Hennick Humber Hospital

Diabetes Education Centre

Carbohydrate Counting

Carbohydrates are 1 of 3 main macronutrients in our diet that provide the body with energy (protein and fat are the other 2 macronutrients). The body needs carbohydrates to work well. Carbohydrate is the macronutrient with the greatest impact on your blood sugars.

Carbohydrate counting can help you keep your daily intake of carbohydrates more consistent so that you can manage high blood sugars (hyperglycemia) and also prevent low blood sugars (hypoglycemia).

If you are on multiple daily injections of insulin, carbohydrate counting will also give you more flexibility when planning meals since you can match the insulin doses to the amount of carbohydrates you eat.



Did you know?

You can count carbohydrates in terms of **grams (g) of carbohydrates** OR **carbohydrate choices**.

15 g of carbohydrates = 1 carbohydrate choice

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CARBOHYDRATE FOOD GUIDE

Some foods contain high amounts of carbohydrates, while some foods contain low amounts. Take a look at this carbohydrate food guide. What food groups do the foods you eat fall into?

Carbohydrate Foods

Grains and Starches

Examples: Cereal, bread, pita bread, pasta, crackers, rice, plantains, corn, potatoes, squash, turnips



Fruit

Examples: Apples, bananas, cantaloupes, kiwis, grapes, oranges, peaches, pineapples, raspberries



Legumes

Examples: White beans, lentils, kidney beans, split peas, chickpeas



Milk and Alternatives

Examples: Skim/1%/2% cow's milk, fortified soy milk/oat milk/rice milk/sweetened almond milk/cashew milk, plain or no sugar added yogurt



Please note: Greek yogurt may have less carbohydrates and higher protein content. You may want to check the nutrition label.

Other Foods

Examples: Honey, fruit juice, chocolate milk, ice cream, sugar, candy, chocolate, chips, regular pop



Foods With Little to No Carbohydrate

Vegetables

Examples: Mushrooms, tomatoes, cucumbers, kale, cabbage, brussels sprouts, green beans, cauliflower, celery, broccoli, eggplant



Proteins

Examples: Chicken breast, pork chop, lean beef, almonds, salmon, fish, eggs, cheese, nuts, seeds, seafood, nut or seed butter, tofu, tempeh, paneer, cottage cheese, meatless soy protein products (such as vegetarian ground round)



Fats

Examples: Canola or olive oil, butter, soft tub margarine, salad dressing, mayo, avocados



Did you know?

Choosing high fibre meals and adding protein as well as healthy fats will slow down the rise in blood sugars from the carbohydrates that you eat.

STEPS TO COUNTING CARBOHYDRATES

1 Set your carbohydrate goals.

- Diabetes Canada recommends a minimum of 130 g of carbohydrates a day for women and men, 18 years of age and older. Depending on your goals and lifestyle, your carbohydrate intake may be higher. For instance, an individual that is more active will need more carbohydrates.
- Speak to your registered dietitian to figure out how much carbohydrates you should be eating.

My Carbohydrate Goals:					
Breakfast	Morning Snack	Lunch	Afternoon Snack	Dinner	Snack
grams of carbs	grams of carbs	grams of carbs	grams of carbs	grams of carbs	grams of carbs
# of carb choices	# of carb choices	# of carb choices	# of carb choices	# of carb choices	# of carb choices

2 Record what you eat and drink throughout the day in a food journal.

- Make sure to note down portion sizes. Using measuring cups or a food scale can help.

3 Find the grams of carbohydrates for each food and drink you consume using the following lists and calculations:

- **Carbohydrate Food Lists** (p. 5-9)
- The **Nutrition Facts Table** on the packaging label (p. 10-11).
- The **Carbohydrate Factor**, measuring cups and/or food scales (p. 12-13).
- **Nutrition Guides for Common Restaurants** (p. 14-15)

4 Keep track of how the carbohydrates you consume affect your blood sugar levels.

Tips to Measuring:

- Measure or weigh foods after cooking, unless it is a food that is usually eaten without cooking.
- For food scales, choose a scale that is digital, weighs in 1 gram at a time, and has a tare or zero option.

If you are taking meal time insulin:

- You may want to discuss with a Diabetes Educator about determining an Insulin to Carbohydrate Ratio (ICR) that is right for you.
- Complete the Advanced Carbohydrate Counting Homework (p. 17) to assist your Diabetes Educator with determining an ICR for you.

Each of the servings in the following food lists is equal to **15 g of carbohydrates or 1 carbohydrate choice**. Refer to the Nutrition Facts Table when available.

Carbohydrate Foods

Breads	Serving
Bagel, whole grain	¼ large
Bannock, whole grain, baked	1.5 x 2.5 inches
Bread, whole grain, rye, or pumpernickel	1 slice
Bread sticks	3
Chapati, whole wheat	1 (6-inch round)
Croissant	1 small
Dinner roll, whole wheat or white	1
Dosa, plain, whole wheat	½
English muffin, whole grain or white	½
Hamburger bun	½
Hotdog bun	½
Kaiser bun	½
Muffin, small, average muffin size tray	½
Muffin, coffee shop variety	¼
Naan, whole wheat	¼
Pancake	1 (4-inch)
Paratha, plain or whole wheat	½
Pita	½
Roti, whole wheat	1 (6-inch round)
String hoppers	2 small
Taco shells	2 (5-inch)
Tortilla, whole grain	1 (6-inch round) or ½ (12-inch round)
Waffle	1

Cereals	Serving
All Bran™ cereal	125 ml (½ cup)
Alpen, muesli	60 ml (¼ cup)
Bran-type cereals	125 ml (½ cup)
Cheerios™	160 ml (⅔ cup)
Corn Chex™	125 ml (½ cup)
Cornflakes™	125 ml (½ cup)
Cornmeal	125 ml (½ cup)
Granola	60 ml (¼ cup)
Honey Bunches of Oats™	80 ml (⅓ cup)
Instant cream of wheat	1 packet
Instant oatmeal	1 packet
Mini Wheats™ Original	8 frosted biscuits
Oat Bran cereal	80 ml (⅓ cup)
Oatmeal, steel cut or large flake, cooked	180 ml (¾ cup)
PC Blue Menu™ Bran Flakes	125 ml (½ cup)
Red River™, dry	30 ml (2 tbsp)
Red River™, cooked	125 ml (½ cup)
Rice Chex™	125 ml (½ cup)
Rice Krispies™	160 ml (⅔ cup)
Shredded wheat	1 biscuit



Carbohydrate Foods (continued)

Crackers and Snacks	Serving
Arrowroot™ cookies	3
Banana chips	1 oz
Croutons	180 ml (¾ cup)
Digestive cookies	2
Fortune cookies	3
Oatmeal cookie	1 regular (1 oz)
Popcorn, popped	750 ml (3 cups)
Potato chips	15
Pretzels	7 large
Rice cakes	2
Rice cakes, mini	6
Ritz™ crackers	4 to 6
Ryvita™ crackers	4
SkyFlakes™	3
Soda crackers	7
Stone Wheat Thins™	3
Tortilla chips	6
Wasa™ crackers	2
Water/cream crackers	4



Fruits	Serving
Apple	1 medium
Applesauce, unsweetened	125 ml (½ cup)
Apricots, fresh	4 whole
Banana	1 small (6-inch)
Blackberries	500 ml (2 cups)
Blueberries	250 ml (1 cup)
Canned fruit, unsweetened	125 ml (½ cup)
Cherries	15
Clementine	2 medium
Dried fruit	60 ml (¼ cup)
Figs, fresh	2
Fruit juice	125 ml (½ cup)
Grapefruit	1 small
Grapes	15 grapes or 125 ml (½ cup)
Guava	1 large
Jackfruit	125 ml (½ cup)
Kiwi	2
Kumquat	8
Loquat	4
Mango	½
Medjool dates	1
Melon	260 ml (1 cup)
Nectarine	1 large
Orange	1 medium
Papaya	1 small
Peach	1 large
Pear	1 medium
Pear, Asian	2
Persimmon	½
Pineapple	180 ml (¾ cup) or 2 slices
Plums	2
Pomegranate	½
Raisins	30 ml (2 tbsp)
Raspberries	500 ml (2 cups)
Strawberries	500 ml (2 cups)
Tangerine	2 medium
Watermelon	310 ml (1 ¼ cup)

Carbohydrate Foods (continued)

Grains (Cooked)	Serving
Banku	1 small piece (½ fist size)
Barley	125 ml (½ cup)
Bulgur	125 ml (½ cup)
Chow mein noodles	160 ml (⅔ cup)
Couscous	125 ml (½ cup)
Dumpling or bake	1 small
Egg noodles	125 ml (½ cup)
Fufu	1 piece (½ fist size)
Idli	1 (3-inch)
Millet	125 ml (½ cup)
Kasha	125 ml (½ cup)
Mixed rice with legumes (beans, lentils, etc.)	125 ml (½ cup)
Pasta, al dente	125 ml (½ cup)
Puttu	80 ml (⅓ cup)
Quinoa	125 ml (½ cup)
Rice, parboiled, converted, brown, or basmati	80 ml (⅓ cup)
Rice noodles	80 ml (⅓ cup)
White rice, jasmine, sushi rice, sticky rice	80 ml (⅓ cup)

Legumes	Serving
Baked beans	125 ml (½ cup)
Black beans	125 ml (½ cup)
Chickpeas	125 ml (½ cup)
Hummus	80 ml (⅓ cup)
Kidney beans	125 ml (½ cup)
Lentils (dahl), thick	125 ml (½ cup)
Lentils (dahl), thin	250 ml (1 cup)
Split peas	125 ml (½ cup)

Milk and Alternatives	Serving
Almond milk, sweetened	500 ml (2 cups)
Buttermilk	250 ml (1 cup)
Chocolate milk, 1%	125 ml (½ cup)
Cow's milk, plain, skim, 1% or 2%	250 ml (1 cup)
Evaporated milk, canned	125 ml (½ cup)
Kefir	250 ml (1 cup)
Milk pudding, skim milk, no sugar added	125 ml (½ cup)
Oat milk (original)	250 ml (1 cup)
Powdered milk	60 ml (¼ cup)
Pudding, low-fat, no sugar added	125 ml (½ cup)
Rice milk, flavoured	125 ml (½ cup)
Soy milk, flavoured	125 ml (½ cup)
Soy milk, plain	250 ml (1 cup)
Yogurt, fruit-flavoured	125 ml (½ cup)
Yogurt, no sugar added	180 ml (¾ cup)
Yogurt, no sugar added, 100 g container	2
Yogurt, Greek, low-fat, plain	250 ml (1 cup)



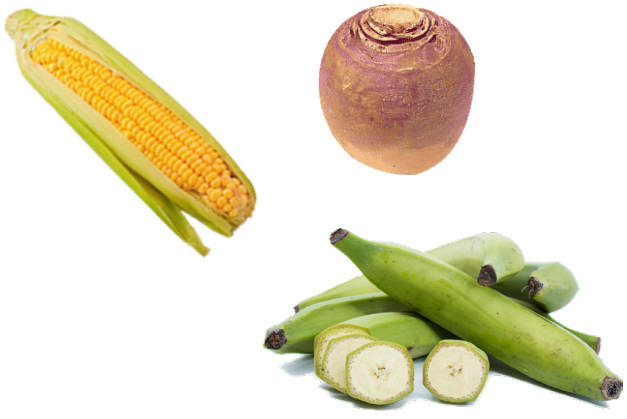





Carbohydrate Foods (continued)

Vegetables, Carb-Containing	Serving
Artichoke	250 ml (1 cup)
Beets	250 ml (1 cup)
Parsnips	125 ml (½ cup)
Rutabaga	250 ml (1 cup)
Shiitake mushrooms	250 ml (1 cup)
Squash	250 ml (1 cup)
Tomatoes, canned/stewed	250 ml (1 cup)
Tomato juice, V8™	250 ml (1 cup)
Water chestnuts	125 ml (½ cup)

Vegetables, Starchy	Serving
Cassava	60 ml (¼ cup)
Corn	125 ml (½ cup)
Corn cob	½
French fries	10 pieces
Green banana	½ (large) or 1 (3-inch, small)
Green peas	250 ml (1 cup)
Instant mashed potatoes	125 ml (½ cup)
Mashed potato	125 ml (½ cup)
Plantain	½ (large) or 1 (3-inch, small)
Potato, sweet, new, or white	½ medium
Russet potato	½ medium
Squash	250 ml (1 cup)
Turnip	125 ml (½ cup)



Combination Foods	Serving
Burrito, 7-inch long	½
Cannelloni	2
Casserole	125 ml (½ cup)
Chicken curry	310 ml (1 ¼ cup)
Chicken nuggets	6
Chicken pie (small)	½
Chili with beans	125 ml (½ cup)
Chow mein	125 ml (½ cup)
Dim sum	4 to 6 pieces
Falafel	3
Lasagna	3" x 4" piece
Manicotti	1 ½
Perogies	1 ½
Pizza, thick crust	½ of a 12-inch pizza
Pizza, thin crust	⅛ of a 12-inch pizza
Pot pies	7 oz
Pullao with peas	80 ml (⅓ cup)
Samosa	½ medium
Stew	250 ml (1 cup)
Sushi (maki), with vegetables	3 pieces
Wonton soup	375 ml (1 ½ cup)

Soups	Serving
Chicken noodle	500 ml (2 cups)
Lentil	250 ml (1 cup)
Minestrone	375 ml (1 ½ cup)
Pea	180 ml (¾ cup)
Tomato	250 ml (1 cup)
Vegetable	375 ml (1 ½ cup)



Foods With Little to No Carbohydrate

Vegetables that contain little to no carbohydrates

Vegetables are an excellent source of vitamins, minerals, and fibre, especially the dark green and brightly coloured vegetables.

- Asparagus
- Beans, yellow or green
- Bok choy
- Broccoli
- Cabbage
- Callaloo
- Cauliflower
- Celery
- Cho-Cho/Chayote
- Cucumber
- Eggplant
- Endive
- Kale
- Kohlrabi
- Leek
- Lettuce
- Okra
- Onions
- Mushrooms
- Peppers
- Radish
- Rapini
- Salad greens
- Shallots
- Snow peas
- Spinach
- Taro leaves
- Tomato, large (1 per meal)
- Turnip greens
- Zucchini

Extra Food Options that contain little to no carbohydrates

- Broth
- Chili sauce
- Club soda
- Consommé
- Diet pop
- Garlic
- Ginger
- Gum, sugar-free
- Herbs
- Jell-O™ (sugar-free)
- Mineral water
- Mustard
- Pepper
- Rhubarb
- Spices
- Soy sauce
- Water
- Water with lemon
- Vinegar






Limit your intake of these foods to 1 choice per meal	Serving size (= 5 g of carbs)
Barbeque sauce	10 ml (2 tsp)
Coffee whitener, powder	5 ml (1 tsp)
Fruit spread, no sugar added	15 ml (1 tbsp)
Ketchup	15 ml (1 tbsp)
Milo powder	5 ml (1 tsp)
Salsa	60 ml (¼ cup)
Sweet relish	5 ml (1 tsp)

In small amounts, these foods do not provide enough carbohydrate to affect your blood sugars, but in larger quantities they may.

USING THE NUTRITION FACTS TABLE

For foods that are not listed in the Carbohydrate Food Lists on the previous pages, you can refer to the Nutrition Facts Table to determine how many carbohydrates are in a serving of food.

Nutrition Facts
Valeur nutritive

Per 1 cup (250 mL) **A**
pour 1 tasse (250 mL)

Calories 96	**% Daily Value*** **% valeur quotidienne**
Fat / Lipides 0 g	0 %
Saturated / saturés 0 g	0 %
+ Trans / trans 0 g	
Carbohydrate / Glucides 36 g **B**	
C Fibre / Fibres 3 g	12 %
Sugars / Sucres 0 g	0 %
D Sugar Alcohol / Polyalcools 3 g	
Protein / Protéines 2 g	
Cholesterol / Cholestérol 0 mg	
Sodium 0 mg	0 %
Potassium 450 mg	10 %
Calcium 30 mg	2 %
Iron / Fer 0 mg	0 %

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



A **Per Serving (Serving Size):** The nutrition information given is for this serving size. Are you eating more, less, or the same amount? Compare your serving size to see how much carbohydrate you are eating. Multiply or divide based on your portion.

B **Carbohydrate:** The total amount of carbohydrate in grams is listed first. This number includes starch, sugars, and fibre.

C **Fibre:** Fibre does not raise blood sugar levels.

D **Sugar Alcohols (if any):** Usually listed after "Sugars / Sucres." It also does not raise blood sugar levels. Examples of sugar alcohols are glycerol, mannitol, maltitol, sorbitol, xylitol.

If sugar alcohol is not listed on the Nutrition Facts Table, the food item does not have sugar alcohol in it.

To get the TOTAL GRAMS OF AVAILABLE CARBOHYDRATE for this food, subtract the grams of fibre and the grams of sugar alcohols from the grams of carbohydrate:

= 36 g carbohydrate (**B**) - 3 g fibre (**C**) - 3 g sugar alcohols (**D**)
= **30 g total available carbohydrates**

Special Considerations

- **Breaded food items** may contain carbohydrates. Refer to the food item's nutrition facts table (if available). If eating out at a restaurant, check the food item's nutrition information (if available).
- **Nuts** are not normally considered a carbohydrate, but if eaten in larger portions, they may contribute to your carbohydrate count. Refer to the nutrition facts table (if available). For example:
  - » ⅓ cup of cashews adds 15 g carbohydrates
  - » ¾ cup of pistachios adds 15 g carbohydrates
  - » ¼ cup of roasted chestnuts adds 15 g carbohydrates.



USING THE CARBOHYDRATE FACTOR

Another way to determine the carbohydrate content of the foods you are eating is by first calculating its **Carbohydrate Factor**. You can calculate this by weight (grams) or by volume (mL or cups). You will need the nutrition facts table for each food and a food scale (if calculating by weight) or set of measuring cups (if calculating by volume).

To Find the Carbohydrate Content by WEIGHT:



1. Calculate the food's carbohydrate factor:
   - Use the Nutrition Facts table to calculate the **total grams of available carbohydrates** (see p. 10).
   - Find the **weight of the serving size** (found at the top of the Nutrition Facts table).
   - Divide the total grams of carbohydrates by the weight of the serving size. This is your carbohydrate factor.
2. Use a food scale to weigh the portion of food you plan on eating (in grams).
3. Multiply the weight of the food you plan on eating by its carbohydrate factor.

Nutrition Facts **Valeur nutritive** Per 27 pieces (50 g) pour 27 pièces (50 g)	
Calories	% Daily Value* % valeur quotidienne
Fat / Lipides g	%
Saturated / saturés g + Trans / trans g	%
Carbohydrate / Glucides 26 g	
Fibre / Fibres 1 g	%
Sugars / Sucres 3 g	%
Protein / Protéines g	
Cholesterol / Cholestérol mg	
Sodium mg	%
Potassium mg	%
Calcium mg	%
Iron / Fer mg	%
*5% or less is **a little**, 15% or more is **a lot** *5% ou moins c'est **peu**, 15% or plus c'est **beaucoup**	

Example:

1. Find the Carbohydrate Factor:

   Total grams of available carbohydrates =
   26 g carbohydrates -1 g fibre = 25 g

   Weight of serving size: 27 pieces = 50 g

   Carbohydrate Factor = 25 g carbohydrates ÷ 50 g = 0.5

   The carbohydrate factor is 0.5

2. Find the weight of food you plan to eat:

   Portion you plan to eat = 74 g *(example)*

3. Multiply this weight by the Carbohydrate Factor:

   Carbohydrate content = 74 g x 0.5 = 37 g

For the 74 g of food you eat, this will give you 37 g of carbohydrates.

To Find the Carbohydrate Content by VOLUME:



1. Calculate the food's carbohydrate factor:
   - Use the Nutrition Facts table to calculate the **total grams of available carbohydrates** (see p. 10).
   - Find the **volume of the serving size** (found at the top of the Nutrition Facts table).
   - Divide the total grams of carbohydrates by the volume of the serving size. This is your carbohydrate factor.
2. Use a measuring cup to measure the portion of food you plan on eating (in mL).
3. Multiply the volume of the food you plan on eating by its carbohydrate factor.

Nutrition Facts
Valeur nutritive
Per 1 cup (240 mL)
pour 1 tasse (240 mL)

Calories	% Daily Value* / % valeur quotidienne
Fat / Lipides g	%
Saturated / saturés g + Trans / trans g	%
Carbohydrate / Glucides 5 g	
Fibre / Fibres 1 g	%
Sugars / Sucres 1 g	%
Protein / Protéines g	
Cholesterol / Cholestérol mg	
Sodium mg	%
Potassium mg	%
Calcium mg	%
Iron / Fer mg	%

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

Example:

1. Find the Carbohydrate Factor:

   Total grams of available carbohydrates =
   5 g carbohydrates -1 g fibre = 4 g

   Volume of serving size: 1 cup = 240 mL

   Carbohydrate Factor =
   4 g carbohydrates ÷ 240 mL = 0.02

   The carbohydrate factor is 0.02

2. Find the volume of food you plan to eat:

   Portion you plan to eat = 1.5 cups or 360 mL *(example)*

3. Multiply this volume by the Carbohydrate Factor:

   Carbohydrate content = 360 mL x 0.02 = 7.2 g

For the 360 mL of food you eat, this will give you 7 g of carbohydrates.

Tip for using a Carbohydrate Factor:

Record the carbohydrate factor for some of the common foods in your household.

Then, the next time you are determining the carbohydrate content, all you will have to do is multiply the carbohydrate factor by the weight or volume of food you plan on eating.

USING A RESTAURANT'S NUTRITION GUIDE

When eating out, it may be helpful to visit the specific restaurant's website for the food item's nutrition information. The following are thenutrition guides for some common restaurants. When carbohydrate counting, remember to subtract the fibre from the grams of carbohydrates to find the total grams of carbohydrates.



TIP! If a restaurant does not have nutritional information available, you can use the Carbohydrate Food List on p. 5 to 9 or the Useful Resources on p. 22.

McDonald's®

Food item	Carbohydrates (g)	Fibre (g)	Calories	Fat (g)
Egg McMuffin Sandwich	28	2	290	11
Bacon N' Egg McMuffin	28	3	310	15
Plain Bagel with Cream Cheese	58	3	370	10
Hash Brown	16	2	160	10
Carrot Muffin	70	2	440	16
Cheeseburger	32	2	290	12
Big Mac	46	3	507	32
Chicken Nuggets (10 pieces)	26	0	410	23
Medium Fries	46	4	350	17
Medium Brewed Iced Coffee	24	0	170	8

https://www.mcdonalds.com/ca/en-ca/about-our-food/nutrition-calculator.html

Tim Hortons®

Food item	Carbohydrates (g)	Fibre (g)	Calories	Fat (g)
Turkey Sausage Breakfast Sandwich	31	1	350	16
Croissant Breakfast Sandwich	36	2	600	42
Bagel BELT	62	7	560	24
Oatmeal (Mixed Berry)	44	6	210	3
Oatmeal (Maple)	49	4	220	2.5
Farmer's Breakfast Grilled Wrap	54	3	680	42
Chicken Noodle Soup	21	2	120	1.5
Chili	18	5	330	18
Chocolate Chip Muffin	66	2	420	16
Whole Grain Carrot Muffin	59	6	350	11
Small Iced Capp	40	0	37	16
Original Blend Coffee (no milk, no sugar)	0	0	5	0

https://company.timhortons.com/us/en/menu/nutrition-and-wellness.php

Starbucks®				
Food item	**Carbohydrates (g)**	**Fibre (g)**	**Calories**	**Fat (g)**
Butter Croissant	27	1	260	15
Blueberry Muffin with Yogurt & Honey	49	1	350	15
Three Cheese & Egg Sandwich	34	1	330	16
Everything Bagel	51	2	260	2
Rolled Steel-Cut Oatmeal	28	4	160	2.5
Chocolate Chunk Cookie	42	2	320	16
https://www.starbucks.ca/menu				

Subway®				
Food item	**Carbohydrates (g)**	**Fibre (g)**	**Calories**	**Fat (g)**
6-inch Turkey Breast	42	5	260	4
6-inch Sweet Onion Chicken Teriyaki	51	4	340	4
6-inch Meatball Marinara	46	3	410	17
6-inch B.L.T.	37	1	310	12
Turkey Breast Salad	12	4	110	3
Egg & Cheese Breakfast Sandwich	26	2	310	16
https://www.subway.com/en-ca/-/media/northamerica/canada/nutrition/can_nutrition-for-w1_2024-eng_12-8-23.pdf?sc_lang=en-CA				

Pizza Pizza®				
Food item	**Carbohydrates (g)**	**Fibre (g)**	**Calories**	**Fat (g)**
1 Slice Medium Veggie	25	4	180	5
1 Slice Medium Pepperoni	25	1	210	8
1 Slice Medium Meat Supreme	26	1	260	11
1 Slice Thin Chicken Bruschetta	23	1	190	6
1 Slice Cauli Pesto	20	2	190	8
1 Slice Keto Protein Lovers	7	5	210	15
https://www.pizzapizza.ca/about-us/nutrition/				



Did you know?

When eating a meal high in fat, it is possible that your blood sugar levels will stay high for several hours. This is because fat slows down digestion and may lead to more insulin resistance. Eating meals high in fat may lead to more variability in your blood sugar levels.

Let's Practice Carbohydrate Counting!

Using the tools from the previous pages, calculate how many carbohydrates you are eating at each meal.

Example - Sandwich lunch

Food	Portion size	Grams of Carbs	Carb Choice
Bread, whole wheat*	2 slices	30 g	2
Chicken breast	60 g (2 oz)	0	0
Margarine	5 ml (1 tsp)	0	0
Carrot sticks	125 ml (½ cup)	0	0
Green grapes*	125 ml (½ cup)	15 g	1
Milk*	250 ml (1 cup)	15 g	1
Tea/coffee	250 ml (1 cup)	0	0
	TOTAL	60 g	4 choices

* Carbohydrate containing food

Food	Portion size	Grams of Carbs	Carb Choice
	TOTAL		

* Carbohydrate containing food

Food	Portion size	Grams of Carbs	Carb Choice
	TOTAL		

* Carbohydrate containing food

DETERMINING INSULIN TO CARBOHYDRATE RATIO

An **Insulin to Carbohydrate Ratio (ICR)** is a calculation that you can use to improve your blood sugars and have a more flexible lifestyle. It is the number of grams of carbohydrates that 1 unit of rapid-acting insulin will cover. Everyone is different. Your ratio could also vary from meal to meal.

$$\text{ICR} = \frac{\text{Grams of carbohydrates eaten}}{\text{Units of rapid insulin taken}}$$

Carbohydrate Counting Homework

For the next 3 consecutive days, complete this carbohydrate counting homework to assist your diabetes educator in determining your ICR. Record the following on the space provided:

1. Your blood sugar level before your first bite of food
2. The quantity, food, and number of grams of carbohydrate you ate at that meal. Use this booklet to help teach you how to count carbohydrates accurately. Ask your dietitian if you have questions
3. The number of units of rapid-acting insulin you took at that meal
4. Your blood sugar level 2 hours after eating
5. Any extra activity or exercise you did. It's best to do about the same amount of activity every day when figuring out your ICR.



Tips for completing the Homework

- Ideally, include 2 weekdays and 1 weekend day.
- Write down your typical diet.
- Do NOT choose days that are special occasions or vacations, days with unusual stressors (such as illness, severe low sugar, premenstrual period), or days when you have consumed alcohol.
- It is best to do the same amount of activity daily when trying to determine an insulin to carbohydrate ratio.

Day 1					
Meal	**Blood Sugar Before Eating (mmol/L)**	**Units of Rapid-Acting Insulin Taken**	**Food Eaten (with portions)**	**Carbohydrates Eaten (g)**	**Blood Sugar 2 Hr After Eating (mmol/L)**
Breakfast					
Morning Snack					
Lunch					
Afternoon Snack					
Dinner					
Bedtime Snack					
NOTES					

Day 2					
Meal	**Blood Sugar Before Eating (mmol/L)**	**Units of Rapid-Acting Insulin Taken**	**Food Eaten (with portions)**	**Carbohydrates Eaten (g)**	**Blood Sugar 2 Hr After Eating (mmol/L)**
Breakfast					
Morning Snack					
Lunch					
Afternoon Snack					
Dinner					
Bedtime Snack					
NOTES					

Day 3					
Meal	**Blood Sugar Before Eating (mmol/L)**	**Units of Rapid-Acting Insulin Taken**	**Food Eaten (with portions)**	**Carbohydrates Eaten (g)**	**Blood Sugar 2 Hr After Eating (mmol/L)**
Breakfast					
Morning Snack					
Lunch					
Afternoon Snack					
Dinner					
Bedtime Snack					
NOTES					

Once you have your ICR, as approved by your doctor, you can calculate the units of insulin you need to take for your meal.

Example Calculation for Units of Insulin to Take			
Meal	**Grams of Carbohydrates**	***Sample* ICR**	**Units of insulin to take for the meal**
2 slices whole wheat bread 1 tbsp peanut butter Strawberry yogurt 250 ml (1 cup) 1% milk	30 g 0 g 17 g 12 g **Total = 59 g**	1 unit for every 12 g of carbohydrates * This is a sample ICR. This ratio will be different for each person. Refer to your own plan below or ask your diabetes educator what your ICR is (as approved by your doctor).	= 59 g ÷ 12 g carbohydrates = 5 units of mealtime insulin

My Plan

My Insulin to Carbohydrate Ratios*			
Breakfast ICR =	1 unit for every		grams carbohydrates at breakfast
Lunch ICR =	1 unit for every		grams carbohydrates at lunch
Dinner ICR =	1 unit for every		grams carbohydrates at dinner



*As approved by your doctor

USEFUL RESOURCES

Websites

Alberta Health Services Carbohydrate Factors
https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-carbohydrate-counting.pdf

Calorie King
http://www.calorieking.com

Cookspiration
http://www.cookspiration.com

Cronometer
https://cronometer.com

Diabetes Canada
http://www.diabetes.ca

Happy Forks Diet and Recipe Analyzer
https://happyforks.com

MyFitnessPal
http://www.myfitnesspal.com

MySugr
http://www.mysugr.com/en

RxFood
http://www.rxfood.co/dexcom/patients

Waltzing the Dragon
http://www.waltzingthedragon.ca



Books

Carb and Calorie Counter (book)
https://carbsandcals.com/books/carb-calorie-counter

NOTES:

Diabetes Education Centre

Hennick Humber Hospital offers the following services through its Diabetes Education Centre:

- One-on-one sessions
- Group classes:
  - Prediabetes class (virtual)
  - Type 2 diabetes class (virtual)
  - Gestational diabetes class (virtual)

We see adults who are:

- At risk for diabetes
- Diagnosed with prediabetes, type 1 diabetes, or type 2 diabetes
- Pregnant with diabetes
- Starting or changing insulin
- Managing diabetes by lifestyle alone or with medicine.

We accept self-referrals and faxed referrals from family doctors. If you have OHIP coverage, there is no cost for these services.

Meeting your language needs! At the Centre, we have staff who speak many languages and have access to over-the-phone interpretation in over 150 languages. We also provide some education handouts in other languages.

Contact us

The Diabetes Education Centre
Hennick Humber Hospital

Healthy Living Clinic (Level 1)
1235 Wilson Ave., Toronto, Ont. M3M 0B2

Tel: (416) 242-1000 ext. 23400
Fax: (416) 242-1058



Hours of operation:

Monday, Tuesday, Thursday, Friday:
8:00 a.m. to 4:00 p.m.

Wednesday:
8:00 a.m. to 8:00 p.m.

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The information provided in this handout is for educational purposes. It does not replace the advice or specific instructions from your doctor, nurse, or other healthcare provider. Do not use this information to diagnose or treat. If you have questions about your own care, please speak with your healthcare provider.

English: This information is important! If you have trouble reading this, ask someone to help you.	**Italian:** Queste informazoni sono importanti! Se ha difficoltà a leggere questo, chieda aiuto a qualcuno.	**Spanish:** ¡Esta información es importante! Si tiene dificultad en leer esto, pida que alguien le ayude.