

CARB COUNTING QUIZ

Before you begin multiple daily injections (MDI) or insulin pumping, you need to become familiar with advanced carbohydrate counting. For MDI and pumping, you will be calculating an insulin dosage based on an insulin-to-carbohydrate ratio; therefore, you must have an accurate estimate of the "available carbohydrates" in the meal you will be eating. As well, you need to have an idea of the "glycemic index" of the meal, or the speed with which the carbohydrates mixed with the fibre, protein and fats in the meal will raise the blood sugar. The following 18 questions are meant to introduce you to the kinds of carb-counting knowledge and skills you will need to master to be successful with MDI and pumping.

To do this quiz, you will need to know how to read Canada's nutrition labels. [Health Canada's](#) website has an excellent review of this, including an [Interactive Nutrition Label Quiz](#). You will also need to be able to look up the nutrition information on a number of fresh and prepared foods. For this, you can use the [Calorie King®](#) website's [online search function](#), or their [Calorie, Fat and Carbohydrate Counter](#) pocket book (which is available for purchase in many bookstores, online, and from the [BCCH Bookstore](#)). Another source of information is the [Canadian Nutrient File](#), which also has an online search function. Finally, the [BCCH Diabetes Clinic](#) has numerous carb-counting [handouts](#) and [links](#) for patients.

(1) Which of the following is the fastest way to treat a low blood sugar?

- A. $\frac{1}{2}$ can (6 fl. oz, 180 mL) of pop
- B. 3-4 Dex4® glucose tablets
- C. 1 tube (31 g) of Insta-Glucose® gel
- D. A fun-sized bag (15 g, 15 pieces) of Skittles®
- E. $\frac{1}{2}$ cup (4 fl. oz, 120 mL) of orange or apple juice

(2) Which of the following veggies are *not* considered "free" if you eat $\frac{1}{2}$ cup or less?

- A. Carrots
- B. Celery
- C. Peas
- D. Broccoli
- E. Tomatoes

(3) Which of the following snacks would *not* require an injection or a bolus of insulin?

- A. 1 cup (8 fl. oz, 240 mL) of low-fat milk
- B. 1 cup (8 fl. oz, 240 ml) of vegetarian chili
- C. 1 tall (12 fl. oz, 360 mL) Starbucks® Skinny Vanilla Latte
- D. 1 serving (3 spears) of broccoli with lemon vinaigrette
- E. 1 handful (1 cup, 5½ oz) of grapes

(4) Which of the following has the most carbs per serving?

- A. 2 cups of strawberries
- B. 1 bottle (16 fl. oz, 480 mL) Snapple® Lemon Ice Tea
- C. 2 Oreo® cookies
- D. ½ cup (3.3. oz, 100 g) Dairy Queen® Chocolate Soft Serve ice cream
- E. 4 medium pieces of California Roll sushi

(5) Kimmi goes to her friend's house for dinner, and she's having vegetarian lasagne (cheese, spinach, pasta) and a glass of milk. Kimmi's new to carb counting, and she hasn't learned how to count lasagne. But she does remember from earlier that a similar piece of lasagne was 3 starches, 4 proteins, 2 vegetables and 1 fat choice (using the CDA's 2005 *Beyond the Basics* choices). How can Kimmi estimate the carbs for her meal?

- A. 15 g each only for starches
- B. 15 g each only for starches and milks
- C. 15 g each only for starches and fruits
- D. 15 g each only for starches, milks, and fruits
- E. 15 g each for starches, milks, fruits, and vegetables

(6) Andre is going to have a small bag of potato chips. At the store, he's comparing the labels on regular and baked chips. Which of the following statements is true?

- A. Baked chips are higher in salt.
- B. Baked chips are fat-free.
- C. Both chips are a good source of protein.
- D. Baked chips are higher in calories.
- E. Baked chips would require more insulin.

REGULAR	
Nutrition Facts	
Per 1 bag (43 g)	
Amount	% Daily Value
Calories 225	
Fat 15 g	24 %
Saturated 1.5 g + Trans 0 g	9%
Cholesterol 0 mg	
Sodium 270 mg	11 %
Carbohydrate 22 g	8 %
Fibre 1 g	6 %
Sugars 0 g	
Protein 3 g	
Vitamin A 0 %	Vitamin C 15 %
Calcium 0 %	Iron 3 %

BAKED	
Nutrition Facts	
Per 1 bag (43 g)	
Amount	% Daily Value
Calories 165	
Fat 2.3 g	3 %
Saturated 0 g + Trans 0 g	0 %
Cholesterol 5 mg	
Sodium 225 mg	9 %
Carbohydrate 35 g	12 %
Fibre 3 g	9 %
Sugars 3 g	
Protein 3 g	
Vitamin A 0 %	Vitamin C 3 %
Calcium 6 %	Iron 3 %

(7) Little Chloe has had her morning insulin, and now she's not feeling well. She's supposed to have 1 starch, $\frac{1}{2}$ protein, $\frac{1}{2}$ milk and $\frac{1}{2}$ fruit for lunch (30 g carbs). She doesn't feel like eating her lunch, so Mom is looking for alternatives. All of the following contain about 30 g of carbs *except*:

- A. 2 cups (16 fl. oz, 480 mL) of fruit-flavoured Pedialyte®
- B. $\frac{3}{4}$ cup (6 fl. oz, 180 mL) of Jell-O®
- C. 1 cup (8 fl. oz, 240 mL) of Sprite®
- D. 1 cup (8 fl. oz, 240 mL) of chocolate milk
- E. 13 saltine crackers

(8) Kenyon is on the soccer team, and the dietitian has advised him that, for a boy his size, he should have 15 g of carbs for every 30 minutes of exercise. Which of the following does *not* contain about 15 g of carbs?

- A. 1 cup (8 fl. oz, 240 mL) Gatorade®
- B. $\frac{1}{2}$ cup (4 fl. oz, 120 mL) unsweetened apple juice
- C. 1 medium orange
- D. 1 small can ($8\frac{1}{2}$ fl. oz, 250 mL) Red Bull®
- E. $\frac{1}{2}$ packet of PowerBar® Gel

(9) Angela is looking at the following nutrition label. She has just eaten 7 crackers. How many g of carbs are in 7 crackers?

- A. 10 g
- B. 16 g
- C. 18 g
- D. 25 g
- E. 40 g

Nutrition Facts	
Per 4 crackers (14 g)	
Amount	% Daily Value
Calories 56	
Fat 1.0 g	2 %
Saturated 0 g	0 %
+ Trans 0 g	
Cholesterol 0 mg	
Sodium 150 mg	4 %
Carbohydrate 10 g	4 %
Fibre 0 g	0 %
Sugars 1 g	
Protein 1 g	
Vitamin A 1 %	Vitamin C 0 %
Calcium 0 %	Iron 0 %

(10) Tamara is going to make basmati rice for dinner, and she's trying to figure out the carb counts for this. She looks at the nutrition label, which she doesn't find particularly handy, since she doesn't have a kitchen scale. Instead of weighing the uncooked rice, she can use all of the following alternatives to figure out the carb count for basmati rice *except*

- A. Remember that 1/3 cup of cooked rice is 1 *Starches & Grains* choice, or about 15 g carbs
- B. Use a label from a similar product (e.g. short-grain rice)
- C. Use another reference which lists carbs for cooked rice by the cup
- D. Use another reference which lists carbs for uncooked rice by the cup
- E. Use another reference which lists carbs for 100 g of cooked rice

Nutrition Facts	
Per 100 g uncooked	
Amount	% Daily Value
Calories 349	
Fat 0.8 g	0 %
Saturated 0.0 g	0 %
+ Trans 0 g	
Cholesterol 0 mg	
Sodium 0 mg	0 %
Carbohydrate 78.5 g	24 %
Fibre 2.4 g	0 %
Sugars 0 g	
Protein 7 g	
Vitamin A 0 %	Vitamin C 0 %
Calcium 0 %	Iron 13 %

(11) Tina is on MDI and has an insulin-to-carbohydrate ratio of 8 (that is, she takes 1 unit of rapid-acting insulin for every 8 g of carbs she eats). How many units of insulin does she need to take for an Oatmeal Raisin PowerBar®?

- A. 3 units
- B. 3 1/2 units
- C. 4 units
- D. 4 1/2 units
- E. 5 units

(12) Johnny wants to eat a big bowl of Shreddies®. First he looks at the label on the box. Then, for practice, he actually measures out 1 1/2 cups of cereal. How many g of carbs in his cereal does he need to give insulin for (not including the milk)?

- A. 35 g
- B. 41 g
- C. 47 g
- D. 53 g
- E. 62 g

Nutrition Facts		
Per 1 cup (50 g)		
Amount	Cereal only	With 1/2 cup skim milk
Calories		
	180	230
% Daily Value		
Fat 1.0 g	2 %	2 %
Saturated 0.2 g	1 %	2 %
+ Trans 0 g		
Cholesterol 0 mg	0 %	1 %
Sodium 310 mg	14 %	15 %
Carbohydrate 41 g	14 %	16 %
Fibre 6 g	24 %	24 %
Sugars 8 g		
Protein 5 g		
Vitamin A	0 %	8 %
Vitamin C	0 %	0 %
Calcium	2 %	15 %
Iron	50 %	50 %

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- (13) Kyle is on the road with his rugby team, and the coach has decided to stop at Subway® for dinner. Kyle doesn't eat a lot of fast food, but he is prepared for this. He chooses a 6" Turkey Breast & Ham Sub (lots of veggies, Swiss cheese, hold the mayo), a 10-oz (295-mL) bowl of Minestrone, a Chocolate Chunk Cookie and a diet pop (he's hungry after the big match!). His carb ratio is 10. How many units of rapid-acting insulin does he need for his meal?
- A. $7\frac{1}{2}$ units
 - B. 8 units
 - C. $8\frac{1}{2}$ units
 - D. 9 units
 - E. $9\frac{1}{2}$ units
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- (14) Stefan's family loves Grandma Johnson's lemon pound cake recipe, but they need to figure out the carb count for it. One recipe (which makes 12 servings) calls for 1 cup of white sugar and $1\frac{1}{2}$ cups of white flour (as well as eggs, oil, and other non-carb-containing ingredients). How many carbs are in a serving of the pound cake?
- A. 27 g
 - B. 32 g
 - C. 37 g
 - D. 42 g
 - E. 47 g
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- (15) Winnie has a carb ratio of 12. She is very good at carb counting, but she notices that her blood glucose levels 2-3 h after meals are always high (12-14 mmol/L), even when they are in range pre-meal. What should she do?
- A. increase her carb ratio to 14
 - B. add an extra 10 g to each of her carb counts
 - C. decrease her insulin sensitivity factor (or correction factor) by 1
 - D. decrease her carb ratio to 10
 - E. add an extra $\frac{1}{2}$ unit of insulin to each meal bolus
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- (16) Which of the following foods, if consumed without any other food, will raise the blood sugar the slowest?
- A. White rice
 - B. Coca-Cola®
 - C. White spaghetti, al dente
 - D. Wonder® bread
 - E. Whole-wheat spaghetti, al dente

(17) Simran was given a box of Purdy's® "No Sugar Added" Mini Hedgehogs for Halloween. She goes to the Purdy's website to find the nutrition label. She also notices that the candy contains maltitol. If she eats 3 pieces, how many g of carbs does she need to consider when dosing her insulin?

- A. 0 g
- B. 3 g
- C. 8 g
- D. 12 g
- E. 13 g

Nutrition Facts	
Serving Size Per 3 Pieces (30 g)	
Amount	% Daily Value
Calories 160	
Fat 13 g	20 %
Saturated 6 g + Trans 0 g	30 %
Cholesterol 5 mg	
Sodium 20 mg	1 %
Carbohydrate 13 g	4 %
Fibre 1 g	4 %
Sugars 2 g	
Sugar alcohols 9 g	
Protein 2 g	
Vitamin A 0 %	Vitamin C 0 %
Calcium 6 %	Iron 4 %

(18) Barry eats a large meal of a baked potato with sour cream, a 6-oz sirloin steak, mixed greens with oil and vinegar dressing, and glass of dry red wine. He counts the potato carbs accurately and doses his insulin correctly. His pre-meal blood glucose was 5.7 mmol/L. Yet he notices that he runs high for the next 6 hours. Which of the following reasons best explains this elevated blood glucose?

- A. There are uncounted carbs in the salad
- B. There are uncounted carbs in the sour cream
- C. The protein in the steak can be converted into glucose
- D. The fat in the sour cream can be converted into glucose
- E. The alcohol in the wine can be converted into glucose

ALL DONE?

The answers to this quiz may be downloaded at
<http://endodiab.bcchildrens.ca/pdf/ccqanswers.htm>