibre**. Choose **brightly colored** fruits (e.g., oranges, strawberries) most often, as they are high in **vitamins** (beta carotene, vitamin C, and other antioxidants like lycopene) and can help in the prevention of heart disease and certain cancers.

Choose fresh fruit, unsweetened frozen fruit or canned fruit in unswetened fruit juice. The servings indicated for canned fruit include a small amount of juice (approximately 30 mL). If fruit is in syrup, rinse with water.

One fruit exchange = 15 g carbohydrate
0 g protein
0 g fat
60 calories

Each serving in the list below represents 1 Fruits exchange

Fruits

Apple	
- Fresh	1 medium
- Sauce, unsweetened	125 mL
Apricot	
- Fresh or dried	4
Banana	1/2 large or 12 cm
Blackberries	250 mL
Blueberries	175 mL
Cantaloupe	1/3 melon or 250 mL
Cherries	15
Clementine	2
Cranberries, fresh	500 mL
Currants	375 mL
Dates, dried	3
Figs	
- Fresh or dried	1 large or 2 small

Fruit compote with no sugar added	125 mL
Grapefruit, pink or white	1 small or 1/2 large
Grapes, fresh	15 large
Guava	3
Honeydew melon	1/8 melon or 250 mL
Kiwi	2 small
Lychee	10
Mango	1/2 medium
Nectarine	1
Orange	1
Papaya	1 small or 1/2 large
Passion fruit	6
Peach	
- Fresh	1 large
- Canned	125 mL
Pear	
- Fresh	1 small
- Canned	125 mL

Persimmon	2
Pineapple	
- Fresh	2 slices
- Canned (chunks)	125 mL
Plum	
- Fresh	2 medium
- Canned	4
Pomegranate	125 mL of seeds
Pomelo	1/3
Prunes	3 medium
Raisins	30 mL
Raspberries	375 mL
Rhubarb	unlimited
Starfruit (carambola)	3
Strawberries, whole	500 mL
Tangerine, mandarin orange	
- Fresh	1 large
- Canned in light syrup	75 mL
Watermelon	1/2 slice, 2.5 cm thick

100% pure fruit juice, no sugar added	
Cranberry blend	100 mL
Peach and pear nectar	100 mL
Pineapple, orange, grapefruit, apple, or a blend of these juices	125 mL
Prune, grape juice	75 mL

100% pure fruit juices contain carbohydrates which are rapidly absorbed despite having no added sugar. It is important to **moderate consumption of fruit juices** for this reason. The best choice is fresh fruit, since it contains dietary fibre. Here are a few tips for drinking less fruit juice:

- Use a smaller glass in order to reduce the amount of juice you drink.
- Dilute juice with water or soda water (being careful to choose waters with less than 20 mg of sodium per liter).
- If you drink juice, drink it with meals to reduce its effect on your blood glucose levels. Limit yourself to one exchange per day.

Fruit drinks and fruit-flavored crystals are not 100% pure fruit juice. They are high in added sugar and low in vitamins and minerals. For this reason, they are listed in the **Other** food group.

Vegetables

Vegetables are high in **vitamins** and **minerals**, as well as **dietary fibre**. It is recommended that you eat at least 4 servings a day, varying your choice and opting for **brightly coloured** vegetables, such as broccoli, peppers and carrots, more often.

Vegetables are generally low in carbohydrate and have little effect on blood glucose. Because of their excellent nutritional value, there is no limit on the number of vegetable exchanges in most meal plans.

Vegetables **high in carbohydrate** are listed in the starch group.

Take vegetable exchanges into consideration only if you must calculate the amount of carbohydrate you eat very accurately, i.e., if you require multiple daily injections of insulin.

When preparing vegetables, opt for cooking methods that maintain nutritional value, such as steaming, cooking in a microwave or conventional oven, or boiling in a small amount of water.

Eat them raw: they're so crisp and tasty in salads or with homemade yogurt dip!

Vegetable juices should be consumed sparingly because they are high in salt and contain no fibre. Low-salt versions are preferred.

Whole fresh, frozen or canned vegetables (rinsed) are the best choice.

1 vegetable exchange	≤	5 g carbohydrate
		2 g protein
		0 g fat
	≤	25 calories

Generally speaking, **1** vegetable exchange is equal to

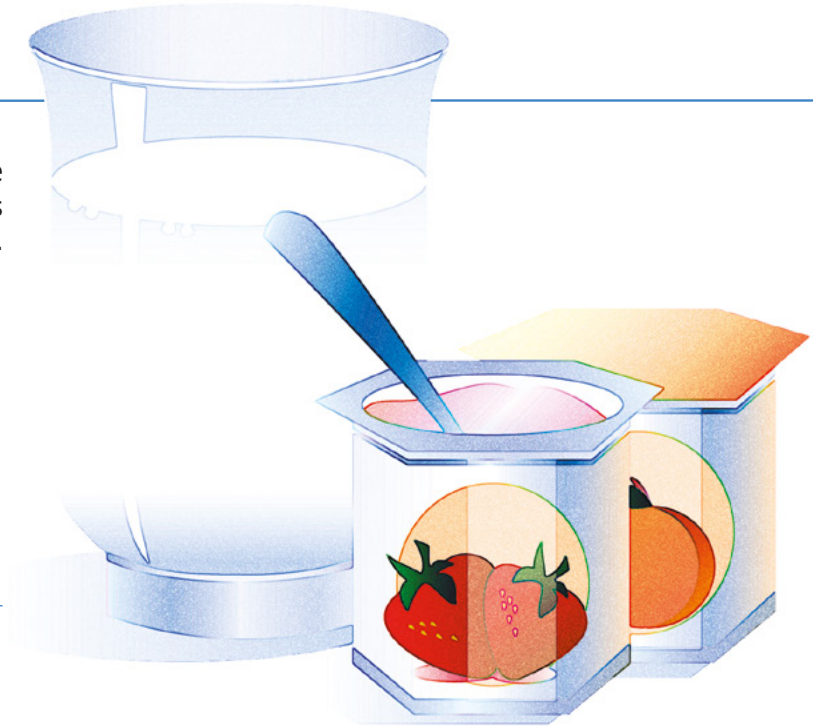
- 125 mL of fresh, frozen, or canned* vegetables or vegetable juice*
- 250 mL raw leafy vegetables
- 125 mL cooked leafy vegetables

Vegetables you can eat as desired

Alfalfa or radish sprouts
Artichoke
Asparagus
Bamboo shoots
Bean sprouts (mung bean sprouts)
Beans, yellow or green
Beets
Broccoli
Brussels sprouts
Cabbage, Chinese (bok choy)
Cabbage, green or red
Carrots
Cauliflower
Celeriac
Celery
Chard
Cucumber
Eggplant
Endive
Fennel
Fiddleheads
Juice, vegetable* or tomato*
Kale
Kohlrabi
Leafy vegetables (e.g., spinach arugula, mache)
Leeks
Lettuce
Mushrooms
Okra
Onions
Peas, snow
Peppers
Pumpkin
Radish
Rapini
Rutabaga (turnip, yellow)
Shallots
Tomato sauce, canned*
Tomatoes fresh, tomatoes canned*
Turnip, white
Water chestnuts
Zucchini

Milk and Alternatives

Milk and alternatives are the main source of **calcium**. Consuming milk and alternatives is key to maintaining healthy bones and teeth. This food group provides protein, too.



1 Milk and Alternatives exchange =

12 to 15	g carbohydrate
8	g protein
0 to 9	g fat
90 to 160	calories

The fat and calorie content of foods in this group varies according to product type. To reduce your fat intake, choose **skim milk or partly skimmed milk** and **yogurt with 2% milk fat (M.F.) or less**.

Milk, 250 mL	Fat (Grams)	Calories
Whole, 3.25% M.F.	9	160
Partly skimmed, 2% M.F.	5	130
Partly skimmed, 1% M.F.	3	110
Skim	0	90

Each serving in the list below represents 1 Milk and Alternatives exchange

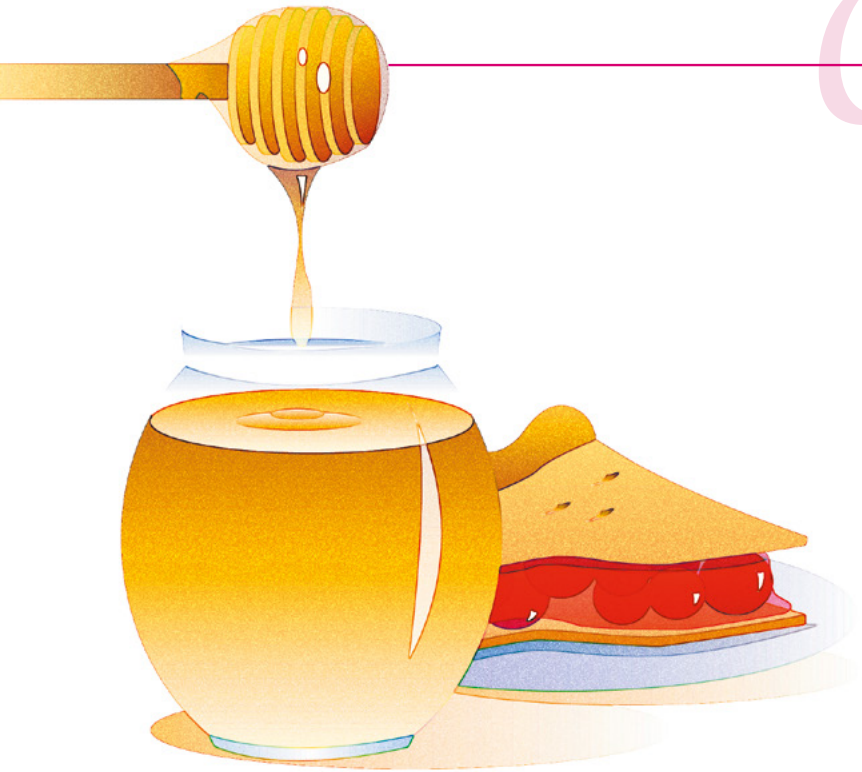
Kefir, plain	375 mL
Milk, evaporated, skim (Nestlé Carnation®)	125 mL
Milk drink, calcium or omega-3 enriched	250 mL
Instant skim milk powder	60 mL
Milk: skim, 1% M.F., 2% M.F., or 3.25% M.F.	250 mL
Soy drink, enriched, non-flavored	consult nutrition facts table
Yogurt, plain	175 mL or 175 g, between 5 to 10 g of carbohydrate

Milk-based products

Flavoured fromage blanc	100 g
Kefir with fruit	125 mL
Yogurt, drinkable	
- DanActive®	1 bottle of 93 mL
- Yop®, Astro Kik®	1/2 bottle of 200 mL
Yogurt	
- fruit or flavored, fat-free, no sugar added (Source®, Danone 0%®)	two containers of 100 g
- fruit or flavored (vanilla, coffee, etc.), regular or Greek	100 mL or 100 g

Cheese and **plain Greek yogurt** are listed in the **Meat and Alternatives** group because they are low in carbohydrates and high in protein.

Other Foods



Other Foods contain **added sugar**. Some also contain one or more **fats exchanges**. These foods are generally low in vitamins, minerals, and fibre but **high in calories**.

1 Other Foods exchange =
15 g carbohydrate
Varying amount of protein, fat, and calories

Here are some recommendations concerning these foods:

- Very few foods in this group will leave you feeling full. Eating foods from this group regularly may make it more difficult to control your weight. Eat them **occasionally**, **in moderation**, as part of a balanced diet.
- At meals, foods from this group can occasionally **replace** other carbohydrate-containing foods which means **they should be substituted, not added to the meal**, because the total carbohydrate intake at the meal must stay the same.
- It is preferable to avoid eating these foods in large quantities or as snacks since they can lead to hyperglycemia (high blood glucose levels).

The following list contains foods commonly found at the supermarket. Keep in mind, however, that the **nutrition facts printed on the product packaging** are the most accurate source of information on carbohydrate and fat content.

Homemade baked goods (muffins, cakes, etc.) often contain less sugar and fat than store-bought varieties. They can also be prepared with fat choices that are healthier for your heart. Ask your dietitian/nutritionist about how to reduce the fat and sugar content in your favorite recipes.

Each serving in the list below represents 1 Other Foods exchange

Cookies

Arrowroot®, Graham®	3
Social Tea®, Petit beurre®	4
Goglu®, Village®	2
Molasses (8 cm in diameter)	1
For these choices, also calculate 1 Fats exchange: Cookies: chocolate chip, chocolate sandwich or oat	2

Beverages

Chocolate milk	125 mL
Clam and tomato juice*	250 mL
Flavoured plant-based drink (soy, almond)	175 mL to 250 mL
Fruit drink or punch, cranberry cocktail	125 mL
Iced tea mix, sweetened (Nestea®)	30 mL
Malt mix for plain or chocolate beverage (Ovaltine®)	30 mL
Soft drink, regular	125 mL
Thirst quencher (e.g., Gatorade®)	250 mL

Sauces

Sweet sauces (cherry, cranberry, sweet and sour, hoisin)	30 mL
BBQ sauce, original (for grilling)	30 mL

Desserts and snacks

Cranberries, dried and sweetened	30 mL
Flavored ice (e.g., Popsicle®)	1 stick of 75 mL
Fresh pudding (e.g., Danette®)	1 container of 100 g
Gelatin, flavored (Jell-O®)	125 mL
Ice milk (e.g., Coaticook®)	125 mL
Ice milk bar, fudge	1 bar of 60 mL
Jell-O® fat-free pudding, (sold in powder form) and reconstituted	125 mL
For these choices, also calculate 1 Fats exchange:	
Cake frosting	20 mL
Ice cream (vanilla, strawberry, chocolate)	125 mL
Ice cream bar	1 bar of 60 mL

Candy

Hard candy	3 pieces or 18 g

Jujubes	4
Maple sugar	1 cube of 2.5 cm or 15 g
Maple taffy	15 mL
Marshmallows	3 large
Soft candy, caramels	2 pieces
For this choice, also calculate 1 Fats exchange: Milk chocolate	30 g
For this choice, also calculate 5 Fats exchanges: Dark chocolate (70% cocoa)	60 g

Spreads, syrups, and sugars

Caramel spread, maple butter	15 mL
Honey	15 mL
Jam, jelly, marmalade (regular)	15 mL
Molasses	15 mL
Sugar, white or brown	4 packets or 15 mL
Syrup (corn, table, maple)	15 mL
For this choice, also calculate 2 Fats exchanges: Chocolate spread (Nutella®)	20 mL

Each serving in the list below represents 2 Other Foods exchanges

Desserts and snacks

Sherbet	125 mL
For this choice, also calculate 1 to 3 Fats exchanges:	
Donut	1

Each serving in the list below represents 3 Other Foods exchanges

Desserts: pies and cakes

For this choice, also calculate 2 Fats exchanges:	
Lemon, cherry, or apple pie (20 cm in diameter)	1/6

Each serving in the list below represents 4 Other Foods exchanges

For this choice, also calculate 3 Fats exchanges:	
Cake with frosting, two layers (23 cm in diameter)	1/12
For this choice, also calculate 4 Fats exchanges:	
Pecan pie (20 cm in diameter)	1/6

Meat and Alternatives

Meat and alternatives are the primary source of **protein** in our diet. They also provide a certain amount of **fat**, depending on the food. It is recommended that you:

- Replace meat with legumes or soy foods, such as tofu or edamame (green soybeans), more often.
- Choose **lean Meat.**
- Eat **fish at least twice a week** in order to reduce the risk of heart disease. Choose fish high in **omega-3 fatty acids**, such as salmon, trout, albacore white tuna, halibut, sardines, herrings, and mackerel.

1 Meat and Alternatives exchange =	0	g carbohydrate
	8	g protein
	3	g fat
	60	calories

Each serving in the list below represents 1 Meat and Alternatives exchange.

How can I prepare meat to obtain leaner products?

- Choose lean cuts of meat with no marbling.
- Remove visible fat.
- Use cooking methods without added fat: boiling, braising, grilling, baking, or steaming.
- Use frying pans that allow cooking with little or no fat. If you use fats or oils, opt for a vegetable oil and avoid overheating.
- Skim the fat off cooked meats and stews.

Each serving size in the list below represents 1 lean or very lean Meat and Alternatives exchange (3 g fat or less per amount indicated):

Meat and poultry, cooked without fat

Back bacon*	30 g
Beef, very lean or lean (boneless strip loin, T-bone, cross rib, filet, flank, ribeye, round, sirloin)	30 g
Chicken (skinless)	30 g
Deli meats: smoked eye of round*, old-fashioned ham*, smoked turkey breast*	30 g
Ham, lean*	30 g
Horse	30 g
Lamb	30 g
Moose, venison	30 g
Pork (boneless inside round, center-cut loin, filet)	30 g
Rabbit	30 g
Turkey (skinless, dark or white meat)	30 g
Veal and lean ground veal	30 g

Organ meats cooked without fat (caution: high in cholesterol)

Beef heart, liver, calf sweetbreads, kidneys, chicken liver	30 g

Fish and seafood

Fresh or frozen, cooked without fat:	
Assorted fish (salmon, rainbow trout, sole)	30 g
Clams	3 large
Lobster	60 mL
Mussels	10 small
Oysters	5 medium
Scallops	2 large
Shrimp	6 large or 10 medium
Snails	50 g
Snow crab	75 mL
Canned, drained:	
Sardines in oil, with bones*	30 g
Tuna, salmon (in water)	60 mL (30 g)

Dairy products

Cottage cheese (2% M.F. or less)*	75 mL
Greek-style yogurt (0% M.F.)	60 mL (60 g)
Plain quark cheese	75 mL (75 g)
Processed cheese*, sliced Black Diamond® light, Kraft® and no-fat store brands	2 slices

Legumes

For these choices, also calculate 1 Starch exchange:

Beans (white, black, red, mung, pinto), lentils, chickpeas, broad beans	125 mL cooked

Each serving size in the list below represents 1 medium fatty Meat and Alternatives exchange (5 g fat per amount indicated):

Cheese	
Mozzarella, partly skim (approximately 15% M.F.)	30 g
Parmesan, light*, grated (Kraft® and store brands)	45 mL
Cretons made from veal, lean	45 mL (45 g)
Egg	1 large
Lean or extra lean ground beef cooked without fat	30 g
Organ meats cooked without fat	
Calf liver (caution: high in cholesterol)	30 g
Calf or pork tongue	30 g
Prosciutto*	30 g
Soy-based products	
Edamame (green soybeans), frozen, shelled	125 mL (85 g)
Soybeans, dry-roasted, plain	30 mL (20 g)
Tempeh, cooked	50 g
Tofu, firm	50 g

Each serving in the list below represents 1 high fat Meat and Alternatives exchange (8 g fat per amount indicated):

Calculate 1 Fats exchange per amount indicated

Cheese	
Cheese,* 20% M.F. or higher (e.g., Brie, Cheddar, Swiss)	30 g
Feta*, ricotta	75 mL
Processed cheese*, sliced (Cheddar, Mozzarella, Swiss)	2 slices (38 g)
Cretons*, regular	45 mL
Fatty Organ Meats	
Beef or veal brain (caution: high in cholesterol)	75 g

Each serving in the list below represents 1 very high fat Meat and Alternatives exchange (13 to 15 g fat per amount indicated):

Calculate 2 Fats exchanges per amount indicated

Deli meats*	
Blood pudding*	60 g
Bologna*	2 slices/60 g
Pork sausage, fresh*	1 large/75 g
Processed meat (mock chicken)*	2 slices/60 g
Salami*	3 slices/60 g
Smoked sausage (beef, turkey, chicken, pork)*	2 links/75 g

Peanut butter*	30 mL

Seeds	
Hemp, pumpkin	45 mL

Fats

Fats provide vitamins (A, D, E, and K) and **essential fatty acids to our body**. **Heart-healthy** fats are recommended, and should be eaten in **moderation**, as each small amount is packed with energy.

One Fats exchange = 0 g carbohydrate
0 g protein
5 g fat
45 calories

Diabetes increases the risk of cardiovascular disease. To prevent it, follow these strategies:

- Opt for **monounsaturated** and **polyunsaturated fats**.
- Eat more **omega-3** fatty acids are found in canola or walnut oil, walnuts, ground flaxseed, chia seeds and hemp seeds.
- Limit **saturated fats** and cholesterol. Saturated fats are found primarily in animal products and certain vegetable oils (e.g., palm oil) used in many processed foods.
- Avoid **trans fats** or partially hydrogenated fats found in processed foods, such as cookies, donuts, pastries, crackers, pies and fried foods.
- Look out for these "bad" fats on the nutrition facts table on food packaging.

To help you make wise choices, the various fat sources are listed according to the main type of fat they contain.

Each serving in the list below represents 1 Fats exchange:

Monounsaturated fat sources	
Avocado	1/6
Margarine, reduced calorie*	10 mL
Margarine, soft*, non-hydrogenated	5 mL
Nuts plain - Peanuts, cashews, hazelnuts, pecans, pistachios, almonds	15 mL
Oil: canola, olive, nut, peanut	5 mL
Olives, green or black, marinated*	5 medium or 10 small
Salad dressing, regular, store-bought* or homemade with canola, olive, nut, or peanut oil	10 mL

Polyunsaturated fat sources

Mayonnaise	
- regular	7 mL
- light	20 mL
Mayonnaise-based salad dressing (Miracle Whip®)	
- regular	20 mL
- Calorie Wise®	35 mL
Nuts and seeds, plain	
- Hemp seeds, pumpkin seeds, sunflower seeds, sesame seeds, walnuts, Brazil nuts	15 mL
- Ground flaxseeds, chia seeds	30 mL
Oil: safflower, flaxseed, corn, walnut, sesame, soybean, sunflower	5 mL
Salad dressing, regular, store-bought* or homemade with polyunsaturated oil	10 mL

Saturated fat and cholesterol sources

Bacon, well done*	2 small strips
Butter	5 mL
Coconut, dried, unsweetened	20 mL
Coconut, fresh, shredded, pressed	30 mL
Coconut milk	30 mL

Cream	
- 10% M.F.	45 mL
- 15% M.F.	30 mL
- 35% M.F. liquid	15 mL
- 35% M.F. whipped	30 mL
Cream cheese	15 mL
Cream cheese, light	30 mL
Lard, vegetable fat	5 mL
Light coconut milk	60 mL
Liver pâté*	20 mL
Oil: coconut or palm kernel	5 mL
Processed cheese spread* (e.g., Cheez Whiz®)	30 mL
Sour cream (14% M.F.)	30 mL
Sour cream tzatziki	30 mL

Trans fat sources

Cool-Whip® whipped topping	75 mL
Nutriwhip® whipped topping	60 mL
Margarine, hydrogenated	5 mL
Shortening	5 mL

Low Calorie Foods

Low calorie foods have little or no effect on blood glucose and blood lipid levels because they contain **less than 5 g of carbohydrate per serving** and little protein or fat. They can be eaten freely or, in certain cases, in the amount indicated. Some of these foods are high in salt, so use them in moderation!

People whose treatment includes multiple daily injections of insulin should check with their dietitian/nutritionist on how to use this group.

One Low Calorie Food exchange	≤ 5 g carbohydrate
	0 g protein
	0 g fat
	≤ 20 calories

Seasonings

Cinnamon	
Celery powder	
Curry	
Dry mustard	
Essences (e.g., vanilla, almond)	
Fish sauce*	15 mL
Garlic, celery, onion salt*	
Garlic (fresh, powdered)	
Ginger (fresh, powdered)	
Herbs (fresh, dried)	
Hot peppers	
Lemon (juice, zest)	
Lime (juice, zest)	
Miso*	
Onion powder	
Pepper	
Piri-piri sauce*	
Salad dressing, Italian, low fat*	
Salt*	
Shallots	
Soy sauce*	15 mL
Spices* (some blends may be high in salt)	
Sriracha sauce	
Vinegar	
Wasabi	
Worcestershire sauce*	15 mL

Beverages

Broth, clear, defatted*	
Cocoa powder, unsweetened	15 mL
Coffee, tea, and tisane, plain	
Coffee creamer (powder or liquid)	15 mL
Consommés*	
Diet soft drinks	
Hot chocolate from mix, light	1 packet/13 g
Iced tea, lemon, light	250 mL
Mineral water, bubbly, less than 20 ppm sodium (Na) per liter (e.g., Perrier)	
Soda water, plain	
Unsweetened almond beverages	
Water flavouring (Mio®, Crystal light®)	
Unsweetened coconut water	

Condiments

Capers	
Chili sauce	15 mL
Dill pickles*	
Horseradish	
Ketchup*	15 mL
Mustard, prepared*	
Relish*	10 mL
Salsa	60 mL
Steak* or barbecue* sauce	10 mL

Fat Free or Low Fat Foods

Fat-free or low-fat cream cheese	15 mL
Nonstick cooking spray	
Sour cream, light: 5% M.F., 1% M.F., or fat free	30 mL

No Sugar or Low Sugar Foods

Chewing gum, sugarfree	
Chewing gum, sweetened	2 sticks
Gelatin, flavored, no sugar added (sugar free Jell-O®)	250 mL
Gelatin, plain	
Hard candy, sugar free	1 candy
Ice cream cone, sugar free, waffle type	1 cone
Table syrup, unsweetened (ED Smith®)	15 mL
Sugar substitutes, noncaloric (see next page)	

Sugar Substitutes

Various sugar substitutes are available on the market. These substitutes fall into two categories: non-caloric and caloric.

Non-caloric sugar substitutes

A number of non-caloric sugar substitutes are approved by Health Canada. An acceptable daily intake (ADI) has been established for each one, according to body weight. Generally speaking, if you eat sugar substitutes or food containing them **occasionally** and in **moderation**, you will not exceed the ADI.

Pregnant or nursing women should avoid cyclamates.

People with diabetes are not required to consume sugar substitutes.

Non-caloric Sugar Substitutes Approved by Health Canada:

- Acesulfame K
- Aspartame (Equal®, NutraSweet®)
- Cyclamates (Sugar Twin®, Sucaryl®, Sweet'N Low®)
- Monk fruit extract (luo han guo)
- Neotame
- Saccharine (Hermesetas®)
- Steviol glycosides (stevia, Pure Via®, Sugar Twin®, Truvia®)
- Sucralose (Splenda®, Sugar Twin®)
- Thaumatin

Caloric sugar substitutes

Some sugar substitutes contain calories and can influence blood glucose levels. These products should be used in moderation, as part of a balanced diet.

- **Fructose** is a sugar (or carbohydrate) that causes less of an increase in blood glucose level than white sugar. There is no proof that using it as a substitute for table sugar (sucrose or saccharose) has any advantage in controlling diabetes. Consuming large quantities can result in diarrhea and an increased triglyceride levels.
- **Sugar alcohols (isomalt, lactitol, maltitol, mannitol, sorbitol, xylitol)** are carbohydrates that are not absorbed or only partially absorbed by the intestine. Thus, they have little effect on blood glucose level and contain fewer calories than white sugar. However, if consumed in large amounts, sugar alcohols can lead to flatulence, diarrhea and other intestinal discomforts. Note that they may be used as a sugar substitute in foods that are high in fat and calories (e.g., chocolate with no sugar added).

Alcohol

Drinking alcohol can lower blood glucose levels and cause hypoglycemia (low blood glucose levels), especially when you drink alcohol on an empty stomach and use insulin or oral sulfonylurea medications (e.g., Amaryl®, Avandaryl®, Diabeta®, Diamicron®) or meglitinides (e.g., Gluco-Norm® or Starlix®). Alcohol can also increase blood glucose levels and when consumed regularly or in excess, interfere with weight control, as well as blood glucose and triglyceride levels. Alcohol may also affect other medical conditions such as high blood pressure. For these reasons, you should discuss your alcohol intake with your doctor.

Rules to follow if you drink alcohol:

- Always drink **with meals**.
- Drink in small quantities–**1 to 2 drinks** per day
  One drink equals:
  - 140 mL dry wine (12% alcohol)
  - 85 mL fortified wine (20% alcohol)
  - 340 mL beer (5% alcohol)
  - 45 mL hard liquor
- Check your **blood glucose levels** more often within 24 hours of drinking alcohol.
- Remember to eat your **snacks**, especially in the evening.
- Wear **identification** indicating that you have diabetes.
- Keep a **source of sugar** on hand, in case of hypoglycemia.

Carbohydrate: Term used for all types of sugars (fibre, starch, sucrose, fructose, glucose, lactose, etc.).

Dietary cholesterol: A type of fat found in foods of animal origin.

Dietary fibre: A type of carbohydrate found in foods of vegetable origin. It is not digested by the body and is eliminated in the stool. Fibre can slow the absorption of sugar from the food and help reduce blood cholesterol.

Glycemia: Level of glucose (or sugar) in the blood.

HDL cholesterol (HDL-C): Often called "good cholesterol," it is produced by the body and acts as a carrier in the blood. A high level of HDL cholesterol can help reduce the risk of cardiovascular disease by carrying fats from the blood to the liver.

LDL cholesterol (LDL-C): Often called "bad cholesterol," it is produced by the body and acts as a carrier in the blood. It carries fat into the blood and promotes fat accumulation in the arteries (atherosclerosis), which can lead to cardiovascular disease.

Lipids: Term used for all types of fats.

Monounsaturated fat: Fat contained in certain foods and their oils, such as olives, avocados, peanuts, almonds, hazelnuts, pecans, pistachios, cashews, and some soft margarines. When used instead of saturated fats, it can reduce the level of "bad cholesterol" (LDL-C) and help maintain the level of "good cholesterol" (HDL-C).

Polyunsaturated fat: Fat contained in foods such as flaxseed, soybean, sunflower, safflower, corn, and sesame oils, some soft margarines, fish, walnuts, and pinenuts, as well as pumpkin, sesame, sunflower, and flax seeds. This fat helps reduce the level of "bad cholesterol" (LDL-C) in the blood. It includes omega-3 fatty acids, recognized as beneficial to heart health.

Protein: Nutrient specific to living organisms and necessary for building, repairing, and renewing all organs in the human body.

Saturated fat: Fat contained in a number of foods of animal origin, such as dairy products (cheese, cream, and butter), meat, and lard, as well as certain foods of vegetable origin, such as coconut, palm kernel, and palm oils. This fat increases the level of "bad cholesterol" (LDL-C).

Triglycerides: Fat reserves stored in the body. High levels of triglycerides in the blood can be a risk factor for cardiovascular diseases.

CONVERSION TABLE

International System	Imperial System
Volume	
5 mL (milliliters)	1 teaspoon
15 mL	1 tablespoon*
30 mL	2 tablespoons
45 mL	3 tablespoons
60 mL	1/4 cup
75 mL	1/3 cup
125 mL	1/2 cup
150 mL	2/3 cup
175 mL	3/4 cup
250 mL	1 cup
Weight	
30 g (grams)	1 ounce
454 g	1 pound
Energy	
4.2 kJ (kilojoules)	1 Calorie or kilocalorie
Length	
2.5 cm (centimeters)	1 inch

* one soup spoon is equal to one tablespoon.

General Recommendations

By following your meal plan, you will have a balanced diet and increase the chance of improving your blood glucose control.

Here are some recommendations to help you achieve your objectives:

1) Eat foods in the amounts recommended in your **DAILY MEAL PLAN**.

2) Eat all scheduled meals and snacks.

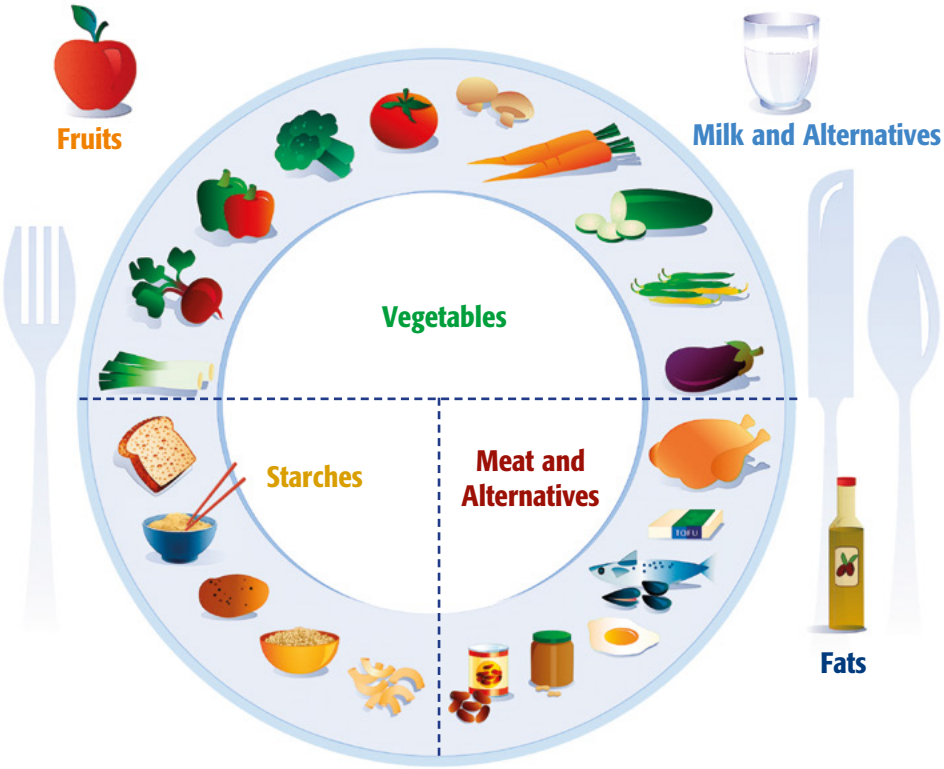
3) Respect the total amount of carbohydrates planned for each meal. For example, avoid eating an extra slice of bread for breakfast and leaving one out at lunch.

4) As much as possible, try and eat your meals (and snacks, if any) at the same time every day.

5) Choose a variety of foods within the same group (for example, eat different types of fruits and vegetables).

6) Contact your dietitian/nutritionist if your exercise program, medication, health, weight, or appetite changes significantly. Do not hesitate to consult your dietitian/nutritionist with any questions about your diet.

Sample Balanced Meal



Daily Meal Plan

Number of Exchanges

Food Groups	DAILY TOTAL	Breakfast Time:	Morning Snack Time:
Starches			
Fruits			
Vegetables			
Milk and Alternatives			
Meat and Alternatives			
Fats			
Total carbohydrates	_____ g	_____ g	_____ g

Note: Foods included in the Other Foods group may occasionally replace Starch, Fruit, or Milk and Alternatives exchanges in your meal plan.

Lunch Time:	Afternoon Snack Time:	Supper Time:	Evening Snack Time:
_____ g	_____ g	_____ g	_____ g

One Step at a Time…

Changing your lifestyle takes time and motivation. Trying to change too fast can often lead to failure. Set realistic goals, give yourself time, and make sure you have all the help you need (family, friends, professionals, support groups, books).

My goals

For example: I will eat three meals a day starting next Monday.

I will eat two kinds of vegetables at lunch and at supper.

19-215-02A

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