The information contained throughout this manual is based upon the Canadian Diabetes Association Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada, 2013

Looking After Diabetes was revised October, 2014 by the staff of the LiveWell Diabetes Program - Saskatoon Health Region
Saskatoon, Saskatchewan  Canada  S7N 0W8

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YOU ARE PART OF THE TEAM!

You should see your family doctor every three months. Take along your blood sugar records, any problems with low blood sugars and any questions that you have.

<table>
<thead>
<tr>
<th>Important Phone Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor</td>
</tr>
<tr>
<td>Dietitian</td>
</tr>
<tr>
<td>Diabetes Nurse</td>
</tr>
</tbody>
</table>

Look after your diabetes – it’s your health!

LiveWell Diabetes Program
Phone (306) 655-LIVE (5483)      Fax (306) 655-6758
Introduction

This book is about type 2 diabetes. It gives basic information that will help you to start with your diabetes care.

You will need to learn more than what is in this book. Your diabetes team (family doctor, nurse, dietitian, exercise therapist, social worker, and pharmacist) will help you to know how to manage your diabetes to fit with your way of life.

Learning about type 2 diabetes

Start Here …

➢ What is Diabetes?
➢ Meal Plan
➢ Checking Blood Sugars

Eating Out

Activity

Complications of Diabetes

Foot Care

Effects of Smoking

Stress Management

Illness

Label Reading

Health Care Checks

Pills / Insulin
Commonly Used Words in This Book
Commonly Used Words in this Book

A1C - is a blood test that measures the average amount of sugar attached to the red blood cells over the past 3 months. It is one of the best tests to check if your blood sugars have been in control over a period of time. If your A1C is less than 7%, it is a good indication that your treatment plan is working.

Carbohydrate – is an energy source for our bodies, mostly found in fruits, grains and starches, milk products and sweets. When carbohydrate is digested, it is broken down into sugars, which stimulates the pancreas to release insulin. The insulin carries the sugar into the body’s cells to be used as energy.

Random Blood Sugar – means that your blood sugar was checked at a random time of the day.

Diabetes – happens when the pancreas is not making insulin well enough or the insulin is not working well and blood sugar rises.

Fasting Blood Sugar – means that you have not had anything to eat or drink for more than 8 hours before checking your blood sugar.

Glucose – is another word for sugar. It is the “fuel” the body uses for energy.

Hypertension – high blood pressure. The recommended target for people with diabetes is < 130 / 80 mmHg

Insulin – a hormone made by the pancreas. It opens the doors to your body's cells. The blood sugar can then go into the cells to make energy.

Insulin Deficiency – occurs when the pancreas starts to get “pooped-out” and cannot keep up to the demand for insulin. At this point, the blood sugar levels start to rise.
**Insulin Resistance** – occurs when the cells of the body do not respond to insulin as well as they should and blood sugar has more trouble entering the cells. The body reacts by producing more and more insulin to help blood sugar get into the cells. At this point, the blood sugar levels are generally still within the normal range.

**Lipids** – Another word for “fats”

- **Cholesterol** - cholesterol is a necessary fat found in the blood. Too much cholesterol can add to the plaque build-up in your arteries. This will narrow or block arteries affecting blood flow. In combination with diabetes, this produces a much higher risk of heart disease.

- **HDL** (High Density Lipoprotein) is often called the “good” cholesterol. HDL acts like the body’s “garbage truck” by removing the “bad” cholesterol from the arteries.

- **LDL** (Low Density Lipoprotein) is the “bad” cholesterol (garbage). LDL contributes to the build-up called “hardening of the arteries” or “plaque”. Therefore, the aim is to keep the LDL numbers as low as possible. You may wish to discuss your readings with your doctor, nurse, dietitian, or exercise therapist.

- **Triglycerides** - another type of fat in the body. Large amounts of sugar or alcohol may raise triglycerides. You may also have high triglycerides if you are overweight, do not exercise regularly, or have poorly controlled diabetes.

**Microalbumin** – tiny amounts of protein leaked from the kidney into the urine

**Ophthalmologist** – eye specialist who can detect any changes diabetes may have caused to the back of the eye

**Oral Glucose Tolerance Test** – a blood test that is done after you have taken a sweetened drink provided by the lab. It is used to diagnose diabetes.

**Pancreas** – an organ in the body that makes insulin.
How Diabetes is Diagnosed
# How Diabetes is Diagnosed

Diabetes is diagnosed by a lab test when:

<table>
<thead>
<tr>
<th>Test Description</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Fasting Blood Sugar (8 hours)</em></td>
<td>Is greater than or equal to 7.0 mmol/L</td>
</tr>
<tr>
<td><em>Random Blood Sugar (any time of the day)</em></td>
<td>Is greater than or equal to 11.1mmol/L + symptoms of high blood sugars</td>
</tr>
<tr>
<td>2 hour blood sugar after taking 75 gm glucose drink</td>
<td>Is greater than or equal to 11.1mmol/L</td>
</tr>
<tr>
<td>A1C (%) in adults</td>
<td>Is greater than or equal to 6.5%</td>
</tr>
</tbody>
</table>

*Generally, a second test is done on another day to confirm the diagnosis of diabetes.*


---

What are some of the symptoms of high blood sugars?

- thirst
- frequent urination
- feeling tired
- blurred vision

Some people have no signs and symptoms of diabetes when they are diagnosed.
Understanding Type 2 Diabetes
Understanding Type 2 Diabetes

How does your body normally use sugar?
(Please refer to corresponding diagram on page 13)

1. When you eat food, it gets broken down in the stomach. The food then travels from your stomach into your intestine.
2. Some of the food that you eat gets broken down into glucose (or sugar) and then goes into your blood.
3. The increase in blood sugar in your blood and digestive system triggers the pancreas to release insulin.
4. Insulin helps to move the sugar from the blood into the cells of your body. The insulin acts like a key to let the sugar into the cells of the body. The cells need sugar for energy.
5. When there is too much sugar, it is stored in the liver or changed into fat. The liver releases some of the sugar into your blood when you are sleeping/fasting.

In people with insulin resistance, cells don’t respond to insulin as well as they should and blood sugar has more trouble entering the cells. The pancreas reacts by producing more and more insulin to help sugar get into the cells.

The pancreas can only produce extra insulin for a certain length of time, and then it tires out or cannot keep up to the demand. It is at this point, the blood sugar levels start to rise.

What happens when you have type 2 Diabetes?

The sugar is not able to leave the blood and get into the cells of your body as it should because:

1. Insulin Resistance “Rusty Cell Lock” – The body cells don’t respond to the insulin.
2. Insulin Deficiency “Pooped Out Pancreas” - Your pancreas does not make enough insulin.
3. “Leaky Liver” - Your liver puts sugar back into the blood when the extra sugar is not needed.

This causes the sugar to stay in the blood = high blood sugars.
Conditions Associated with Insulin Resistance

Type 2 Diabetes

Atherosclerosis (Heart & Blood Vessel Damage)

High Blood Pressure > 140/90

Impaired Glucose Tolerance “Pre Diabetes”

High Blood Fats (High Cholesterol Levels)

Body Weight - Increased waist measurement - Increased BMI

Acanthosis Nigricans (Darkened patches of skin)

PCOS (Polycystic ovary syndrome)
Irregular menstrual cycles, increased hair growth and body weight

Gout (High uric acid)
Insulin Resistance and Insulin Deficiency

1. Insulin Resistance
2. Insulin Deficiency

Type 2 Diabetes
**BLOOD SUGAR TARGETS**

- **Too High**
  - Target: 2 hours after meals 5.0 – 10.0 mmol/L
- **Target before meals**
  - 4 - 7
- **Too Low**
Checking your blood sugar levels

Checking your blood sugars at home with a blood sugar meter is an important step in controlling your diabetes.

How often and when should you check your blood sugars?

- A1C should be measured every 3 months; could be done every 6 months in people who are stable and at target
- People on insulin more than once a day, SMBG should be used as an essential part of diabetes self-management and should be checked at least 3 times a day and include both pre and post meal checks
- Type 2 taking once a day insulin and oral agents should check BG at least once a day at variable times
- For those not on insulin, recommendations should be individualized. When control is not achieved SMBG should be instituted and people taught to modify lifestyle and medications in response to SMBG values
- Blood ketone testing is preferred to urine ketone testing.

Check at different times during the day. If you always check at the same time every day (example: only first thing in the morning) you do not know what is happening with your blood sugars throughout the rest of the day.

Check one day before and 2 hours after breakfast, another day before and 2 hours after lunch, another day before and 2 hours after supper.

What should the results be?

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Normal Range</th>
<th>Target Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting or before meals (mmol/L)</td>
<td>4.0-6.0</td>
<td>4.0-7.0</td>
</tr>
<tr>
<td>2 hours after the beginning of the meal</td>
<td>5.0-8.0</td>
<td>5.0-10.0</td>
</tr>
<tr>
<td>A1C (Adults)</td>
<td>Less than 6.0%</td>
<td>Less than or equal to 7.0%</td>
</tr>
<tr>
<td>Frail or limited life expectancy</td>
<td></td>
<td>Less than or equal to 8.5%</td>
</tr>
</tbody>
</table>

Adapted from the Canadian Diabetes Association CPGs 2013

Your physician and diabetes educator may recommend individual targets for you. **Record your blood sugars in a logbook or use the Discovering Diabetes sheet included.**

Take your records to each of your medical appointments.
### Fasting blood sugar (before eating)  

<table>
<thead>
<tr>
<th>Breakfast food eaten</th>
<th>2 hr blood sugar</th>
<th>Before lunch blood sugar</th>
<th>Lunch food eaten</th>
<th>2 hr blood sugar</th>
<th>Before supper blood sugar</th>
<th>Supper food eaten</th>
<th>2 hr supper blood sugar</th>
<th>Bedtime blood sugar</th>
<th>Activity today &amp; Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Target Blood Sugars

- Fasting: 4 – 7
- Breakfast: 5 - 10
- Lunch: 4 – 7
- Supper: 5 – 10
- Bedtime: 4 – 7

### Normal Blood Sugars

- Fasting: 4 – 6
- Breakfast: 5 - 8
- Lunch: 4 – 6
- Supper: 5 – 8
- Bedtime: 4 – 6
Your diabetes will change over time. Depending on where your diabetes is at, will determine on which step you start. Not everyone starts at step 1 and goes through each step.
Eating Well with Diabetes
Eating Well with Diabetes

- Eat 3 balanced meals a day … breakfast, lunch and supper.
- Space these meals 4-6 hours apart
- Keep snacks between 0-15 grams carbohydrates. If snacks are part of your day some examples are: 1 fruit, ¾ cup low fat yogurt, 1 slice whole wheat toast
- Drink water, sugar free pop or sugar-free beverages instead of juice (even unsweetened) or regular pop.

Adapted from handout Tips for Weight Loss by the Clinical Subcommittee of the Chronic Disease Network and Access Program of the PAGC and its partners and funded by Aboriginal Health Transition Fund, 2009.
What a Balanced Meal Looks Like

- Vegetables: minimum 2 types
- Protein: chicken, fish, lean meat, beans, lentils
- Starch: rice, potato, pasta, grains, corn
- Fruit
- Milk: 8 oz
Your Diabetes Food Plan

- Include carbohydrate foods at each meal.
  - Most women need about 3-4 carbohydrate choices (45-60 grams) per meal
  - Most men need about 4-5 carbohydrate choices (60-75 grams) per meal.
  - The minimum intake of Carbohydrate is 9 choices (130g/day)
- Eat at least 3 meals/day at regular times and space meals no more than 6 hours apart. Individuals may benefit from a healthy snack.

Sugar Forming Foods (Carbohydrates)

1 serving = 15 grams of Carbohydrate = 1 carbohydrate choice (c = cup)

<table>
<thead>
<tr>
<th>Choose whole grains.</th>
<th>Fiber Rule: Total Carbohydrate – Fiber= available Carbohydrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain Products and Starches</td>
<td>Servings below contain 15 grams of carbohydrate:</td>
</tr>
<tr>
<td>1 slice bread</td>
<td>1 waffle/pancake (4&quot;)</td>
</tr>
<tr>
<td>½ bun, hamburger or hotdog bun</td>
<td>Cereal</td>
</tr>
<tr>
<td>½ c corn</td>
<td>¾ cooked oatmeal, Red River®, Sunny Boy®</td>
</tr>
<tr>
<td>½ english muffin, small bagel</td>
<td>¼ c All Bran®/All Bran Buds®</td>
</tr>
<tr>
<td>10 french fries (baked)</td>
<td>¾ c Bran Flakes®</td>
</tr>
<tr>
<td>1 small muffin (bran/oatmeal) (2&quot;)</td>
<td>½ c Raisin Bran®</td>
</tr>
<tr>
<td>½ c cooked pasta, couscous, barley, quinoa, bulgar</td>
<td>3/4 c MultigrainCheerios®</td>
</tr>
<tr>
<td>½ cup cooked dried peas, beans or lentils</td>
<td>½ c Shredded Mini Wheat(s)®</td>
</tr>
<tr>
<td>3 c popcorn (air popped)</td>
<td>Crackers</td>
</tr>
<tr>
<td>1 medium potato or ½ c potato</td>
<td>4 Melba Toast®</td>
</tr>
<tr>
<td>½ c cooked rice (brown, wild, white)</td>
<td>7 soda crackers</td>
</tr>
<tr>
<td>1 c soup (thick)</td>
<td>4 Triscuits®</td>
</tr>
<tr>
<td>1 tortilla, chapatti or roti (6&quot;)</td>
<td></td>
</tr>
</tbody>
</table>
### Fruits

Servings below contain 15 grams of carbohydrate:

<table>
<thead>
<tr>
<th>Serving</th>
<th>Carbohydrate (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 medium apple/orange/peach</td>
<td>15</td>
</tr>
<tr>
<td>1 small banana (about 4”)</td>
<td>15</td>
</tr>
<tr>
<td>½ c canned mixed fruit/applesauce</td>
<td>15</td>
</tr>
<tr>
<td>¼ c dried fruit</td>
<td>15</td>
</tr>
<tr>
<td>1 small grapefruit</td>
<td>15</td>
</tr>
<tr>
<td>15 grapes/cherries</td>
<td>15</td>
</tr>
<tr>
<td>2 medium kiwi</td>
<td>15</td>
</tr>
<tr>
<td>1 c blueberries/raspberries/saskatoons</td>
<td>15</td>
</tr>
</tbody>
</table>

### Milk and Alternatives

Servings below contain 15 grams of carbohydrate:

<table>
<thead>
<tr>
<th>Serving</th>
<th>Carbohydrate (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 c milk or plain soy beverage</td>
<td>15</td>
</tr>
<tr>
<td>1/3 c (100g) regular flavoured yogurt</td>
<td>15</td>
</tr>
<tr>
<td>½ c chocolate milk, flavoured soy beverage</td>
<td>15</td>
</tr>
<tr>
<td>4 tbsp skim milk powder</td>
<td>15</td>
</tr>
</tbody>
</table>

### Other Foods

Some of these foods are higher in fat and calories. Use in moderation.

Servings below contain 15 grams of carbohydrate:

<table>
<thead>
<tr>
<th>Serving</th>
<th>Carbohydrate (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>¼ cup ketchup</td>
<td>15</td>
</tr>
<tr>
<td>¼ cup sherbet/sorbet</td>
<td>15</td>
</tr>
<tr>
<td>½ cup ice cream</td>
<td>15</td>
</tr>
<tr>
<td>½ cup pudding, sugar-free</td>
<td>15</td>
</tr>
<tr>
<td>1 tbsp jam/jelly</td>
<td>15</td>
</tr>
<tr>
<td>1 tbsp honey, syrup, sugar</td>
<td>15</td>
</tr>
<tr>
<td>2 cookies, plain</td>
<td>15</td>
</tr>
<tr>
<td>2” square cake (unfrosted)</td>
<td>15</td>
</tr>
<tr>
<td>3 Doughnut holes, plain</td>
<td>15</td>
</tr>
<tr>
<td>7 large/30 sticks Pretzels</td>
<td>15</td>
</tr>
<tr>
<td>8 tortilla chips</td>
<td>15</td>
</tr>
<tr>
<td>15 potato chips</td>
<td>15</td>
</tr>
</tbody>
</table>
Non-Sugar Forming Foods (No Carbohydrates)

These vegetables are rich in nutrients and contain very little carbohydrate.

Vegetables

- asparagus
- beans (yellow/green)
- bean sprouts
- beets
- broccoli, cauliflower
- brussels sprouts
- cabbage
- carrots
- celery
- cucumber
- egg plant, zucchini
- egg plant
- lettuce/greens
- mixed vegetables
- mushrooms
- onions
- parsnips*
- peas*
- peppers
- squash*
- tomato

Eat these freely

* these foods provide 15 grams carbohydrates when 1 cup is eaten

Choose lower fat/lean meats and alternatives.

Choose some protein at each meal. At breakfast time try to choose a smaller portion.

Meat and Alternatives

- ¼ cup Canned fish
- ¼ cup Cottage cheese (1-2% MF)
- ½ cup Hummus
- ½ cup Tofu
- ½ cup Dried beans, dried peas, lentils
- 1 oz Hard cheese (<20% MF)
- 1 oz Protein
- 1 Processed cheese slice (<8% MF)
- 1-2 tbsp Nuts or seeds
- 1-2 tbsp Peanut butter or nut butters
- 1-2 Eggs
- Cooked fish, shellfish, poultry or lean meat

MF = Milk Fat
**FAT**

Always use fat in moderation. Choose healthy fats when you can.

A thumb-tip equals a teaspoon. Three thumb-tips equal a tablespoon.

Include a small amount: 2 – 3 tbsp of unsaturated fat each day.

This includes oil used for cooking, salad dressings, margarine and mayonnaise.

<table>
<thead>
<tr>
<th>Healthy Fats - unsaturated</th>
<th>Less Healthy Fats</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 tbsp Nuts (peanuts, almonds, walnuts, pecans)</td>
<td>2 tbsp Gravy</td>
</tr>
<tr>
<td>1 tbsp Seeds (sesame and sunflower)</td>
<td>2 tsp Creamy salad dressing or mayonnaise</td>
</tr>
<tr>
<td>½ tbsp Tahini</td>
<td>2 tbsp Light creamy salad dressing</td>
</tr>
<tr>
<td>1/6 Avocado</td>
<td>2 tbsp Cream (10% MF)</td>
</tr>
<tr>
<td>8 Olives (high in salt)</td>
<td>2 tbsp Sour cream, regular</td>
</tr>
<tr>
<td>1 tsp Oil (sunflower, corn, canola, olive)</td>
<td>4 tbsp Sour cream, light (7% MF)</td>
</tr>
<tr>
<td>1 tbsp Oil based salad dressing</td>
<td>1 tsp Butter, lard, hard margarine, shortening</td>
</tr>
<tr>
<td>2 tbsp Light oil based salad dressing</td>
<td>1 strip Bacon</td>
</tr>
<tr>
<td>1 tsp Margarine, non-hydrogenated</td>
<td>1 tbsp Cheese spread, cream cheese</td>
</tr>
<tr>
<td>2 tsp Light margarine (non-hydrogenated margarine)</td>
<td></td>
</tr>
</tbody>
</table>

Finding Carbohydrate Values

Using the Nutrition Facts Table

Step 1: Look at the serving size and compare this to the amount you eat. Are you eating more, less, or the same? For example: ½ cup (28g)

Step 2: The total amount of carbohydrates in grams is listed first. This number includes starch, sugars and fibre.

Step 3: Fibre does not raise blood sugar and should be subtracted from the total carbohydrate (i.e. 23 g carbohydrate – 7 g fibre = 16 g available carbohydrate.)
### Sample Meal Plan #1

**3 carbohydrate choices or 45 grams of carbohydrates per meal**

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>½ whole wheat bagel</td>
<td>(2 x 15g)</td>
</tr>
<tr>
<td>1 egg</td>
<td></td>
</tr>
<tr>
<td>Ham (1 oz)</td>
<td></td>
</tr>
<tr>
<td>Low fat milk (1 cup)</td>
<td>(1 x 15g)</td>
</tr>
<tr>
<td>Coffee/Tea/Water</td>
<td></td>
</tr>
</tbody>
</table>

**Total 45g**

<table>
<thead>
<tr>
<th>Lunch</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat, fish or chicken (2-3 oz)</td>
<td></td>
</tr>
<tr>
<td>Pasta or potatoes (1 cup)</td>
<td></td>
</tr>
<tr>
<td>Green salad</td>
<td></td>
</tr>
<tr>
<td>Low fat salad dressing (1 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Unsweetened canned fruit (1/2 cup)</td>
<td></td>
</tr>
<tr>
<td>Coffee/Tea/Water</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dinner</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat, fish or chicken (3-4 oz)</td>
<td></td>
</tr>
<tr>
<td>Whole wheat bun (1) or 2/3 cup cooked rice</td>
<td></td>
</tr>
<tr>
<td>Margarine (1 tsp)</td>
<td></td>
</tr>
<tr>
<td>Mixed vegetables</td>
<td></td>
</tr>
<tr>
<td>Low fat milk (1 cup)</td>
<td></td>
</tr>
<tr>
<td>Coffee/Tea/Water</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Meal Plan #2

**4 carbohydrate choices or 60 grams of carbohydrate per meal**

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oatmeal (3/4 cup cooked)</td>
<td>(1 x 15g)</td>
</tr>
<tr>
<td>Toast (1 slice)</td>
<td>(1 x 15g)</td>
</tr>
<tr>
<td>1 fruit (apple, orange, 15 grapes or 2 cups strawberries)</td>
<td>(1 x 15g)</td>
</tr>
<tr>
<td>Low fat milk (1 cup)</td>
<td>(1 x 15g)</td>
</tr>
<tr>
<td>Peanut butter (1 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Coffee/Tea/Water</td>
<td></td>
</tr>
</tbody>
</table>

**Total 60g**

<table>
<thead>
<tr>
<th>Lunch</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 sandwich</td>
<td></td>
</tr>
<tr>
<td>- 2 slices whole wheat bread</td>
<td></td>
</tr>
<tr>
<td>- lean meat, chicken, fish (2 oz)</td>
<td></td>
</tr>
<tr>
<td>- lettuce</td>
<td></td>
</tr>
<tr>
<td>- mayonnaise (1 tsp)</td>
<td></td>
</tr>
<tr>
<td>Soup (1 cup broth soup)</td>
<td></td>
</tr>
<tr>
<td>Carrots/peppers/celery</td>
<td></td>
</tr>
<tr>
<td>1 fruit or ½ cup low fat yogurt</td>
<td></td>
</tr>
<tr>
<td>Tea/Coffee/Water</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dinner</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Potatoes (1 cup) or pasta (1 cup) or rice (2/3 cup)</td>
<td></td>
</tr>
<tr>
<td>Vegetables (as much as you want)</td>
<td></td>
</tr>
<tr>
<td>Lean meat, fish or chicken (3 oz)</td>
<td></td>
</tr>
<tr>
<td>Low fat milk (1 cup)</td>
<td></td>
</tr>
<tr>
<td>1 fruit (1/2 cup fruit salad or 1 apple)</td>
<td></td>
</tr>
<tr>
<td>Tea/Coffee/Water</td>
<td></td>
</tr>
</tbody>
</table>

Adapted with permission from Type 2 DM Provincial Working Group 2010
What About Sodium?

- Sodium is a nutrient found mostly in table salt and processed foods; it is even found in some foods naturally.
- Some food examples that contain a lot of salt include ham, bacon, canned/packaged foods, soup, & snack foods
- While the body needs some sodium to function, too much may lead to
  - high blood pressure
  - major risk factor for stroke
  - heart disease
  - kidney disease

How Much Sodium Do We Need?

- Health Canada suggests a maximum of 2300 mg sodium per day for adults.
- Most people use far more than this.
- We only “need” half this amount (1150 mg/day).

Did you know?
1 tsp of salt = 2300 mg sodium

Adapted with permission from Type 2 DM Provincial Working Group 2010
Suggestions for Reducing Sodium Intake

A) Try To Make Foods from Scratch

- Make home made soups instead of canned or packaged soups. Make a large batch and freeze in plastic containers. Limit amount of sodium/salt. Use more herbs/spices/garlic/onion.

- Cook plain pasta and rice and flavour with spices and low sodium ingredients instead of pre-packaged mixes with sauce or seasonings already included.

- Try fresh or plain frozen meat, fish and poultry instead of processed, cured meats such as sausage, wieners, ham, bacon, pepperoni and smoked fish.

- Choose fresh or frozen vegetables instead of canned, unless they are salt-free. If using canned products, try rinsing them with water before cooking.

- Eat out in restaurants less often

B) Season without Salt

<table>
<thead>
<tr>
<th>Seasonings with Salt</th>
<th>Try these Instead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garlic salt</td>
<td>Garlic powder or fresh garlic</td>
</tr>
<tr>
<td>Onion salt</td>
<td>Onion powder or fresh onions</td>
</tr>
<tr>
<td>Seasoning salt</td>
<td>Mrs. Dash® (several varieties) or other “no salt added” seasonings</td>
</tr>
<tr>
<td>Lemon pepper</td>
<td>Pepper and lemon juice or McCormick’s Citrus &amp; Pepper</td>
</tr>
<tr>
<td>Soya sauce</td>
<td>Sodium reduced soya sauce and use less</td>
</tr>
<tr>
<td>Pickles</td>
<td>Cucumbers or beets in vinegar</td>
</tr>
</tbody>
</table>

* Watch out for Salt Substitutes. Many are high in potassium. Some people should avoid.
C) Read Labels and Compare Similar Foods

- Remember % Daily Value on a Nutrition Facts table tells you if there is a lot of a certain nutrient (greater than 15%) or a little of a nutrient (less than 5%) in a food product

Let's do an example; see labels below.

1. LOOK at the Serving Size and Ensure You are Comparing Similar Food Items
   - Compare the portion of food in the Nutrition Facts tables for each cracker label listed below.
     - Cracker A has 9 crackers (weighs 23 g)
     - Cracker B has 4 crackers (weighs 20 g)

2. READ the % Daily Values (% DV)
   - Since you are comparing crackers, let's look at the % DV for sodium.
     - Cracker A has 12% DV for sodium
     - Cracker B has 4% DV for sodium
     - Note: You could also compare the saturated and trans fat and fibre lines—what do you find?

3. CHOOSE
   - In this case, Cracker B would be a better choice if you are trying to eat less sodium as part of a healthy lifestyle

D) Note: Cracker B also is a better choice for less saturated and trans fat and more fibre too!!
What about Fat?

<table>
<thead>
<tr>
<th>Nutrition Facts</th>
<th>Per 1 cup (264 g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount</td>
<td>% Daily Value</td>
</tr>
<tr>
<td>Calories</td>
<td>260</td>
</tr>
<tr>
<td>Fat</td>
<td>13 g 20%</td>
</tr>
<tr>
<td>Saturated</td>
<td>3 g 25%</td>
</tr>
<tr>
<td>+ Trans</td>
<td>2 g</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>30 mg 28%</td>
</tr>
<tr>
<td>Sodium</td>
<td>660 mg 10%</td>
</tr>
<tr>
<td>Carbohydrate</td>
<td>31 g 15%</td>
</tr>
<tr>
<td>Fibre</td>
<td>0 g 0%</td>
</tr>
<tr>
<td>Sugars</td>
<td>5 g 4%</td>
</tr>
<tr>
<td>Protein</td>
<td>5 g</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>4%</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>2%</td>
</tr>
<tr>
<td>Calcium</td>
<td>15%</td>
</tr>
<tr>
<td>Iron</td>
<td>4%</td>
</tr>
</tbody>
</table>

A % DV of 5% or less is a low-fat choice

The DV is listed for saturated and trans fat together. A % DV of 10% or less would be low in these nutrients

What about Dietary Fibre?

- Helps with regularity
- May help to lower cholesterol
- May help to control blood sugar levels
- Promotes weight loss
Alcohol and Diabetes

You may be able to fit in alcoholic beverages occasionally IF:

1. Your blood sugars are usually well controlled
2. You are not pregnant or breast feeding
3. You do not have other health problems that alcohol may make worse

If you choose to drink alcohol remember that alcohol can:

- Worsen blood sugar control
- Increase weight
- Affect judgment
- Worsen health problems such as eye disease, kidney disease
- Damage liver, and brain and nerves over time
- Increase triglycerides, and blood pressure
- Dehydrate the body
- Lead to addiction

AND

- For people taking pills (secretagogues) and/or insulin to control blood sugars it can result in hypoglycemia (low blood sugar) for up to 24 hr after consuming it*

Carbohydrate and calorie content in some common alcoholic beverages (The amounts listed are a general guide only)

<table>
<thead>
<tr>
<th>Beverage</th>
<th>Standard serving size</th>
<th>Energy (kcal)</th>
<th>Carbohydrate content (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beer</td>
<td>Regular</td>
<td>12 fl. oz</td>
<td>147</td>
</tr>
<tr>
<td></td>
<td>Light</td>
<td>12 fl. oz</td>
<td>99</td>
</tr>
<tr>
<td>Spirits/Hard liquor</td>
<td></td>
<td>1.5 fl. oz</td>
<td>98</td>
</tr>
<tr>
<td>Wine</td>
<td>Regular</td>
<td>5 fl. Oz (12 % alcohol)</td>
<td>123-127</td>
</tr>
</tbody>
</table>
To reduce risks of problems related to drinking alcoholic beverages:

- Limit to 1 – 2 standard size drinks per day for adult males
- Limit to 1 standard size drink per day for adult women
- People taking pills and/or insulin to control blood sugars should know the symptoms, treatment and prevention of hypoglycemia.
- Talk to your diabetes educator or health professional about using alcohol.

For further information on Alcohol and diabetes, go to www.diabetes.ca
Diabetes and Exercise
Diabetes and Exercise

Staying active throughout the day with routine everyday activities is helpful, but additional exercise is important for people with diabetes. A regular exercise program along with meal plan and medication (if necessary) will help with blood sugar control.

What are some of the benefits of regular exercise and healthy eating?

1. Improves blood sugar control
2. Improves your cholesterol levels
   - Increases good cholesterol (HDL)
   - Decreases total cholesterol
   - Decreases triglycerides
   - Helps to decrease bad cholesterol (LDL)
3. May reduce your risk of developing complications associated with diabetes (i.e. eye, nerve, or kidney problems) by improving your blood sugar control.
4. Reduces your risk of developing heart disease and stroke (cardiovascular disease)
5. Reduces high blood pressure (hypertension)
6. Helps you with weight control and weight loss
7. Improves your overall fitness, flexibility and strength
8. Helps you cope with stress in a positive way
9. Improves your sleep
10. Improves your quality of life, (you are able enjoy your day) improves your self-esteem and your sense of well being

BE SURE TO TALK WITH YOUR DOCTOR
BEFORE BEGINNING ANY EXERCISE PROGRAM
How do I start an exercise program?

Warm-Up and Cool-Down

Warming up and cooling down are extremely important parts of your exercise program.

- Warming up allows your body (heart, lungs, and muscles) to gradually adjust to the activity and helps to prevent injuries.
- Cool down before stopping exercise. If you stop exercise suddenly, you may feel light-headed. This is because the blood may pool in your legs and there is less blood available for your head and your heart.
- Do 5 – 10 minutes of light activity (i.e. slow walking or biking) before and after your exercise session.

How much exercise can I do?

Use the FITT Principle to guide you. (Frequency, Intensity, Time, Type)

Frequency

3-7 times per week:

3 times/week is the minimum needed to reach the benefits discussed earlier. Daily, at a regular time, is best and helps the most with blood sugar control.

Intensity

Between a moderate and strong level for you (see RPE scale on following page)
Rate of Perceived Exertion (RPE Scale)

This scale helps you to tell how hard you are exercising. **Warm-up and cool-down activities** should be done at a 1 - 2 level (**very weak - weak**). The **main activity** component of your workout should be done between a 3 – 5 level (**moderate – strong**). These levels indicate how hard the exercise feels to **YOU**, not compared to anyone else. If you feel you are exercising at a level **above a 5 (strong)**, you should **lower the intensity of your exercise**.

<table>
<thead>
<tr>
<th>Scale of Perceived Exertion</th>
<th>What you might feel</th>
</tr>
</thead>
<tbody>
<tr>
<td>0  Nothing at all</td>
<td>The amount of exercise you feel you are doing while sitting at rest</td>
</tr>
<tr>
<td>1  Very weak (very easy)</td>
<td>Level of exercise that feels easy, light or weak to you. It doesn’t feel as if you are exerting yourself at all</td>
</tr>
<tr>
<td>2  Weak (easy)</td>
<td>Moderate or medium level of exercise for you. It feels as if you are working, but it is not strenuous or exhausting</td>
</tr>
<tr>
<td>3  Moderate</td>
<td>Hard or strong workout for you. You do not feel exhausted, but you are having a good, strong workout.</td>
</tr>
<tr>
<td>4  Somewhat strong (somewhat hard)</td>
<td></td>
</tr>
<tr>
<td>5  Strong (hard)</td>
<td>Very strong or very hard workout. You cannot keep up this pace for long and need to slow down</td>
</tr>
<tr>
<td>6  Maximal</td>
<td>Maximal exercise. You cannot continue any longer and must stop. You are exhausted.</td>
</tr>
<tr>
<td>7  Very Strong (very hard)</td>
<td></td>
</tr>
<tr>
<td>8  Very, very strong (very, very hard)</td>
<td></td>
</tr>
<tr>
<td>10 Maximal</td>
<td></td>
</tr>
</tbody>
</table>
Another way to measure the intensity is to use the TALK TEST – You should be able to have a conversation while you are exercising. If you are not able to talk while exercising, you are working too hard. If you are able to sing or whistle while you are exercising, you may be ready to increase your intensity. It is normal to feel tired up to 30 minutes after exercise. If you are tired for 2 – 3 hours after exercising, you may be working too hard or too long.

**Time**

15 – 60 minutes of continuous exercise (plus warm-up and cool-down). If you are not able to exercise for 15 minutes continuously, try shorter sessions such as 5 – 10 minutes at a time. Eventually, increase to one session of 15 minutes continuous exercise. Increase the time (duration) that you exercise as you are able.

**Type**

1. Aerobic / endurance exercises – 150 minutes moderate to vigorous exercise spread over 3 days. * no more than 2 consecutive days without.
   - This means any continuous, rhythmic exercise using your large muscle groups
   - i.e. walking, biking, swimming, aqua-aerobics, rowing, jogging, skating, cross-country skiing

2. Stretching exercises (approximately 10 minutes)
   - Should be done every time you exercise
   - Will help to decrease stiffness and avoid injuries
   - Try not to bounce, hold each stretch for 10 – 20 seconds
   - Avoid holding your breath
   - Do not stretch to the point of pain
   - Stretching to improve your flexibility is best done at the end of your exercise session when your muscles are warm.
3. Strengthening exercises (approximately 10 minutes) – Resistance at least 2 times a week
   - Light weights with more repetitions is better than heavy weights with few repetition (less chance of injury)
   - Avoid lifting extremely heavy weights (less chance of injury)
   - Avoid holding your breath (holding your breath may increase your blood pressure)
   - Move slowly in all directions
   - Maintain a good posture throughout

How Should I Increase My Exercise Program?

1. First, increase the number of days per week you exercise (frequency)
2. Second, increase the length of each exercise session (time)
3. Third, once you are feeling comfortable with exercising on most days of the week for approximately 60 minutes, gradually increase how hard you exercise (intensity)

NOTE: if you feel quite tired after your exercise session or even the next day, you may be progressing your exercise program too much or too soon. Try reducing the intensity of your exercise. If you still feel tired, reduce the length of time you are exercising.
Low Blood Sugars and Exercise
(Generally, only applies when taking insulin, insulin secretagogues and sometimes with DPP-4 Inhibitors or Meglitinides.)

- **Points to Remember**
  1. a low blood sugar may occur 4 – 6 hours after exercise
  2. avoid injecting insulin in areas that will be more active during exercise – try injecting into the abdomen or a less active area (muscles that are more active absorb insulin faster)
  3. carry extra “quick fix” carbohydrate food with you (i.e. “Lifesavers” or glucose tablets)
  4. if you are having frequent low blood sugar levels, notify and discuss this with your doctor or diabetes educator

- **How do I prevent a low blood sugar?**
  - Low blood sugars may
    1. happen if you exercise for a prolonged period of time
    2. happen if you have not eaten enough food for that amount of exercise
    3. be due to medication
  - You may need to decrease your insulin or increase food intake before exercise. Discuss these options with your doctor or diabetes educator.
  - Always carry a snack such as juice, sugar, glucose tablets, Life Savers (see section on “How to Treat a Low Blood Sugar” on page 46)

---

**DO NOT EXERCISE IF YOU ARE FEELING UNWELL!!**

- Your body needs time and energy to recover from illness. If you exercise while you are feeling unwell, it may make you feel worse or slow your recovery
- Avoid exercise if your blood sugars are extremely high and/or there are ketones present in your urine. If you are unsure, check with your doctor or diabetes educator
Key Points to Remember About Exercise!

Slow and gradual progress is key – try not to overdo it.

Choose an activity that you enjoy and have fun!!!

- Check your blood sugar levels before, immediately after, and 4 – 6 hours after exercise (especially if you are on insulin or diabetes pills)
- Know your signs and symptoms of low blood sugar
- Avoid exercising in extreme heat or cold – wear proper clothing
- Try to avoid saunas and hot tubs – they may cause burning of your skin or you may feel light-headed
- Check your feet daily for reddened spots/sores and watch for blisters/corns. Make sure you are wearing proper fitting and comfortable shoes
- Do not hold your breath while exercising/lifting
- Avoid exercise on a full stomach
- Wear a medical identification bracelet

What can I do if I am unable to walk or ride a bike due to other health concerns?

- Swimming and aqua aerobics are a good alternative for those with painful joints. The water helps support the joints and decreases the strain and discomfort during exercise
- Swimming is also a good activity for people who have decreased sensitivity in the feet and legs and helps avoid foot injuries
- Chair exercises:
  (a) Marching in place while sitting in a chair
  (b) Arm exercises while sitting in a chair
  (c) Combining arm and leg movements
  (d) All strengthening and stretching exercises can be done in a sitting position
• Strengthening exercises can be done with or without the use of added weights
• If you are limited in the distance you are able to walk, try walking in your home (i.e. back and forth down a hallway) – have a chair nearby to take rests if necessary
• If balance is a problem, use a cane or walker for assistance

* CONTACT YOUR DIABETES EDUCATOR, EXERCISE THERAPIST, OR FAMILY DOCTOR IF YOU HAVE ANY QUESTIONS OR CONCERNS*
Diabetes Medications
Diabetes Medications

If diet and exercise are not enough to control blood sugars, your doctor may add one or more diabetes pills to your regime.

1. Diabetes pills are not insulin
2. It is still important to follow your meal plan
3. Your diabetes pills will have more than one name.
4. It is best to take these pills with food.
5. Take your diabetes pills as directed. Your doctor may need to change your diabetes pills as your diabetes changes.
6. Always ask your doctor or pharmacist about other pills that you take. Other pills and supplements may change your blood sugar.

Diabetes Pills work in different ways. Some pills have more than one action.

1. Decreasing sugar supply from the liver.
   Examples of these pills:
   - Metformin (Glucophage, Glycon)
   - Metformin XR (Glumetza)
   - Januvia (Sitagliptin)
   - Trajenta (Linagliptin)
   - Victoza (Liraglutide) injection

2. Helping body cells accept insulin.
   Examples of these pills:
   - Glucophage (Metformin)
   - Avandia (Rosiglitazone)
   - Actos (Pioglitazone)

3. Helping the pancreas to make insulin
   Examples of these pills:
   - Diabeta (Glyburide)
   - Diamicron (Gliclazide)
   - Diamicron MR (Gliclazid)
   - Gluconorm (Repaglinide)
   - Januvia (Sitagliptin)
   - Trajenta (Linagliptin)
   - Victoza (Liraglutide) by injection

4. Slowing down sugar absorption
   Example of these pills:
   - Prandase (Acarbose, Glucobay)

Note: There are combinations of some diabetes pills. Examples of these combinations:
- Avandamet (Avandia + Metformin)
- Janumet (Januvia + Metformin)

(Ref: 2008 Clinical Practice Guidelines for Treatment of Diabetes)
Insulin

Many people will need to take insulin for blood sugar control as their diabetes changes.

Insulin helps sugar enter the body's cells where it is used for energy. When your body does not make enough insulin, you will need to take insulin by injection. Insulin cannot be taken by mouth.

When you take insulin, it is important that you eat regularly.

Insulin comes as a liquid in a bottle or cartridge. It is measured in units.

Kinds of Insulin

There are different kinds of insulin. Insulin can be clear or cloudy. Some kinds of insulin work quickly and others work more slowly. Many people take two kinds of insulin. Insulin can be taking from 1 to 5 times per day depending on what you need to control your blood sugars.
Types of Insulin

Mealtime insulin

1. Rapid-acting insulin (clear) – take just before eating
   - NovoRapid
   - Humalog
   - Apidra

2. Short-acting insulin (clear) - take 30 minutes before eating
   - Humulin R
   - Toronto

Basal / Background insulin – usually taken at breakfast and bedtime

1. Intermediate – acting (cloudy)
   - Humulin N
   - NPH

2. Long-acting (clear) – may be taken once or twice a day; if taken twice per day should be spaced 12 hours apart.
   - Levemir
   - Lantus

Note: There are also combinations (premixes) of some of the above insulins. Your diabetes educator, in consultation with your doctor, will determine if one of these is right for you.

Your insulin (s) is called:

1. Basal/Background: ________________________________
2. Meal time: ________________________________
Where to Keep Insulin

Keep your extra unopened insulin in the fridge door.

Do not let it freeze or get too hot.

The insulin you are using may be stored in the fridge or left at room temperature. It is good for one month only once the insulin is opened.

Methods of Taking Insulin

1. Insulin Pen
   - The type of insulin you take will determine the pen you use.

2. Syringes

   Your diabetes educator will teach you how to use the pen or syringe.
Where to Give Your Insulin
You can give your insulin in your stomach, arms, thighs and buttocks.

Injection Sites

- Stomach – this site gives the most consistent and fastest absorption.
- Outside back of the arms
- Outside top of the thigh (between the groin and knee)
- Buttocks
Injecting Insulin Using an Insulin Pen:
1. Prime pen (dial 2 units and shoot out into the air) then dial the dose.
2. Pick site
3. Pinch the skin if using 8 mm or longer needles
4. Poke – inject the insulin at a 90° angle (straight in).
5. Push – to deliver the insulin dose
6. Pause – wait 10 - 12 seconds to minimize insulin leakage
7. Pull out needle.
8. Do not rub the injection site.
9. Use the pen or syringe needle only once. Discard each into a sharps container. These are available at many pharmacies.
10. DO NOT use areas with scars, lumps or dips when giving your needle. Show these areas to your doctor.

Can Other Problems Occur at the Injection Sites?
Occasionally, when you begin to take insulin, red, itchy lumps may appear at the injection sites. This may last a few hours, or even for several days. They are caused by an allergic reaction to the insulin. This is usually temporary. If you need treatment at all, your doctor may prescribe antihistamine tablets – or suggest a different insulin.

Sometimes, there will be a little bleeding when you remove the needle – or a bruise will form later. This means that a small blood vessel close to the surface of the skin has been damaged. This is harmless and there is no cause for concern. If this seems to be happening often, lightly press a dry cotton ball over the spot when you remove the needle out of the skin. Do not rub the injection site.

You may notice some “leak-back” at the puncture site at the same time as you take out the needle. Do not try to measure and inject extra insulin to make up for this. To prevent this, be sure to count to at least 10 before removing the needle.
Needle Disposal Options:

Any needle you use to give yourself insulin or to test your blood sugar needs to be thrown into a special “Sharps” container available from your local pharmacy. When full, return to pharmacy or other recommended disposal location.
Low Blood Sugars
Low Blood Sugars

What is low blood sugar?
Blood sugar less than 4 mmol/L

What causes low blood sugars?
- Eating less than usual
- Delaying meals
- Poor balance of foods
- Too much diabetes pills or insulin
- Increased activity
- Drinking alcohol

What are the symptoms?
You may feel one or all of these suddenly:
- Shaking
- Sweating
- Headache
- Hunger
- Light-headed
- Irritable
- Nausea
- Blurred vision

Others might notice you are:
- Pale
- Sweaty
- Changing the way you behave
- Unsteady with your body movements

Later, you may:
- Feel numbness or tingling in your lips
- Be unable to think clearly
- Feel confused
- Become unconscious
What do you do to treat low blood sugars?

1. If you are feeling some of the symptoms of low blood sugars or not feeling well, check to confirm your blood sugar is less than 4 mmol/L.
2. If your blood sugar is less than 4 mmol/L or you are having symptoms and are unable to check at this time – stop and take one fast-acting sugar choice immediately.

Fast-Acting Sugar Choices Are:

- 4 glucose tablets
- ¾ cup regular pop or unsweetened juice
- 3 tsp honey, sugar or syrup
- 6 lifesavers or jelly beans (chew and swallow them quickly)

IMPORTANT: Always carry a fast-acting sugar source with you so that you are prepared to treat low blood sugar.

Other sources of sugar such as chocolate bars, donuts, etc. are not fasting-acting sugar choices and should not be used to treat low blood sugars. They have fat in them, which delays the sugar from getting into your bloodstream fast enough.

3. Re-check your blood sugar in 15 minutes. If your blood sugar is still less than 4, treat again. Keep treating until blood sugars are greater than 4.0 mmol/L.

4. If your next meal is more than 1 hour away, or you are going to be active, eat a snack that includes 15 grams carbohydrate and a protein.

Examples:
- Slice of bread with peanut butter
- 6-7 soda crackers with cheese
- Fruit with cheese

What if the low happens just before a meal?

Treat the low blood sugar with one of the fast acting sugar choices above and then eat your usual meal.
How Can You Prevent a Low Blood Sugar?

1. Eat meals and snacks on time.
2. Eat all the food on your meal plan.
3. Take your diabetes pills or insulin at the right time and in the right dose.
4. Alcohol can cause low blood sugar. Get information on the safe use of alcohol from your diabetes educator.
5. Let your doctor know if low blood sugar happens often. Your diabetes pills or insulin may need to be changed.
When You Need Medical Help!

Medic Alert
Medic Alert

Medic Alert is a bracelet or necklace you can wear to provide quick information in case of an emergency.

Phone: 1-800-668-1507 (English)
1-800-668-6381 (French)

Web: http://www.medicalert.org/shop/shopHome.htm

It could save your life

or the life of someone you love.
Diabetes and Illness
Diabetes and Illness

Control of your diabetes is easily upset by an illness such as a cold or flu. Usually blood sugars rise when a person with diabetes is ill.

WHY DOES BLOOD SUGAR RISE DURING ILLNESS?

Under any stress (such as illness) your liver releases its stored sugar into the blood stream. Your body is also unable to use the available insulin efficiently. This causes the blood sugar levels to rise.

Even if you cannot eat all the food on your meal plan, blood sugar may still rise. You will need to check your blood sugar more often.

DO I NEED TO TAKE INSULIN OR PILLS IF I CANNOT FINISH ALL THE FOOD ON MY MEAL PLAN?

Yes! During illness, you may require more than the usual amount of insulin injections. You may think that because you eat less food during illness, less insulin is needed, but remember …Even though you may not be eating all the food, there is often an increased flow of sugar from the breakdown of sugar stored in the liver. This can raise the blood sugar to very high levels, no matter how little you eat.

WHAT IF I AM NAUSEATED AND CANNOT EAT?

Try to eat carbohydrate foods on the meal plan. If you find it difficult to take any solid food, you can switch the carbohydrate choices to fluid form.

The diabetes educator will show you how to switch to a fluid meal plan on page 60. There are some fluid choices listed later in this section. Take some fluid every hour. If you live alone, set your alarm clock to remind yourself to take fluids hourly.

If you cannot take fluid, or if vomiting occurs, you may need temporary intravenous fluids and sugar with insulin. This can only be done in hospital. You must contact your doctor if you cannot take fluids or you begin to vomit. If you cannot reach your doctor, go to the hospital. Don’t delay in the hope that things will get better on their own!
CAN I LEARN TO ADJUST INSULIN DURING ILLNESS?

Yes! With experience, most people can learn to adjust their insulin dose during an illness. This prevents the blood sugar from going too high. Special guidelines for insulin adjustment during periods of illness are necessary. Until you gain confidence through experience, always get in touch with your doctor or diabetes educator to make sure what you are doing is correct.

Illness Day Rules

Blood glucose levels usually increase during illness:

- If you are on insulin, you may need more. Your doctor or diabetes educator will tell you how to adjust the dose.
- If you are on pills, you may temporarily need insulin to keep your blood sugar controlled during illness.

What to Do

1. Continue taking your insulin or diabetes pills.
2. Test your blood sugar at least every day before breakfast and before supper.
3. If you cannot eat solid foods, switch to a fluid meal plan.
4. If blood sugars are under 4.0 mmol/L, take ¾ cup unsweetened juice or ¾ cup regular ginger ale or 3 sugar cubes or 4 glucose tablets or 1 Tbsp honey.
5. Drink plenty of extra sugar free fluids (such as water, sugar-free soft drinks, clear broth and tea) to prevent dehydration.
6. Colds are viral infections that are best treated with rest, plenty of sugar free fluids and Tylenol for fever / aches. Colds generally last four to seven days.
7. Beware of over-the-counter cough and cold remedies. These may contain a lot of sugar. READ THE LABEL. SOME PRODUCTS SAY, “NOT RECOMMENDED FOR SOMEONE WITH DIABETES”. Check with your doctor or pharmacist to see which medications you can use safely.
When to Call the Doctor

- If your blood sugar levels are consistently over 14.0 mmol/L for more than one day
- If you are vomiting or have diarrhea for more than six hours
- If you are nauseated and cannot eat or drink
- If the illness lasts longer than 24 hours
- If you need to be fasting for specific tests or procedures (ex. Colonoscopy)

<table>
<thead>
<tr>
<th>Fluid Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Every hour take 1 choice</strong></td>
</tr>
<tr>
<td>15 grams carbohydrate</td>
</tr>
</tbody>
</table>

- ¾ cup regular ginger ale
- 1 cup soup
- ¾ cup cooked cereal
- 1 whole regular popsicle
- ¾ cup sweetened orange juice
- ½ cup unsweetened apple juice/unsweetened orange juice
- 1/3 cup plain ice cream or ice milk
- 1/3 cup regular Jello
- 1 cup milk (if tolerated)

Take lots of water, broth, tea, sugar-free pop or sugar-free Jello as well during the day.
Looking After Your Diabetes
Testing for Diabetes Care:
The following are important tests for basic diabetes care. Your doctor may recommend some tests more often than indicated. Target blood glucose and blood pressure levels may differ, depending on your health.

Know Your ABCDE’s of Diabetes Care

A = A1c Measure of blood sugar levels over the previous 2-3 months.  
  Target is 7% or lower
B = Blood Pressure Target is 130/80 mm/Hg or lower
C = Cholesterol LDL target is 2.0 mmol/L or lower  
  Total Cholesterol to HDL ratio 4.0 mmol/L or lower
D = Drugs to protect the heart: ACEi/ARB, Statins, and/or ASA.
E = Exercise – Regular physical activity and a balanced diet to achieve a healthy body weight.
S = Smoking Cessation

<table>
<thead>
<tr>
<th>When</th>
<th>What Test?</th>
</tr>
</thead>
<tbody>
<tr>
<td>At diagnosis</td>
<td>• Albumin/creatinine ratio (ACR)/Kidney tests performed at the lab</td>
</tr>
<tr>
<td></td>
<td>• Eye examination through dilated pupils by an eye specialist</td>
</tr>
<tr>
<td></td>
<td>• Nerve damage test: using a 10-g monofilament or 128-Hz tuning fork</td>
</tr>
<tr>
<td></td>
<td>• Cholesterol and other blood fat tests: a blood test</td>
</tr>
<tr>
<td>Approximately every 3 months</td>
<td>• A1C blood test</td>
</tr>
<tr>
<td></td>
<td>• Blood pressure</td>
</tr>
<tr>
<td></td>
<td>• Review of home blood glucose monitoring record</td>
</tr>
<tr>
<td>Every year</td>
<td>• ACR*/Kidney tests performed at the lab</td>
</tr>
<tr>
<td></td>
<td>• Foot examination at least once a year and sooner for skin wounds or sores that don’t heal quickly.</td>
</tr>
<tr>
<td></td>
<td>• Meter check against a lab fasting blood glucose test</td>
</tr>
<tr>
<td></td>
<td>• Eye examination by an eye specialist or optometrist – more often if eye disease is present</td>
</tr>
<tr>
<td>Every 1 to 2 years</td>
<td>• Eye exam by an eye specialist if no eye disease present (more often if disease present)</td>
</tr>
<tr>
<td></td>
<td>• Cholesterol and other blood fat tests – more often if treatment is initiated</td>
</tr>
<tr>
<td>Regularly /Periodically</td>
<td>• Questions about erection problems</td>
</tr>
<tr>
<td></td>
<td>• Questions about depression and/or anxiety</td>
</tr>
<tr>
<td></td>
<td>• Questions about healthy eating and physical activity</td>
</tr>
</tbody>
</table>

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Staying Healthy with Diabetes

Diabetes can lead to complications. Here are some basic health checks that you and your doctor can do to help reduce the risk for complications.

Health Check #1 – Weight
Aim for a healthy weight. A healthy weight will help to keep your blood sugar and blood pressure in control.

Health Check #2- Look after Your Feet Daily
Foot problems are common in people with diabetes. Diabetes affects the circulation and immune system making it more difficult for the body to heal itself. The key is prevention and viewing all foot conditions (e.g. blisters, cuts, etc.) as potentially serious.

A good daily foot care system will help to keep your feet healthy:

1. Look at the top and bottom of your feet every day for cuts, blisters, ingrown toenails, redness or swelling. You can use a hand mirror to look at the bottoms of your feet.
2. Wash your feet daily in warm water with a mild soap. Do not soak – this can dry your skin out.
3. Gently dry your feet, especially between the toes.
4. After your bath, gently sand calluses with a pumice stone. Do not cut corns or calluses.
5. Cut toenails straight across and file any sharp edges. Do not cut the nails too short.
6. Put lotion on the soles and heels of your feet. Avoid putting lotion between your toes, as too much moisture can cause infection.
7. Wear clean socks and well-fitted shoes. Do not walk barefoot.
8. DO NOT use heating pads or hot water bottles.
9. See your doctor if there are open, red or swollen areas, painful or numb areas, burning/tingling.

***Have your doctor check your feet at least once a year even if you do not have foot problems
Health Check #3 – A1C
Your A1C measures your blood sugar over the past 3 months. A1C is one of the best ways to check if your blood sugar levels are under control over a period of time.
It is recommended that your doctor order this laboratory test every 3 - 6 months. The result of the A1C is not the same as the average from your glucose meter. This test does not replace the need for your own blood sugar checking.

The goal for A1C is 7.0% or less. (Frail or limited life expectancy ≤ 8.5%)

Two major diabetes studies (The Diabetes Control and Complications Trial and the United Kingdom Prospective Diabetes Study) have shown that the complications of diabetes can be delayed or prevented by lowering A1C levels.

Health Check #4 – Blood Pressure
High blood pressure or hypertension prevention and treatment are key to preventing complications of diabetes (eye disease, heart disease, stroke, and kidney disease) Screening for high blood pressure should be done at least 2-3 times per year.

It is common for people with diabetes to be taking blood pressure lowering medications.

NOTE: The best time to buy shoes is at the end of the day.

The target for blood pressure is 130/80 mm/Hg or less

Health Check #5 – Regular Dental Checkups
People with well-controlled diabetes have no more dental problems than the general population. Visiting your dentist at least once per year for a check-up and cleaning are keys to prevention, in addition to brushing and flossing your teeth regularly.

Let your dentist know that you have diabetes.

Health Check #6 – Get the seasonal flu shot each year

Health Check #7 – Go for Regular Eye Exam by an Eye Specialist
Diabetic retinopathy is one of the leading causes of blindness. Regular eye exams are an important way to detect and treat retinopathy. Keeping your blood sugars in control is an important way to prevent retinopathy.
You need to have an eye exam with an ophthalmologist at diabetes diagnosis and then every 1-2 years.

**Health Check #8 – Have your Blood Lipid Levels Checked Regularly**

Having diabetes increases the risk of cardiovascular disease. Test your cholesterol and triglyceride levels yearly or more often if elevated. It is common for people with diabetes to be taking lipid lowering medications.

<table>
<thead>
<tr>
<th>Lipid Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LDL</strong>: less than 2.0 mmol/L</td>
</tr>
<tr>
<td><strong>Total Cholesterol/HDL Ratio</strong>: less than 4.0 mmol/L</td>
</tr>
<tr>
<td><strong>HDL</strong>: more than 1.0 mmol/L</td>
</tr>
<tr>
<td><strong>Triglycerides</strong>: less than 1.5 mmol/L</td>
</tr>
</tbody>
</table>

**Health Check #9 – Regular Urine Testing for Kidney Function**

Early detection of kidney disease is important. Testing your urine microalbumin and albumin/creatinine ratio once per year checks your kidney function.

**Health Check #10 – Lab to Meter Check**

Take your meter to the lab once per year. Do a check on your blood glucose meter at the same time as the lab does a blood glucose test. This can help check the accuracy of your blood glucose meter.

Ref: Canadian Journal of Diabetes – Canadian Diabetes Association 2013 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada.)
Smoking & Diabetes

The Facts

The risk of having heart disease in cigarette smokers is 2-3 times greater than that of non-smokers. These risks increase with the number of cigarettes smoked daily and the number of years of smoking. Having diabetes and smoking increases your risks for heart disease. The good news is "Quitting can reduce the extra risk of further heart attack by 50% in the first year, and almost completely in five to ten years."

There are many resources and support services that help smokers quit and stay quit.

Resources for Quitting Smoking

- Community Addiction Services
  (306) 655-4100

- SK smokers Helpline
  1-877-513-5333

- Smoke-Free Canada Clinics
  1-866-556-3255

- Saskatchewan Lung Association
  1-888-556-5864
  www.lung.ca/smoking

- Go Smoke Free e-quit
  Health Canada
  www.gosmokefree.ca

- Pharmacists of SK
  www.skpharmacists.ca
  (306) 359-7277
  Fax: (306) 352-6770
When Smokers Quit

Once you’ve quit, reap the rewards.

Within 8 hours of quitting:
Carbon monoxide levels drop, oxygen levels go back to normal.

Within 48 hours of quitting:
The chances of having a heart attack start decreasing, and the senses of taste and smell start improving.

Within 72 hours of quitting:
Bronchial tubes relax, which makes breathing easier, and lung capacity increases.

Within 2 weeks to 3 months of quitting:
Blood circulation gets better, and lung function improves by as much as 30%.

Within 6 months of quitting:
Coughing, tiredness, sinus congestion, and shortness of breath all improve.

Within 1 year of quitting:
The risk of heart attack due to smoking falls to half that of someone who still smokes.

Within 10 years of quitting:
The risk of dying from lung cancer falls to half that of someone who still smokes.

Within 15 years of quitting:
The risk of dying from a heart attack becomes the same as for someone who has never smoked.

And right from the start:
- Your food may taste better.
- You may have more energy.
- Your breath, clothes, and hair won’t smell like smoke.
- You may save about $2,150 per year.
- You may feel more in control, now that you’re not dependent on cigarettes.

Source: Health Canada

*Based on an online national survey conducted by Leger Marketing between August 30 and September 20, 2006. 1440 randomly selected respondents aged between 18 and 65 answered the question: “On average, how much money do you spend per week on cigarettes, rounded to the nearest dollar?” The weekly average was $41.50.

CA0108CH021E
Depression and Diabetes

Having diabetes can lead to depression in some individuals. The diagnosis of diabetes and the challenges of trying to control blood sugar are major stressors, which could contribute to depression. In addition, big swings in your blood sugar levels can affect your emotions.

Mild depression is a normal reaction to being diagnosed with diabetes as long as it does not last too long. If you are experiencing depression for more than two weeks, you should talk to your health care provider. There are resources to help you overcome depression – you don’t have to just live with it!

Signs and Symptoms of Depression:

People with depression can experience both emotional and physical symptoms.

<table>
<thead>
<tr>
<th>Emotional Signs</th>
<th>Physical Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sadness throughout the day</td>
<td>• Fatigue and lack of energy</td>
</tr>
<tr>
<td>• Loss of pleasure or interest in the things you used to enjoy</td>
<td>• Changes in appetite and or weight</td>
</tr>
<tr>
<td>• Feelings of emptiness, hopelessness and worthlessness</td>
<td>• Headache</td>
</tr>
<tr>
<td>• Feeling stressed or overwhelmed</td>
<td>• Sleeping too much or too little</td>
</tr>
<tr>
<td>• Difficulty concentrating</td>
<td>• Digestive problems</td>
</tr>
</tbody>
</table>

Poorly controlled blood sugars can have similar symptoms to depression. Therefore, people with diabetes may not realize that they are depressed.

It is important to talk to your physician or diabetes educator to help you deal with the depression before it starts to interfere with your quality of life and diabetes management.
Complications of Diabetes

The complications of diabetes can be reduced by blood sugar control. Complications from having high blood sugars develop slowly over time.

Having high blood sugars can cause damage to:

<table>
<thead>
<tr>
<th>Possible Complication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Large Blood Vessels - Macrovascular Complications</strong></td>
</tr>
<tr>
<td>• Heart attack</td>
</tr>
<tr>
<td>• Stroke</td>
</tr>
<tr>
<td>• Poor circulation to feet and hands</td>
</tr>
<tr>
<td>• Loss of limbs</td>
</tr>
<tr>
<td><strong>Small Blood Vessels - Microvascular Complications</strong></td>
</tr>
<tr>
<td>• Loss of vision (retinopathy)</td>
</tr>
<tr>
<td>• Kidney Failure (nephropathy)</td>
</tr>
<tr>
<td><strong>Nerves</strong></td>
</tr>
<tr>
<td>• Numbness or pain in feet and hands (neuropathy)</td>
</tr>
<tr>
<td>• Loss of balance and changes in the shape of the feet</td>
</tr>
<tr>
<td>• Poor bladder emptying</td>
</tr>
<tr>
<td>• Erectile dysfunction in males</td>
</tr>
<tr>
<td>• Decreased sexual sensation in females</td>
</tr>
<tr>
<td>• Poor bowel control – diarrhea/constipation</td>
</tr>
<tr>
<td>• Poor stomach emptying – nausea can occur</td>
</tr>
</tbody>
</table>

Blood sugar levels kept close to normal most of the time can prevent or delay these complications.

**Other factors can contribute to the increased risk of complications. These factors include:**

- Family history of heart disease
- High cholesterol levels
- High blood pressure
- Obesity
- Lack of physical activity
- Alcohol
- Smoking
- Stress

(Reference: Canadian Diabetes Association – Building Competency in Diabetes Education: The Essentials. 2009)
Diabetes: Complications

MACROVASCULAR
- Stroke
- Heart disease and hypertension
- Peripheral vascular disease
- Foot problems

MICROVASCULAR
- Diabetic eye disease (retinopathy/cataracts)
- Gastro-intestinal disease
- Renal disease
- Impotence
- Neuropathy
- Foot problems
- Depression

The keys to preventing the complications of diabetes are:

- Keep your blood sugars within target ranges
- Stop smoking
- Control your blood pressure
- Decrease your cholesterol levels
- Be active to maintain a healthy body weight
- Limit alcohol
- Find ways to deal with stress
Goal Setting
Goal Setting

Goal Setting and Action Plans

Setting realistic goals is an important part of managing your diabetes. Often the goals we set for ourselves are too big and so we feel overwhelmed. This makes it difficult to work toward achieving the goal. A goal is more likely to be achieved when it is broken down into smaller steps.

Steps for Setting Goals or Action Plans

When you are planning a trip, you use a road map to get to your destination. You break your trip into smaller pieces, making decisions like which roads to take, where you are going to stop to eat and rest. Setting goals should be similar to this – broken down into smaller tasks.

1. **Something YOU want to do** (not what someone else thinks you should do)
2. **It needs to be achievable.** – Is it realistic?
3. **It needs to be action-specific** – example, losing weight is not an action or behaviour, but walking for 20 minutes each day is an action
4. **Answer the questions:**
   a. **What?** (for example: decreasing portions at meals; going to the gym)
   b. **How much?** (example: going to the gym 3 times per week)
   c. **When?** (example: Tuesday, Thursday and Saturday mornings)
   d. **How often?** Be realistic – don’t set yourself up for failure. (example: 3 times per week)
5. **How confident are you that you will achieve your goal?** (example: Ask yourself on a scale of 1 no confidence to 10 = total confidence, how confident am I that I will complete my action plan)

In writing your action plan, be sure it includes

1. what you are going to do,
2. how much you are going to do,
3. when you are going to do it, and
4. how many days a week you are going to do it.

For example: This week, I will walk (what) around the block (how much) before lunch (when) three times (how many).

This week I will _______________________________ (what)

_______________________________ (how much)

_______________________________ (when)

_______________________________ (how many)

How confident are you? (0 = not at all confident; 10 = totally confident) ___________

[Just a note: You may want to make copies of this form.]

<table>
<thead>
<tr>
<th></th>
<th>Check Off</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
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<td>Wednesday</td>
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<td>Thursday</td>
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<td>Friday</td>
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<td>Saturday</td>
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<tr>
<td>Sunday</td>
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</tbody>
</table>

**Becoming an Active Self-Manager:**

1. Decide what you want to accomplish.
2. Look for alternative ways to accomplish this goal.
3. Start making short-term plans by making an action plan or agreement with yourself.
4. Carry out your action plan.
5. Check the results.
6. Make changes as needed.
7. Remember to reward yourself.

**Reward Yourself:**

The best part of being a good self-manager is the reward that comes from accomplishing your goals. However, don’t wait until your goal is reached; rather, reward yourself frequently. For example, decide that you won’t read the paper until after you exercise. Reading the paper becomes your reward. One self-manager who stopped smoking used the money he would have spent on cigarettes to have his house professionally cleaned. Rewards don’t have to be fancy, expensive or fattening. There are many healthy pleasures that can add enjoyment to your life.

(Adapted from the Building Resistance Manual, LiveWell Chronic Disease Management, Saskatoon Health Region, 2009)
Contact Information and Resources
Contact Information and Resources

Canadian Diabetes Association (CDA)
1-800-226-8464
www.diabetes.ca

LiveWell Diabetes Program
Saskatoon Health Region (306) 655-LIVE (5483)
Toll Free - 1-877-LIVE-898 (1-877-548-3898) OR
http://www.saskatoonhealthregion.ca/LiveWell / Programs and services / Diabetes

LiveWell with Chronic Conditions
To find a program in your area phone:
LiveWell Chronic Disease Management in Saskatoon:
OR Healthline 811

Saskatchewan HealthLine 811 www.healthlineonline.ca

National Aboriginal Diabetes Association

The First Step Program
655-6929 or 975-3121
LiveWell Programs Humboldt Rural Central Booking: 1-855-250-7070

Mental Health and Addiction Services - Saskatoon Health Region
Phone: (306) 655-4100

Other Useful Websites:

Dietitians of Canada www.dietitians.ca
Heart and Stroke Foundation www.heartandstroke.ca
Saskatchewan In Motion www.saskatchewaninmotion.ca/
Kidney Foundation of Canada www.kidney.sk.ca
The Road to Well-Being www.roadtowellbeing.ca
Saskatchewan Ministry of Health www.health.gov.sk.ca
Saskatchewan Prevention Institute www.preventioninstitute.sk.ca
LiveWell with Chronic Conditions

Who is it for: Individuals who have on-going (chronic) health conditions such as, but not limited to: cancer, chronic pain, arthritis, diabetes, heart disease, chronic lung disease, Parkinson’s disease, stroke/spinal cord injury, osteoporosis, multiple sclerosis, kidney disease and mental health conditions. This program also welcomes care givers.

Goals: To help participants live life to the fullest despite having a chronic condition. Mutual support and success build the participants’ confidence in their ability to manage their health and maintain active and fulfilling lives.

Service: Subjects covered include: 1) techniques to deal with problems such as frustration, fatigue, pain and isolation, 2) appropriate exercise for maintaining and improving strength, flexibility, and endurance, 3) appropriate use of medications, 4) communicating effectively with family, friends, and health professionals, 5) nutrition and, 6) how to evaluate treatments.

Cost: Free, participants also receive a free copy of the book “Living a Healthy Life with Chronic Conditions”

Schedule: 2.5 hours weekly for 6 consecutive weeks.

Contact: LiveWell CDM Program
655-LIVE (655-5483) (phone)
655-6758 (fax)
Rural Central Booking: 1-866-923-9953 (phone)
For more information on LiveWell Chronic Disease Management Programs
Phone: (306) 655-LIVE (655-5483)
TOLL FREE Phone: 1-877-LIVE-899 (1-877-548-3898)
Fax: (306) 655-6758
Email: live-well@saskatoonhealthregion.ca
Web: http://tinyurl.com/LiveWell-CDM