Basal-Bolus Insulin and Carbohydrate Counting

Diabetes Care and Research Program
## Important telephone numbers

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diabetes Clinic:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Diabetes Specialist:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Nurse Practitioner/Nurse:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Registered Dietitian:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Pharmacist:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Family Doctor:</strong></td>
<td></td>
</tr>
</tbody>
</table>
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How will this class help me?

This class will help you:

1. Understand what happens in your body when you have diabetes.
2. Learn about how a basal-bolus system works.
3. Learn about how Multiple Daily Injections (MDI) work versus using an insulin pump.
4. Set goals for your diabetes control and health to reduce health risks.
5. Learn how to care for your feet.
6. Identify foods that contain carbohydrate, also called “carbs”.
7. Learn how to count carbs at all of your meals and snacks using a variety of tools that include “Your Guide to Carbohydrate Counting”, food labels, scales, websites and restaurant guides.
8. Describe the effect of alcohol on blood sugars.
9. Think about problems or issues you may have with your current insulin plan.
10. Commit to collecting the information you need to evaluate your insulin doses.

Take a few minutes to think about how you are doing with your diabetes care now. What problems would you like to solve or is there anything you would like to discuss?

1. ________________________________________________
2. ________________________________________________
3. ________________________________________________
4. ________________________________________________
What is a Basal-Bolus system?

A basal-bolus system includes basal (background) insulin and bolus (carbohydrate or correction dose) insulin.

When you have diabetes, you take insulin by multiple daily injections or through an insulin pump because your pancreas is unable to make enough insulin.

Both ways mimic how a healthy pancreas works by matching insulin to the food you eat and activity you do.

For the system to be successful, you must:

- test your blood sugar
- count your carbohydrates, and
- adjust your insulin doses as needed
How the body uses sugar

You eat food.

↓

The food is broken down in the stomach and intestine. Much of it becomes sugar.

↓

The sugar enters the bloodstream and goes to all the cells in the body.

<table>
<thead>
<tr>
<th>What happens without diabetes</th>
<th>What happens with Type 1 diabetes</th>
<th>What happens with Type 2 diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>The pancreas, a gland near the stomach, makes a hormone called insulin.</td>
<td>The pancreas cannot make insulin.</td>
<td>The pancreas does not make enough insulin.</td>
</tr>
<tr>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>The insulin enters the bloodstream. Insulin acts like a key. It “opens the doors” to each cell, so sugar can get in.</td>
<td>Without insulin, the doors to the cells can’t be opened. Sugar can’t get inside. The amount of sugar in the blood gets too high.</td>
<td>Your body cannot use the insulin it makes. This is called <strong>insulin resistance</strong>.</td>
</tr>
<tr>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>The cells use sugar as “fuel” for energy.</td>
<td>The cells can’t use sugar for energy. The body must use fat for energy instead.</td>
<td>Your liver produces too much sugar.</td>
</tr>
<tr>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>As sugar enters the cells, the level of sugar in the blood decreases and there are no symptoms of diabetes.</td>
<td>When the blood sugar is too high and fat is used for energy, symptoms of diabetes develop.</td>
<td>Without the right amount of insulin, the doors to the cells cannot be opened. Sugar cannot get inside. The amount of sugar in the blood gets too high.</td>
</tr>
</tbody>
</table>
Types of Insulin

Basal insulin

- Refers to small amount of insulin that is made by your pancreas and is present all the time when you do not have diabetes.
- Keeps your blood sugar constant throughout the day and night.
- Usually makes up about ½ of the insulin that your body needs.

Basal insulin is the slow long acting insulin that provides a foundation of insulin over 24 hours.

Bolus insulin (carbohydrate or correction dose)

- Is the amount of insulin that usually is made by your pancreas in response to the carbohydrate (food) that you eat when you do not have diabetes.
- Keeps your blood sugar from rising too high after you eat (carbohydrates). Rapid acting insulins do not have their full effect as quickly as many think. They start to work almost right away, but the full effect to lower blood sugar takes longer.
- Usually makes up about ½ of the insulin that your body needs.

Bolus insulin is the fast acting insulin to work with the carbohydrate at meal and snack time.

Take this insulin before you eat.
You may need a correction dose of rapid insulin if your sugars are out of the target range. An example of this is if you did not take enough insulin the last time you ate or you were sick.

Correction doses should not be needed all the time if the baseline doses are set correctly.

<table>
<thead>
<tr>
<th>Basal Insulin</th>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPH or N</td>
<td>1 to 3 hours</td>
<td>5 to 8 hours</td>
<td>12 to 18 hours</td>
</tr>
<tr>
<td>Lantus</td>
<td>90 minutes</td>
<td>Peakless</td>
<td>24 hours</td>
</tr>
<tr>
<td>Levemir</td>
<td>90 minutes</td>
<td>Peakless</td>
<td>16 to 24 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bolus Insulin</th>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novorapid</td>
<td>10 to 15 minutes</td>
<td>1 to 2 hours</td>
<td>3 to 5 hours</td>
</tr>
<tr>
<td>Humalog</td>
<td>10 to 15 minutes</td>
<td>1 to 2 hours</td>
<td>3 to 5 hours</td>
</tr>
<tr>
<td>Apidra</td>
<td>10 to 15 minutes</td>
<td>1 to 2 hours</td>
<td>3 to 5 hours</td>
</tr>
<tr>
<td>Novolin (R)</td>
<td>30 minutes</td>
<td>2 to 3 hours</td>
<td>6.5 hours</td>
</tr>
<tr>
<td>Humulin (R)</td>
<td>30 minutes</td>
<td>2 to 3 hours</td>
<td>6.5 hours</td>
</tr>
</tbody>
</table>

Circle or highlight which basal and bolus insulin(s) you are taking.
How Multiple Daily Injection (MDI) works

When using MDI, you take both basal insulin and bolus insulin.

Total Daily Dose (TDD) comes from adding up both basal and meal (carbohydrate) bolus baseline doses.

These things may affect the action of rapid acting insulin:

- The site used. Insulin injected into the thigh or buttock may be slower to start working than a dose given in the abdomen.
- Scarred areas from overused injection sites (called hypertrophy) will change absorption.
- The blood flow to a site is increased with exercise or extreme heat.
- The larger the dose of insulin used, the longer the duration of insulin will be. A larger dose lowers blood sugar for a longer period of time.

For basal insulin:
- You take this insulin once or twice a day.
- The amount will depend on what you need over the day and night.
- The dose of this insulin does not change on a day to day basis.
- This insulin should be taken even if you are not eating or drinking, unless otherwise discussed with your diabetes educator.

For bolus insulin:
- You take rapid acting insulin before you eat or drink carbohydrates.
- You can change this dose to match the changes in the carbohydrate amounts you eat and/or drink.
- An insulin to carbohydrate ratio is used to match the carbohydrate (carb) content of food and/or drinks. One unit of rapid acting insulin will match to a certain amount of carbohydrate.
How Insulin Pump Therapy works

- Pumps are currently covered for individuals with Type 1 diabetes through the Assistive Devices Program (ADP).
- Pumps use only rapid acting insulin to provide basal (background) and bolus (meal or snack/carbohydrate) insulin.

**For basal insulin:**
- A tiny amount of rapid acting insulin (“a trickle”) is given all day long. The basal rate will depend on what you need over the day and night.
- You can change the rate using a ‘temporary basal rate’ feature.
- You may have different patterns for different days.

**For bolus insulin:**
- You take rapid acting insulin before you eat or drink carbohydrate.
- You can change this dose to match the changes in the carbohydrate amounts you eat and/or drink.
- An insulin to carbohydrate ratio is used to match the carbohydrate (carb) content of food and/or drinks. One unit of rapid acting insulin will match to a certain amount of carbohydrate.
- You may need a correction dose of rapid acting insulin if your sugars are out of target range.
- A bolus calculator helps you make an accurate dose decision. It tracks active insulin remaining from the last bolus.
How do you know if your basal-bolus insulin system is working?

1. Your blood sugar levels are as close to target as possible without causing many low and high blood sugars.
   - For most adults this means:
     - 4 to 7 mmol/L before meals.
     - 5 to 10 mmol/L 2 hours after meals. Between 5 to 8 is even better if you can safely get there without many low blood sugars.

2. Your quality of life is improved:
   - You have flexibility with food choices.
   - You can exercise without having many low blood sugars.
   - Other personal goals ______________________________
What is my A1C?

A1C is also called glycosolated hemoglobin. A1C shows the 3 month average blood sugar level before the test was taken. You do not have to fast before this test.

When your A1C result is less than 7%, you decrease your risk of complications.

The A1C is not the same as your blood sugar results.

The Canadian Diabetes Association recommends an A1C target of 7.0% or less for most adults.

What does the diabetes research tell us?

Research done in both type 1 diabetes and type 2 diabetes has shown us that blood sugar control matters – a lot!

In **Type 1 diabetes**, The Diabetes Control and Complications Trial (DCCT) and its long term follow up study Epidemiology of Diabetes Interventions Trial (EDIC), proved that good blood sugar control:

- Reduces the risk of eye disease (retinopathy) by 76%.
- Each 1% reduction in A1C lowers the risk for chronic complications (eye, kidney and nerve disease) of diabetes by 45%.

In **Type 2 diabetes**, the United Kingdom Prospective Diabetes Study (UKPDS), the largest clinical research study of diabetes ever done, proved that achieving both good blood sugar control and good blood pressure control:

- Reduces the risk of heart disease, stroke and death.
- Each 1% reduction in A1C lowers the risk for chronic complications (eye, kidney and nerve) of diabetes by 35%.
Staying healthy with diabetes and reducing health risks

Why am I at risk for problems?
When you have poorly controlled diabetes, you are at risk for developing problems such as a heart attack, stroke or nerve damage. You can help prevent these problems by having good control of your diabetes and seeing your health care provider regularly.

Blood vessels, heart and stroke
Diabetes may cause blood vessels to become narrow inside. This is called atherosclerosis. A build up of fat and other materials inside the blood vessels causes this problem. Atherosclerosis can lead to a heart attack or stroke.

You can help reduce your risk by:
- following a meal plan low in saturated fats
- following an activity program
- stopping smoking if you smoke
- taking medication when prescribed

Blood pressure
Diabetes may cause an increase in your blood pressure. High blood pressure can lead to a stroke. Have your blood pressure checked every doctor's visit. If you take medication for high blood pressure, take it regularly. If you smoke, try to stop as smoking can cause high blood pressure.

Beware of salt, as too much can increase your blood pressure.
Kidneys
Diabetes and high blood pressure can damage the tiny blood vessels in the kidneys that act as filters to remove waste. Good blood pressure and blood sugar control can help prevent damage. Medications are often used to protect the kidneys. Be sure to get yearly blood and urine tests to check your kidneys.

Eyes
There may be no signs that warn you when there is a problem with your eyes. A change in the blood vessels of your eyes is called retinopathy. Early discovery and treatment of retinopathy can prevent damage to your eyes. This is why you need to have your eyes checked each year by an eye doctor called an optometrist or eye specialist called an ophthalmologist.

The eye doctor or specialist will put drops in your eyes to dilate your pupils. He or she will look at the back of each eye to see if the blood vessels are changing. OHIP covers the cost of an optometrist visit every year.

Teeth
When you have diabetes, you can have problems with your teeth and gums because of the extra sugar in your blood.

You should brush and floss your teeth each day. You should see a dentist every 6 months. Tell your dentist that you have diabetes.
Caring for your feet

Why is caring for your feet so important?
Your feet need special care because you have diabetes. Over time, diabetes can cause problems with the nerves and blood vessels in your feet.

- Nerve damage can cause you to lose feeling in your feet. You may not notice that you have cut or injured your feet.
- Damaged blood vessels can reduce the blood flow to your feet. This can lead to cracked skin, poor healing and infections. Smoking can also reduce blood flow.

1. **Check your feet and legs each day**

Check your feet for:

- cuts, blisters and bruises
- corns or calluses
- dry, cracked skin
- thick, flaky toenails

Check your legs and feet for any pain, swelling or redness. Use a mirror to see the bottom of your feet. Don’t forget to look between your toes. If you have trouble checking your feet, ask someone to help you.

Call your family doctor, diabetes team or foot specialist if you notice:

- pain, swelling or redness in your legs or feet
- a cut, blister or bruise
- cracked skin, warts, corns or calluses
- ingrown or flaky toenails

Never treat warts, corns or calluses by yourself.
2. **Wash your feet each day**
Before you wash your feet, check the water with your elbow to make sure it is not too hot. Use a mild, unscented soap. Do not soak your feet. Rinse well and pat your feet dry. Remember to dry in between your toes.

3. **Put cream or lotion on your feet**
To keep your skin soft and smooth, put a thin layer of unscented cream or lotion on your feet. Do not put it between your toes as this may cause an infection.

4. **Wear socks and shoes that fit well**
Always wear socks and shoes. Do not go barefoot, even indoors. Cotton socks without seams are best. Change your socks each day.

   Before you put on your shoes:
   - smooth any wrinkles out of your socks
   - feel inside your shoes for any rough spots, bumps or objects

   Wear comfortable shoes that support your feet and have enough room for your toes. Do not wear shoes with pointed toes or high heels. A foot specialist can help you get shoes that fit properly.

5. **Protect your feet from heat and cold**
Wear shoes on hot surfaces such as pavement or sand. Do not use a hot water bottle or heating pad on your feet. Wear warm socks and boots when it is cold.
6. **Cut your toenails straight across**

   To prevent ingrown toenails, cut your toenails straight across.

   If you have trouble cutting your toenails, speak with your diabetes team. You may need help from a foot specialist.

7. **Keep the blood flowing**

   When you are sitting, keep your feet up if possible. Do not cross your legs at the knees or ankles. Do not wear socks or shoes that are too tight.

8. **Have the doctor check your feet at every visit**

   Ask your doctor to check your feet at each visit. The doctor will look for signs of problems, such as nerve or blood vessel damage. He or she may refer you to a foot specialist or recommend special shoes or orthotics (shoe inserts).

   Taking care of your feet can prevent most foot problems. This only takes a few minutes each day.
Caring for yourself

Refer to “My Diabetes Passport”.

Your target levels are goals to help reduce your risk of complications from diabetes. Ask your health care provider what your test results are and what they mean.

<table>
<thead>
<tr>
<th>Test</th>
<th>My values</th>
<th>Target Level</th>
<th>When to Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A\textsubscript{1}C (blood test)</td>
<td>Less than 7%</td>
<td>Every 3 months</td>
<td></td>
</tr>
<tr>
<td>Albumin to creatinine ratio (urine test)</td>
<td>Less than 2.0</td>
<td>Once a year</td>
<td></td>
</tr>
<tr>
<td><strong>B</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood pressure</td>
<td>130/80 or under</td>
<td>Every visit</td>
<td></td>
</tr>
<tr>
<td>Blood sugar (glucose)</td>
<td>4.0 to 7.0</td>
<td>Before meals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.0 to 10.0</td>
<td>2 hours after meals</td>
<td></td>
</tr>
</tbody>
</table>

Blood and urine tests for kidneys: These tests are ordered by your health care team based on your needs.

| **C** |           |              |              |
| Cholesterol: Total | Less than 4.2 | Once a year |
| Cholesterol: LDL (Bad) | Less than 2.0 | Once a year |
| Cholesterol: HDL (Good) | Greater than 1.3 | Once a year |
| Cholesterol: Total to HDL ratio | Less than 4.0 | Once a year |
| Cholesterol: Triglycerides | Less than 1.5 | Once a year |
## Other tests

<table>
<thead>
<tr>
<th>Test</th>
<th>When to Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>See your dentist once a year.</td>
</tr>
<tr>
<td>Dental</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Have a dilated eye examination once a year, or more often if needed. This annual exam is covered by the Ontario Ministry Health.</td>
</tr>
<tr>
<td>Eyes</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Check your feet daily. Have your health care provider check your feet at every visit.</td>
</tr>
<tr>
<td>Feet</td>
<td></td>
</tr>
</tbody>
</table>
Back to basics

**Baseline insulin doses** are the basal (background) and bolus (carbohydrate) insulin doses that get your blood sugars as close to target without many low and high blood sugars.

In order to determine your baseline insulin doses, it’s important to get “back to basics” for a short period of time. This will give you more flexibility later on.

“Back to basics” means being consistent in your routine by:

- Eating meals and snacks with a consistent amount of carbohydrate or following a meal plan.
- Checking your blood sugar levels at least 4 times per day (before each meal and at bedtime) and 2 hours after meals as needed.
- Keeping activity consistent.
Understanding carbohydrate counting

What happens when you eat?

When you eat, food breaks down into carbohydrate, protein and fat. Carbohydrates affect your blood sugar.

Carbohydrates include:
- fibre
- sugar
- starch

Carbohydrates are also called “carbs”.

Refer to your Guide to Carbohydrate Counting to:
- identify foods that contain carbohydrate
- go over label reading
What is carbohydrate counting?

Carbohydrate counting is an approach to meal planning.

When you know the amount of carbohydrate in your meal, you can match the amount of bolus insulin you need to the carbohydrate that you will eat. Matching meals to insulin helps you to adjust the amount of insulin you take at each meal.

The amount of bolus insulin you will need will vary depending on the amount of carbohydrate you eat. For example, if you eat three apples, you will need three times the amount of insulin that you would need if you ate just one apple.

The more carbohydrate you eat, the more bolus insulin you need. Work with your health care team to determine your correct insulin dose.

Weight gain

One of the advantages of carbohydrate counting is flexibility of diet and lifestyle. With this flexibility, however, there is a risk of weight gain or unhealthy eating. Since you can increase your meal bolus to maintain good diabetes control, you may be tempted to treat yourself to high calorie desserts or large portions of your favourite foods. It is important for you to meet with a registered dietitian to discuss nutrition and exercise guidelines that are right for you.
Which foods contain carbohydrates?

Look at the foods in the meals and snacks below.

Place a check mark (✓) next to the foods that contain carbohydrate.

<table>
<thead>
<tr>
<th>☐ corn</th>
<th>☐ potato</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ sugar-free cookies</td>
<td>☐ honey</td>
</tr>
<tr>
<td>☐ skim milk</td>
<td>☐ coffee (black) with artificial sweetener</td>
</tr>
<tr>
<td>☐ green beans</td>
<td>☐ fish</td>
</tr>
<tr>
<td>☐ apple juice (unsweetened)</td>
<td>☐ chick peas</td>
</tr>
<tr>
<td>☐ french fries</td>
<td>☐ margarine</td>
</tr>
<tr>
<td>☐ rice</td>
<td>☐ crackers</td>
</tr>
<tr>
<td>☐ bread</td>
<td>☐ diet soda</td>
</tr>
<tr>
<td>☐ jello</td>
<td>☐ ice cream</td>
</tr>
<tr>
<td>☐ cereal</td>
<td>☐ popcorn</td>
</tr>
<tr>
<td>☐ orange</td>
<td>☐ peach</td>
</tr>
<tr>
<td>☐ yogurt</td>
<td>☐ broccoli</td>
</tr>
<tr>
<td>☐ cheese</td>
<td>☐ kidney beans</td>
</tr>
<tr>
<td>☐ chicken with breading</td>
<td>☐ gravy</td>
</tr>
<tr>
<td>☐ ketchup</td>
<td>☐ cashews</td>
</tr>
</tbody>
</table>
# Practice time: label reading

## How to count grams of carbohydrate on a food label:

1. Read the Nutrition Facts.
2. Look for serving size at the top.
3. Look for the carbohydrate grams. Subtract the fibre grams from the carbohydrate grams. This equals the available carbohydrate in the serving size.

### Old Mill

**Nutrition Facts**

<table>
<thead>
<tr>
<th>Amount</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>220</td>
</tr>
<tr>
<td>Fat 1.5 g</td>
<td>2%</td>
</tr>
<tr>
<td>Saturated 0.3 g</td>
<td>2%</td>
</tr>
<tr>
<td>+ Trans 0 g</td>
<td>2%</td>
</tr>
<tr>
<td>Cholesterol 0 mg</td>
<td>0%</td>
</tr>
<tr>
<td>Sodium 430 mg</td>
<td>18%</td>
</tr>
<tr>
<td>Carbohydrate 39 g</td>
<td>13%</td>
</tr>
<tr>
<td>Fibre 4 g</td>
<td>15%</td>
</tr>
<tr>
<td>Sugars 3 g</td>
<td></td>
</tr>
<tr>
<td>Protein 9 g</td>
<td></td>
</tr>
</tbody>
</table>

**Per 1 bagel (85 g)**

1. Serving size: 1 bagel
2. Carbohydrate grams: 39 g
   Subtract Fibre grams: 4 g
   = 35 grams of available carbohydrate

### Dempster's

**Nutrition Facts**

<table>
<thead>
<tr>
<th>Amount</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>240</td>
</tr>
<tr>
<td>Fat 2 g</td>
<td>3%</td>
</tr>
<tr>
<td>Saturated 0.2 g</td>
<td>1%</td>
</tr>
<tr>
<td>+ Trans 0 g</td>
<td>1%</td>
</tr>
<tr>
<td>Cholesterol 0 mg</td>
<td>0%</td>
</tr>
<tr>
<td>Sodium 410 mg</td>
<td>17%</td>
</tr>
<tr>
<td>Potassium 60 mg</td>
<td>2%</td>
</tr>
<tr>
<td>Carbohydrate 47 g</td>
<td>16%</td>
</tr>
<tr>
<td>Fibre 2 g</td>
<td>8%</td>
</tr>
<tr>
<td>Sugars 4 g</td>
<td></td>
</tr>
<tr>
<td>Protein 8 g</td>
<td></td>
</tr>
</tbody>
</table>

**Per 1 bagel (90 g)**

1. Serving size: __________
2. Carbohydrate grams: ________
   Subtract Fibre grams: ________
   = ___ grams of available carbohydrate

### Country Harvest

**Nutrition Facts**

<table>
<thead>
<tr>
<th>Amount</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>150</td>
</tr>
<tr>
<td>Fat 1 g</td>
<td>2%</td>
</tr>
<tr>
<td>Saturated 0.2 g</td>
<td>1%</td>
</tr>
<tr>
<td>+ Trans 0 g</td>
<td>1%</td>
</tr>
<tr>
<td>Cholesterol 0 mg</td>
<td>0%</td>
</tr>
<tr>
<td>Sodium 340 mg</td>
<td>14%</td>
</tr>
<tr>
<td>Potassium 75 mg</td>
<td>2%</td>
</tr>
<tr>
<td>Carbohydrate 30 g</td>
<td>10%</td>
</tr>
<tr>
<td>Fibre 1 g</td>
<td>5%</td>
</tr>
<tr>
<td>Sugars 3 g</td>
<td></td>
</tr>
<tr>
<td>Protein 5 g</td>
<td></td>
</tr>
</tbody>
</table>

**Per 1/2 bagel (56 g)**

1. Serving size: __________
2. Carbohydrate grams: ________
   Subtract Fibre grams: ________
   = ___ grams of available carbohydrate

If I eat a whole bagel

= _____ grams available carbohydrate
## More on Nutrition Labels

<table>
<thead>
<tr>
<th>Example 1</th>
<th>Example 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nutrition Facts</strong></td>
<td><strong>Nutrition Facts</strong></td>
</tr>
<tr>
<td>Ice Cream Bar</td>
<td>No Sugar Added Ice Cream Bar</td>
</tr>
<tr>
<td><strong>Per bar (80 g)</strong></td>
<td><strong>Per 1 Bar (77 g)</strong></td>
</tr>
<tr>
<td><strong>Amount</strong></td>
<td><strong>Amount</strong></td>
</tr>
<tr>
<td>Calories 210</td>
<td>Calories 210</td>
</tr>
<tr>
<td>Carbohydrate 21 g</td>
<td>Carbohydrate 20 g</td>
</tr>
<tr>
<td>Fibre 2 g</td>
<td>Fibre 1 g</td>
</tr>
<tr>
<td>Sugars 17 g</td>
<td>Sugars 8 g</td>
</tr>
<tr>
<td>Sugar Alcohol</td>
<td>Sugar Alcohol 6 g</td>
</tr>
</tbody>
</table>

Carbohydrate: ____ g  
Subtract Fibre: − ____ g  
Available carbohydrate = ____ g  

Carbohydrate: ____ g  
Subtract Fibre: − ____ g  
Subtract Sugar Alcohol − ____ g  
Available carbohydrate = ____ g
Combination foods

How much carbohydrate (carbs)?

Example 1

Minestrone soup (2 cups)

¼ cup kidney beans  ____ g
¼ cup pasta  ____ g
¾ cup vegetable stock  ____ g
¼ cup stewed tomatoes  ____ g
¼ cup carrots  ____ g
¼ cup corn  ____ g
Salt and pepper  ____ g
Italian seasoning  ____ g
1 tbsp onion  ____ g

Total carbohydrate: =  ____ g
Example 2

1 small pizza slice

- Crust ____ g
- Sauce ____ g
- Cheese ____ g
- Pepperoni ____ g
- Mushrooms ____ g
- Peppers ____ g

Total carbohydrate: = ____ g

How many slices would I eat? ________________________

Total amount of carbohydrate:
_____ slices x ____ g carbohydrate per slice = ____ g carbohydrate
Non-calorie sweeteners

Non-calorie sweeteners do not contain carbohydrates and do not affect blood sugar levels.

<table>
<thead>
<tr>
<th>Common names for non-calorie sweeteners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saccharin</td>
</tr>
<tr>
<td>Sweet’N Low</td>
</tr>
<tr>
<td>Aspartame</td>
</tr>
<tr>
<td>Equal or Nutra Sweet</td>
</tr>
</tbody>
</table>
Eating out

Using measuring cups to measure your portions when eating at home will make carbohydrate counting much easier when eating out. Many restaurants, including fast food chains, provide nutrient information for their food items. If the carbohydrate content is not available, refer to a carbohydrate counting resource (book or website) and use it to find the food and the grams of carbohydrate.

Eating out exercise

1. Take a guess at the carbohydrate content when eating out.

2. Use nutritional information from restaurant to determine actual carbohydrate content.

Typical meal when eating out:

<table>
<thead>
<tr>
<th>Food or drink and amount</th>
<th>Guess carbohydrate content</th>
<th>Actual carbohydrate content</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Counting carbohydrates at restaurants

Many restaurants have nutrition information on their websites. Below are some examples.

<table>
<thead>
<tr>
<th>Restaurant</th>
<th>Website</th>
<th>Telephone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arbys</td>
<td><a href="http://www.arbys.com">www.arbys.com</a></td>
<td>905-672-2729</td>
</tr>
<tr>
<td>Boston Pizza</td>
<td><a href="http://www.bostonpizza.com">www.bostonpizza.com</a></td>
<td>604-270-1108</td>
</tr>
<tr>
<td>Burger King</td>
<td><a href="http://www.burgerking.com">www.burgerking.com</a></td>
<td>1-877-271-0493</td>
</tr>
<tr>
<td>Country Style</td>
<td><a href="http://www.countrystyle.com">www.countrystyle.com</a></td>
<td>1-800-563-6688</td>
</tr>
<tr>
<td>Dairy Queen</td>
<td><a href="http://www.dairyqueen.com">www.dairyqueen.com</a></td>
<td>905-639-1492</td>
</tr>
<tr>
<td>Dennys</td>
<td><a href="http://www.dennys.ca">www.dennys.ca</a></td>
<td>905-791-8168</td>
</tr>
<tr>
<td>Dominos</td>
<td><a href="http://www.dominos.ca">www.dominos.ca</a></td>
<td>1-866-703-1151</td>
</tr>
<tr>
<td>East Side Marios</td>
<td><a href="http://www.eastsidemarios.com">www.eastsidemarios.com</a></td>
<td>1-800-361-3111 ext. 268</td>
</tr>
<tr>
<td>Edo Japan</td>
<td><a href="http://www.edojapan.com">www.edojapan.com</a></td>
<td>1-888-336-9888</td>
</tr>
<tr>
<td>Harveys</td>
<td><a href="http://www.harveys.ca">www.harveys.ca</a></td>
<td>1-877-439-1122</td>
</tr>
<tr>
<td>KFC</td>
<td><a href="http://www.kfc.com">www.kfc.com</a></td>
<td>1-866-664-5696</td>
</tr>
<tr>
<td>Kelseys</td>
<td><a href="http://www.kelseys.ca">www.kelseys.ca</a></td>
<td>1-877-439-1133</td>
</tr>
<tr>
<td>Licks</td>
<td><a href="http://www.lickshomeburgers.com">www.lickshomeburgers.com</a></td>
<td>416-362-5425</td>
</tr>
<tr>
<td>McDonalds</td>
<td><a href="http://www.mcdonalds.ca">www.mcdonalds.ca</a></td>
<td>1-800-244-6227</td>
</tr>
<tr>
<td>Mr. Greek</td>
<td><a href="http://www.mrgreek.com">www.mrgreek.com</a></td>
<td>416-444-3266</td>
</tr>
<tr>
<td>Restaurant</td>
<td>Website</td>
<td>Telephone Number</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Mr. Sub</td>
<td><a href="http://www.mrsub.ca">www.mrsub.ca</a></td>
<td>1-800-688-7827</td>
</tr>
<tr>
<td>Pizza Delight</td>
<td><a href="http://www.pizzadelight.ca">www.pizzadelight.ca</a></td>
<td>1-877-853-0990</td>
</tr>
<tr>
<td>Pizza Hut</td>
<td><a href="http://www.pizzahut.ca">www.pizzahut.ca</a></td>
<td>1-866-664-5696</td>
</tr>
<tr>
<td>Pizza Pizza</td>
<td><a href="http://www.pizzapizza.ca">www.pizzapizza.ca</a></td>
<td>416-967-1010</td>
</tr>
<tr>
<td>Quiznos</td>
<td><a href="http://www.quiznos.ca">www.quiznos.ca</a></td>
<td>1-877-481-7827</td>
</tr>
<tr>
<td>Second Cup</td>
<td><a href="http://www.secondcup.com">www.secondcup.com</a></td>
<td>1-877-212-1818</td>
</tr>
<tr>
<td>Starbucks</td>
<td><a href="http://www.starbucks.com">www.starbucks.com</a></td>
<td>1-800-782-7282</td>
</tr>
<tr>
<td>Subway</td>
<td><a href="http://www.subway.ca">www.subway.ca</a></td>
<td>1-800-888-4848</td>
</tr>
<tr>
<td>Swiss Chalet</td>
<td><a href="http://www.swisschalet.ca">www.swisschalet.ca</a></td>
<td>1-866-450-2903</td>
</tr>
<tr>
<td>Taco Bell</td>
<td><a href="http://www.tacobell.ca">www.tacobell.ca</a></td>
<td>1-800-822-6235</td>
</tr>
<tr>
<td>Teriakyi Experience</td>
<td><a href="http://www.teriakyiexperience.com">www.teriakyiexperience.com</a></td>
<td>1-800-555-5726</td>
</tr>
<tr>
<td>Tim Hortons</td>
<td><a href="http://www.timhortons.com">www.timhortons.com</a></td>
<td>1-888-601-1616</td>
</tr>
<tr>
<td>The Keg</td>
<td><a href="http://www.kegsteakhouse.com">www.kegsteakhouse.com</a></td>
<td>416-695-2400</td>
</tr>
<tr>
<td>Wendys</td>
<td><a href="http://www.wendys.com">www.wendys.com</a></td>
<td>905-849-7685</td>
</tr>
<tr>
<td>Williams Fresh Café</td>
<td><a href="http://www.williamsfreshcafe.com">www.williamsfreshcafe.com</a></td>
<td>519-752-4850</td>
</tr>
</tbody>
</table>

At the date of printing, these restaurants’ websites did not have nutrition information. Check to see if they have added this information. If not, go to their “Contact Us” section on their website or phone them and ask whether they can send you the information.
Diabetes and alcohol

If you wish to drink alcohol when you have diabetes, you will need to ask your doctor these questions:

- Can I drink alcohol?
- How much should I drink?
- What can I drink?

Do not drink alcohol without talking to your doctor. He or she knows your medical history, and how well your diabetes is controlled. Your doctor will let you know if you can have alcohol.

Once you know you can drink alcohol, it is important to learn about:

- The effect of alcohol on the control of your diabetes.
- How to avoid running the risk of having a low blood sugar.

You must be 19 years of age or older to legally drink alcohol in Ontario.
How does alcohol affect my diabetes?

The alcohol moves from your stomach into your blood.

↓

The liver starts to break it down.

↓

If you drink alcohol faster than the liver is able to break it down, the alcohol builds up in your blood. When your blood alcohol level is high, your liver will work very hard to lower it.

↓

If in addition to drinking alcohol, your blood sugar goes low from lack of food or from extra activity like dancing, the pancreas will make a hormone called glucagon.

↓

Glucagon causes the liver to make more sugar. If the liver is too busy breaking down the alcohol, it will not react to the glucagon to make more sugar.

↓

The symptoms of low blood sugar can look like the signs of being drunk. You and people around you may not even realize that your blood sugar is low.

↓

If your blood sugar goes too low, you can become unconscious. Glucagon by injection may not work if you have been drinking a lot of alcohol.
How do I help to prevent the risks?

Tips to drink alcohol safely:

- Follow your normal diabetes routine such as testing, taking insulin or other medications and regular meals. This will help you keep your blood sugars stable.

- Wear a bracelet showing you have diabetes and tell the people in your life that you have diabetes. Let them know the symptoms of a low blood sugar and what to do if it happens.

- Always carry:
  - your glucometer and test your sugar, especially if you start to feel the symptoms of low blood sugar.
  - a source of simple carbohydrate with you (such as hard candies, juice box, dextrose tablets) and tell people where it is.

- If you are going to drink alcohol, have it with food. Be sure to eat more if you are active, such as dancing.

- Never take extra insulin for alcohol.

- Drink slowly - this will prevent alcohol build-up in your blood.

- Stretch drinks with mixers that do not contain carbohydrates such as diet pop, water and soda water.

- Alternate alcoholic and non-alcoholic drinks.

- Limit your drinks to 1 or 2 at one time. Take no more than 14 drinks/week for a man and 9 drinks/week for a woman.

- Test your blood sugar before going to bed. If it is low, eat a snack with carbohydrate before you go to bed.

- When you wake up, follow your normal diabetes routine such as testing, taking insulin or other medications and regular meals. Carry a source of simple carbohydrate with you even after breakfast, because there is still a risk of low blood sugar.
### Carbohydrate and alcohol content of selected drinks

<table>
<thead>
<tr>
<th>Drink</th>
<th>Carbohydrate Content</th>
<th>Alcohol Content</th>
<th>Calorie Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 oz Regular Beer (5 to 6% alcohol)</td>
<td>10 to 13 g</td>
<td>15 g</td>
<td>135 to 150 kcal</td>
</tr>
<tr>
<td>12 oz Light Beer (3 to 4% alcohol)</td>
<td>5 to 9 g</td>
<td>10 to 11 g</td>
<td>90 to 120 kcal</td>
</tr>
<tr>
<td>12 oz Low Carb Beer, such as Sleeman Clear (4% alcohol)</td>
<td>2.5 g</td>
<td>11 g</td>
<td>90 kcal</td>
</tr>
<tr>
<td>1 ½ oz Whiskey, Rye, Scotch, Gin, Rum, Vodka</td>
<td>0 g</td>
<td>15 g</td>
<td>105 kcal</td>
</tr>
<tr>
<td>1 ½ oz Brandy or Cognac</td>
<td>0 g</td>
<td>15 g</td>
<td>105 kcal</td>
</tr>
<tr>
<td>5 oz Dry Red or White Wine (0)</td>
<td>0 g</td>
<td>13 g</td>
<td>100 kcal</td>
</tr>
<tr>
<td>3 oz Dry Sherry</td>
<td>0 g</td>
<td>15 g</td>
<td>105 kcal</td>
</tr>
<tr>
<td>12 oz Wine Cooler</td>
<td>30 to 43 g (flavours vary)</td>
<td>13 g</td>
<td>200 to 280 kcal</td>
</tr>
</tbody>
</table>

*Never take extra insulin for alcohol.*
Holiday Time – Let’s Count Carbs

Let’s put a meal together.

Now practice filling in the carbohydrate content of the following meals. Use a carbohydrate counting guide to look up the carbohydrate content of this meal.

<table>
<thead>
<tr>
<th>Food</th>
<th>Carbohydrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 oz turkey</td>
<td>______________ grams</td>
</tr>
<tr>
<td>2 tbsp gravy</td>
<td>______________ grams</td>
</tr>
<tr>
<td>1 cup mashed potatoes</td>
<td>______________ grams</td>
</tr>
<tr>
<td>1 tbsp cranberry sauce</td>
<td>______________ grams</td>
</tr>
<tr>
<td>1 small dinner roll</td>
<td>______________ grams</td>
</tr>
<tr>
<td>1 tsp margarine</td>
<td>______________ grams</td>
</tr>
<tr>
<td>½ cup cooked asparagus</td>
<td>______________ grams</td>
</tr>
<tr>
<td>½ cup peas and carrots</td>
<td>______________ grams</td>
</tr>
<tr>
<td>½ cup stuffing</td>
<td>______________ grams</td>
</tr>
<tr>
<td>5 oz glass of wine or 1 bottle</td>
<td>______________ grams</td>
</tr>
<tr>
<td>of beer (341 ml)</td>
<td></td>
</tr>
<tr>
<td>1 slice of pie</td>
<td>______________ grams</td>
</tr>
</tbody>
</table>

Total Carbohydrate: ______________ grams
Carbohydrate consistency

We encourage you to be consistent with the amount of carbohydrate that you eat at each of your meals and match it with set insulin doses. Carbohydrate consistency is important to determine or assess your carbohydrate to insulin ratio.

Your dietitian can help you set carbohydrate goals.

Let’s carb count! Sample carbohydrate counting

<table>
<thead>
<tr>
<th>Food</th>
<th>Portion size</th>
<th>Grams of carbohydrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example – sandwich lunch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bread, whole wheat</td>
<td>2 slices</td>
<td>30 g</td>
</tr>
<tr>
<td>Chicken breast</td>
<td>2 oz</td>
<td>0 g</td>
</tr>
<tr>
<td>Margarine</td>
<td>1 tsp</td>
<td>0 g</td>
</tr>
<tr>
<td>Carrot sticks</td>
<td>½ cup</td>
<td>4.5 g</td>
</tr>
<tr>
<td>Green grapes</td>
<td>½ cup</td>
<td>15 g</td>
</tr>
<tr>
<td>Milk</td>
<td>1 cup</td>
<td>15 g</td>
</tr>
<tr>
<td>Tea/coffee</td>
<td>1 cup</td>
<td>0 g</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>64.5 g</strong></td>
</tr>
</tbody>
</table>
Carbohydrate counting resources

Online carbohydrate food lists

- www.CalorieKing.com
- www.nutritiondata.com
- www.myfitnesspal.com

Smart phone applications

- Myfitnesspal
- Calorie King

It is important to have tools to help you determine how much carbohydrate you are eating. You may find some of the following tools helpful.

1. Hamilton Health Sciences “Your Guide to Carbohydrate Counting”.

2. Reading food labels helps to determine total carbohydrates.


4. Health Canada’s Nutrient Value of some common foods can be found at: http://webprod3.hc-sc.gc.ca/cnf-fce/index-eng.jsp to view online or order.


6. Scales with a Nutrient Database, such as Salter Scale, Starfrit
Books to help with carbohydrate counting

- The Complete Guide to Carb Counting, by Hope S. Warshaw and Karmeen Kulkarni
- The Complete Book of Food Counts, by Corinne Netzer
- The Calorie King, Calorie Fat and Carbohydrate Counter, by Allan Borushek – www.CalorieKing.com
- The Guide to Healthy Restaurant Eating, by Hope S. Warshaw
- Calories and Carbohydrates, by Barbara Kraus

Measure your carbohydrate servings whenever you can with measuring cups and/or a scale. This will help you to remember portion sizes when you are not at home and unable to measure.
Be a diabetes detective!

For 3 to 5 days (in a row), write down these in your “Food and Diabetes Log Book”.

1. What you eat and drink and the time of day:
   - Be sure to note the portion sizes. You may need to use measuring cups and food scales to be accurate.
   - Record the grams of carbohydrate in all your foods and drinks.

2. Your insulin doses:
   - Write down each time you take insulin (meal and correction) and include the dose.

3. Your blood sugar levels:
   - Test your blood sugar levels at least 4 times per day (before each meal and at bedtime).
   - If you are worried about low blood sugar levels at night, you may want to check your blood sugar at 3 am.

4. Comments:
   - Use this section to include details about your activity (what, when, how long), level of stress, illness or eating out.
### Answers

**Page 20**

**Which foods contain carbohydrates?**

| ✓ corn                  | ✓ potato                  |
| ✓ sugar-free cookies   | ✓ honey                   |
| ✓ skim milk            | coffee (black or with artificial sweetener) |
| ✓ green beans          | fish                      |
| ✓ apple juice (unsweetened) | ✓ chick peas              |
| ✓ french fries         | margarine                 |
| ✓ rice                 | ✓ crackers                |
| ✓ bread                | diet soda                 |
| ✓ jello                | ✓ ice cream               |
| ✓ cereal               | ✓ popcorn                 |
| ✓ orange               | ✓ peach                   |
| ✓ yogurt               | ✓ broccoli                |
| ✓ cheese               | ✓ kidney beans            |
| ✓ chicken with breading | ✓ gravy                   |
| ✓ ketchup              | ✓ cashews                 |
### Practice time: label reading

**How to count grams of carbohydrate on a food label:**

1. Read the **Nutrition Facts**.
2. Look for serving size at the top.
3. Look for the carbohydrate grams. Subtract the fibre grams from the carbohydrate grams. This equals the available carbohydrate in the serving size.

#### Old Mill

<table>
<thead>
<tr>
<th>Nutrition Facts</th>
<th>Per 1 bagel (85 g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount Calories</td>
<td>220</td>
</tr>
<tr>
<td>Fat 1.5 g</td>
<td>2%</td>
</tr>
<tr>
<td>Saturated 0.3 g</td>
<td>0%</td>
</tr>
<tr>
<td>+ Trans 0 g</td>
<td>2%</td>
</tr>
<tr>
<td>Cholesterol 0 mg</td>
<td>0%</td>
</tr>
<tr>
<td>Sodium 430 mg</td>
<td>18%</td>
</tr>
<tr>
<td>Carbohydrate 39 g</td>
<td>13%</td>
</tr>
<tr>
<td>Fibre 4 g</td>
<td>15%</td>
</tr>
<tr>
<td>Sugars 3 g</td>
<td></td>
</tr>
<tr>
<td>Protein 9g</td>
<td></td>
</tr>
</tbody>
</table>

1. Serving size: 1 bagel
2. Carbohydrate grams: 39 g
   Subtract Fibre grams: 4 g
   = 35 grams of available carbohydrate

#### Dempster’s

<table>
<thead>
<tr>
<th>Nutrition Facts</th>
<th>Per 1 bagel (90 g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount Calories</td>
<td>240</td>
</tr>
<tr>
<td>Fat 2 g</td>
<td>3%</td>
</tr>
<tr>
<td>Saturated 0.2 g</td>
<td>0%</td>
</tr>
<tr>
<td>+ Trans 0 g</td>
<td>1%</td>
</tr>
<tr>
<td>Cholesterol 0 mg</td>
<td>0%</td>
</tr>
<tr>
<td>Sodium 410 mg</td>
<td>17%</td>
</tr>
<tr>
<td>Potassium 60 mg</td>
<td>2%</td>
</tr>
<tr>
<td>Carbohydrate 47 g</td>
<td>16%</td>
</tr>
<tr>
<td>Fibre 2 g</td>
<td>8%</td>
</tr>
<tr>
<td>Sugars 4 g</td>
<td></td>
</tr>
<tr>
<td>Protein 8 g</td>
<td></td>
</tr>
</tbody>
</table>

1. Serving size: 1 bagel
2. Carbohydrate grams: 47 g
   Subtract Fibre grams: 2 g
   = 45 grams of available carbohydrate

#### Country Harvest

<table>
<thead>
<tr>
<th>Nutrition Facts</th>
<th>Per 1/2 bagel (56 g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount Calories</td>
<td>150</td>
</tr>
<tr>
<td>Fat 1 g</td>
<td>2%</td>
</tr>
<tr>
<td>Saturated 0.2 g</td>
<td>0%</td>
</tr>
<tr>
<td>+ Trans 0 g</td>
<td>1%</td>
</tr>
<tr>
<td>Cholesterol 0 mg</td>
<td></td>
</tr>
<tr>
<td>Sodium 340 mg</td>
<td>14%</td>
</tr>
<tr>
<td>Potassium 75 mg</td>
<td>2%</td>
</tr>
<tr>
<td>Carbohydrate 30 g</td>
<td>10%</td>
</tr>
<tr>
<td>Fibre 1g</td>
<td>5%</td>
</tr>
<tr>
<td>Sugars 3 g</td>
<td></td>
</tr>
<tr>
<td>Protein 5 g</td>
<td></td>
</tr>
</tbody>
</table>

1. Serving size: 1 bagel
2. Carbohydrate grams: 30 g
   Subtract Fibre grams: 1 g
   = 29 grams of available carbohydrate

If I eat a whole bagel
= 58 grams available carbohydrate
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**Nutrition Labels**

**Example 1**

<table>
<thead>
<tr>
<th>Nutrition Facts</th>
<th>Ice Cream Bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per bar (80 g)</td>
<td></td>
</tr>
<tr>
<td>Amount</td>
<td></td>
</tr>
<tr>
<td><strong>Calories</strong> 210</td>
<td></td>
</tr>
<tr>
<td><strong>Carbohydrate</strong> 21 g</td>
<td></td>
</tr>
<tr>
<td>Fibre 2 g</td>
<td></td>
</tr>
<tr>
<td>Sugars 17 g</td>
<td></td>
</tr>
</tbody>
</table>

Carbohydrate: 21 g  
Subtract Fibre: − 2 g  
Available carbohydrate = 19 g

**Example 2**

<table>
<thead>
<tr>
<th>Nutrition Facts</th>
<th>No Sugar Added Ice Cream Bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per 1 Bar (77 g)</td>
<td></td>
</tr>
<tr>
<td>Amount</td>
<td></td>
</tr>
<tr>
<td><strong>Calories</strong> 210</td>
<td></td>
</tr>
<tr>
<td><strong>Carbohydrate</strong> 20 g</td>
<td></td>
</tr>
<tr>
<td>Fibre 1 g</td>
<td></td>
</tr>
<tr>
<td>Sugars 8 g</td>
<td></td>
</tr>
<tr>
<td>Sugar Alcohol 6 g</td>
<td></td>
</tr>
</tbody>
</table>

Carbohydrate: 20 g  
Subtract Fibre: − 1 g  
= 19 g
Subtract Sugar Alcohol − 6 g  
Available carbohydrate = 13 g
### Combination foods

**How much carbohydrate (carbs)?**

<table>
<thead>
<tr>
<th>Item</th>
<th>Carbohydrate (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>⅛ cup kidney beans</td>
<td>7.50</td>
</tr>
<tr>
<td>⅛ cup pasta</td>
<td>7.50</td>
</tr>
<tr>
<td>¾ cup vegetable stock</td>
<td>0</td>
</tr>
<tr>
<td>⅛ cup stewed tomatoes</td>
<td>3.25</td>
</tr>
<tr>
<td>⅛ cup carrots</td>
<td>2.25</td>
</tr>
<tr>
<td>⅛ cup corn</td>
<td>7.50</td>
</tr>
<tr>
<td>Salt and pepper</td>
<td>0</td>
</tr>
<tr>
<td>Italian seasoning</td>
<td>0</td>
</tr>
<tr>
<td>1 tbsp onion</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total carbohydrate:** 28.0 g
### Page 24
1 small pizza slice

<table>
<thead>
<tr>
<th></th>
<th>Thin crust</th>
<th>Thick crust</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crust</td>
<td>15 g</td>
<td>30 g</td>
</tr>
<tr>
<td>Sauce</td>
<td>8 g</td>
<td>8 g</td>
</tr>
<tr>
<td>Cheese</td>
<td>0 g</td>
<td>0 g</td>
</tr>
<tr>
<td>Pepperoni</td>
<td>0 g</td>
<td>0 g</td>
</tr>
<tr>
<td>Mushrooms</td>
<td>0 g</td>
<td>0 g</td>
</tr>
<tr>
<td>Peppers</td>
<td>0 g</td>
<td>0 g</td>
</tr>
<tr>
<td><strong>Total carbohydrate</strong></td>
<td><strong>23 g</strong></td>
<td><strong>38 g</strong></td>
</tr>
</tbody>
</table>
**Holiday Time – Let’s Count Carbs**

<table>
<thead>
<tr>
<th>Food</th>
<th>Carbohydrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 oz turkey</td>
<td>0 grams</td>
</tr>
<tr>
<td>2 tbsp gravy</td>
<td>3 grams</td>
</tr>
<tr>
<td>1 cup mashed potatoes</td>
<td>30 grams</td>
</tr>
<tr>
<td>1 tbsp cranberry sauce</td>
<td>8 grams</td>
</tr>
<tr>
<td>1 small dinner roll</td>
<td>15 grams</td>
</tr>
<tr>
<td>1 tsp margarine</td>
<td>0 grams</td>
</tr>
<tr>
<td>½ cup cooked asparagus</td>
<td>4 grams</td>
</tr>
<tr>
<td>½ cup peas and carrots</td>
<td>6 grams</td>
</tr>
<tr>
<td>½ cup stuffing</td>
<td>15 grams</td>
</tr>
<tr>
<td>5 oz glass of wine or 1 bottle of beer</td>
<td>0 grams</td>
</tr>
<tr>
<td>of beer (341 ml)</td>
<td></td>
</tr>
<tr>
<td>1 slice of pie</td>
<td>45 to 60 grams</td>
</tr>
</tbody>
</table>

**Total Carbohydrate:** 126 to 141 grams
Your next appointment

Bring your “Food and Diabetes Log Book” to your next appointment with the dietitian:

Date and time: __________________________________________

Your dietitian will help you fine tune your baseline insulin doses and work with you to:

- set carbohydrate goals at your meals and snacks
- determine an insulin to carbohydrate ratio
- set blood sugar targets that work for you
- give you an insulin sensitivity factor
- evaluate your basal insulin dose