

Contact Information and Resources:

To Find a Diabetes Educator:

- Call your local Health Region.
- Call the HealthLine @ 811
- On Reserve call your local Community Health Clinic or Tribal Council.
- Ask your doctor or nurse practitioner.
- To find a LiveWell With Chronic Conditions Program call

1-877-LIVE-898 (1-877-548-3898)

For Diabetes Information Contact:

- Canadian Diabetes Association (CDA)
1-800-BANTING (226-8464) www.diabetes.ca
- Saskatchewan HealthLine
1-877-800-0002 www.healthlineonline.ca
- First Nations Inuit Health
(306) 780-5449 www.hc-sc.gc.ca/fnih-spni/index_e.html
- National Aboriginal Diabetes Association
1-877-232-6232 www.nada.ca

Websites:

Dietitians of Canada - www.dietitians.ca

Canada's Food Guide - www.healthcanada.gc.ca/foodguide

In Motion - www.in-motion.ca

International Diabetes Federation - www.idf.org

Kidney Foundation of Canada, Saskatchewan Branch -
www.kidney.sk.ca

Saskatchewan Ministry of Health - www.health.gov.sk.ca

Saskatchewan Prevention Institute - www.preventioninstitute.sk.ca



A Guide To Starting Insulin

For Adults with Diabetes

Information On:

- Blood Sugar Testing
- Types of Insulin
- How to do Insulin Injections
- Where to Inject
- Important Considerations
- Sick Day Management



References:

FIT Forum for Injection Technique Canada
Canadian Diabetes Assoc Clinical Practice Guideles
Type2 Diabetes: Your guide to Getting Started—Sask Health Provincial Resource

Developed by Loretta MacDonald, RN CDE
and Pallavi Kalagnanam, NS

Publisher Form #103560 06/14 Category: Patient Informaiton

About Insulin

- Insulin is a hormone produced by the pancreas to help your cells use glucose (sugar) for energy
- In Type 1 Diabetes the body makes little or no insulin therefore you must take insulin to meet the body's needs
- In Type 2 Diabetes:
 - Your body cannot use insulin properly
 - Your body does not make enough insulin
 - Your liver puts glucose back into the blood when it is not needed
- Type 2 Diabetes is a progressive disease, so the way you manage it will also change over time
- Diabetes management is about balancing food, activity, and medication to have a good quality of life

Remember:
Learning about diabetes is a journey—
you don't have to know it all at once



Sick Day Management

A Sick Day Kit Should Include:

- Blood sugar meter, lancets, and strips
- Over the counter medication (**talk to a pharmacist**)
 - Acetaminophen (Tylenol) - for pain and fever
 - Sugar free cough drops and syrup - for sore throat/cough
 - Dimenhydrinate (Gravol) - for nausea and vomiting
 - Loperamide (Imodium) - for diarrhea
- Sick day foods
- Glucose or dextrose tablets
- Emergency phone numbers
- Thermometer
- Hand Sanitizer
- Log book for records

Sick Day Foods (15g of carbohydrates each):

- 1 slice of bread or toast
- 7 soda crackers or 4 Melba toast
- $\frac{3}{4}$ cup hot cereal
- 1 cup chicken noodle soup
- 1 medium sized fruit
- $\frac{1}{2}$ cup regular Jello™/sherbet/ice cream
- $\frac{3}{4}$ cup artificially sweetened yogurt
- $\frac{1}{2}$ cup juice
- $\frac{3}{4}$ cup regular pop
- 1 cup milk
- $\frac{1}{2}$ cup Glucerna™
- 1 cup Gatorade™
- 1 popsicle
- $\frac{1}{4}$ cup regular pudding



Continue your journey in learning about your diabetes -
Make an appointment to speak to a diabetes educator

Sick Day Management

Make a plan ahead of time in case you get sick!

What to do if you are sick:

- **Monitor** — Test your blood sugars every 2-4 hours
- **Medication** — Continue to take your diabetes medication and/or insulin unless advised otherwise. Consult with your pharmacist or diabetes educator to learn which medications may need to be stopped during times of illness or possible dehydration (caused by vomiting/diarrhea)
- **Fluids** — Drink plenty of sugar-free fluids
- **Food** — **Eat or drink some carbohydrate every hour** - try juice or regular pop if you cannot eat
- **Kit** — Create a sick day kit so that everything you need is close and organized. An example is on the next page
- **Seek Help**— Call your doctor or go to a medical centre if you vomit more than twice in 12 hours or if you are unable to eat or drink.

The stress of being sick can increase your blood sugar, even if you don't eat!

Remember:
It is very important to have a plan



Myths About Insulin

The Myths

- It's okay to have high blood sugars if I don't have complications
- Increasing the amount of insulin you take means your diabetes is getting worse
- When my blood glucose is at target, I can stop taking insulin
- Insulin is the "beginning of the end"
- Taking insulin means your diabetes is more serious than taking pills
- Insulin causes complications like blindness

The Truth:

Starting insulin does not mean you have failed at managing your disease. Insulin is just another tool you can use to help manage your diabetes and maintain a good quality of life!



Talking to a pharmacist or diabetes educator will help you to learn more and manage your diabetes

Common Types of Insulin

Type	Product	When to take	Onset
Rapid-acting (Clear)	Humalog (lispro) NovoRapid (aspart) Apidra (glulisine)	At the start of the meal	10 – 15 minutes
Fast-acting (clear)	Humulin R Novolin ge Toronto	30 minutes before a meal	30 – 60 minutes
Intermediate-acting (cloudy)	Humulin N Novolin ge NPH	Basal insulin, usually twice daily	1 – 3 hours
Extended Long-acting analogue (clear)	Lantus (glargine) Levemir (detemir)	Basal insulin, usually once daily	90 minutes

Adapted from Canadian Diabetes Association 2008 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada

Know what type you are on



Hyperglycemia

What is hyperglycemia?

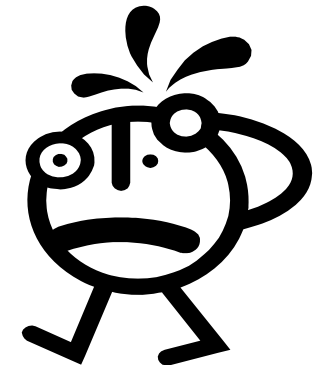
- A high blood sugar
- Greater than your target range

When could it happen?

- You are ill
- You are under stress
- Your medication, food, and activity level are not in balance

You may feel:

- Tired
- Thirsty
- Urinate frequently
- Blurred vision



What to do for hyperglycemia?

- Talk to your doctor, nurse practitioner or pharmacist as medications may need to be changed
- See a diabetes educator
- Be more active

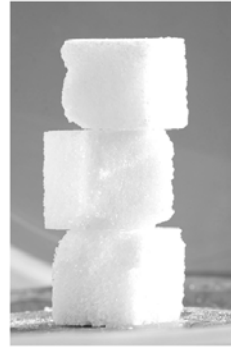


Remember:
Good control promotes healthy blood vessels

What to do for Hypoglycemia

Your Steps:

- Eat or drink one fast acting sugar choice:
 - 15g –16g of glucose in the form of glucose tablets (4 of the Dex 4 tablets)
 - 3 tsp/cubes (15 g) sugar, honey or syrup
 - ¾ cup (175 ml) of juice or regular pop
- Wait 10 to 15 minutes; check your blood sugar again. If it is still less than 4mmol/L:
 - Treat again!
 - Continue to treat until blood sugar is greater than 4mmol/L
- If your next meal is more than 1 hour away, or you are going to be active, eat a snack such as one of the following:
 - ½ meat sandwich
 - 6 soda crackers and cheese
 - 1 slice of toast with peanut butter or 1 oz of low fat cheese



15g of fast acting sugar usually increases your blood sugar level by 2 points

Common Types of Insulin

Peak	Duration	Profile
60 - 90 minutes	3 – 5 hours	<p>The graph shows a curve that rises sharply to a peak at approximately 1.5 hours and then falls back to the baseline by 5 hours. The x-axis is labeled 'hours' with markers at 2, 4, and 6.</p>
2 – 4 hours	5 – 8 hours	<p>The graph shows a curve that rises to a peak at approximately 3 hours and then falls back to the baseline by 8 hours. The x-axis is labeled 'hours' with markers at 2, 4, 6, and 8.</p>
5 - 8 hours	Up to 18 hours	<p>The graph shows a curve that rises to a peak at approximately 6 hours and then gradually declines back to the baseline by 18 hours. The x-axis is labeled 'hours' with markers at 2, 4, 6, 8, 10, 12, 16, and 20.</p>
Minimal Detemir 3-8hrs	Up to 24 Hours Detemir 16-24 hr	<p>The graph shows a very low, broad curve that remains above the baseline for the entire 24-hour period. The x-axis is labeled 'hours' with markers at 2, 4, 6, 8, 10, 12, 16, 20, and 24.</p>

Remember:
When you are low, sugar is your medicine



Questions? Ask your pharmacist or diabetes educator

Blood Sugar Testing

What Are The Target Ranges?

- Between 4 -7 mmol/L before eating
- Between 5-10 mmol/L two hours after eating



How Often Should I Test My Blood Sugar?

- Now that you are on insulin you will need to check on a more regular basis
- Remember that you are looking to see if there is a pattern in your blood sugar level
- Suggested times are:
 - Before meals
 - Two hours after meals
 - At bedtime
- Test more often if you notice a change eg. illness, stress, change in activity, food, or medication
- Talk to your pharmacist or diabetes educator about which monitor is best for you and tips to get a good blood sample with less pain

Remember:
Always wash your hands before testing



Hypoglycemia

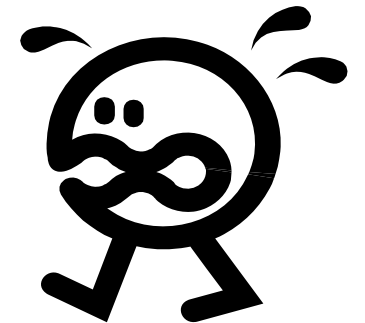
What is hypoglycemia?

- A low blood sugar
- Less than 4mmol/L

Less than
4mmol/L!

When could it happen?

- You are on insulin or certain diabetes medication
- You didn't eat enough
- You are more active
- Your medication needs adjusting



You may feel:

- Shaky
- Light-headed
- Nervous
- Irritable
- Confused
- Hungry
- Sweaty
- Headachy
- Weak
- Numb around your mouth/lips

**You need to properly treat your
low blood sugar right away!!!**



Remember:
Make sure your family and friends know how to help you

Needles and Sharps

Needles

- **Use each needle only once!**
- The risks of re-using are:
 - Inaccurate doses – Reused needles can leak fluid or allow air into the cartridge and change the concentration
 - Painful injections – A new needle has a silicone coating to decrease pain that is gone after one use
 - Broken needles – Needles are weakened by reuse and can actually break, leaving pieces of metal in the skin

Sharps

- Opened and/or used needles, syringes, and lancets,/pokers are all considered “sharps”
- Sharps can be stored in a hard plastic or glass container with a biological hazard sign on it . Ask your pharmacist for a sharps container.
- Fill the container only $\frac{3}{4}$ full then seal the lid with tape
- Return the container to a Sharps Disposal program in your community (The pharmacy where you buy your supplies)



Remember:
Help keep the environment safe for everyone — look after your sharps



Blood Sugar Testing

Recording My Blood Sugar Levels:

- The most important things to record are :
 - Your blood sugar
 - The time it was taken
 - The amount and type of insulin you used
 - A note about food, activity, and well-being

What Are The Benefits of Testing My Blood Sugar?

- It helps you and your health care provider understand how food, medications, and activity affect your blood sugar
- Testing at different times during the day will help you find patterns in your blood sugar readings
- Finding patterns will give you a bigger picture of how your body is working
- This information is very important when medications need to be adjusted
- Regular testing helps you to understand and control your diabetes



Remember:
Take your blood glucose with a purpose

How to Use An Insulin Injection Pen

1. Screw a new needle onto the insulin pen
2. If using a cloudy insulin, gently rock the insulin pen (back and forth) 26 times (say the alphabet) This step must be done every time
3. Prime the pen – dial pen to 2 units and shoot insulin out to get rid of any air in the needle; be sure you have a good flow of insulin. This step must be done every time
4. Dial your dose of insulin
5. Pick your site – if you are very thin you may need to lift the skin. Be sure to move to a different site for each injection

Pen needle tips range in size — ask what's right for you.

Remember: Wash your hands



Storing and Travelling

Storing Insulin

- Insulin in use does not need to be refrigerated and must be used within 30 days
- Store unopened insulin in the refrigerator door (2°— 8°C)
- Discard insulin after the expiry date
- Keep insulin away from direct heat and light eg. glove compartment, near stove etc.
- Discard insulin that has been frozen or exposed to temperatures greater than 30°C
- Always remove the needle from the pen as insulin may leak out of the cartridge or air can enter the cartridge

Travelling with Insulin

Flying — Always carry all of your diabetes supplies in carry on baggage and enough for the whole trip (plus a bit extra). Check with the airline for specific policies about carrying supplies

Driving — Always check your blood sugar before leaving and at least every 4 hours during long drives. Always carry your supplies and have easy to absorb glucose within reach. Stop and treat yourself as soon as you suspect a low blood sugar. Do not drive for at least 45 to 60 minutes after a low blood sugar



Talk to your diabetes educator or pharmacist about travelling through time zones

Rotation — Rotation

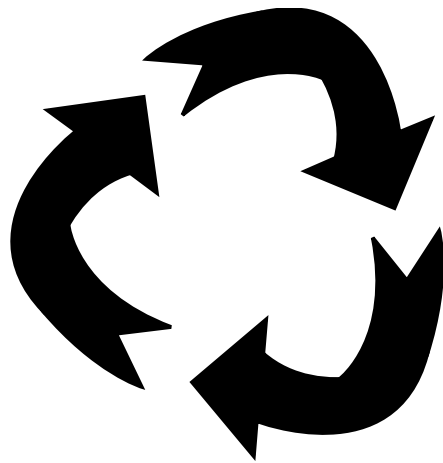
Rules of Rotation

1. Rotate sections in one area. For example, use each quadrant in the abdomen for a week and then rotate clockwise to a new quadrant
2. Rotate sites within each section. Pick a new injection site one finger width away from the previous site

This is shown on the previous page

Why do I need to rotate?

- By repeatedly using the same site for insulin injections you may develop fatty lumps or “lipos”
- This is called lipohypertrophy and it may cause **improper insulin absorption**
- Rotating injection sites helps to prevent this condition



Remember:
Rotation prevents complications



How to Use An Insulin Injection Pen

6. Poke – insert the needle straight into your skin (at a 90° angle)
7. Push – inject the insulin (the pen window will now read 0, so you will know all the insulin has gone in)
8. Pause – count to 10 **slowly** to let the insulin begin to absorb
9. Pull the needle out, unscrew the needle and discard in a sharps container. Do not massage or rub the injection site

Note:

- Injecting through clothing is not advised because it damages the needle tip
- Some light bleeding or bruising may occur at the injection site but will usually get better without treatment
- If you notice “leak back” of insulin **do not** try to measure it or take extra



Remember: Use each needle only once

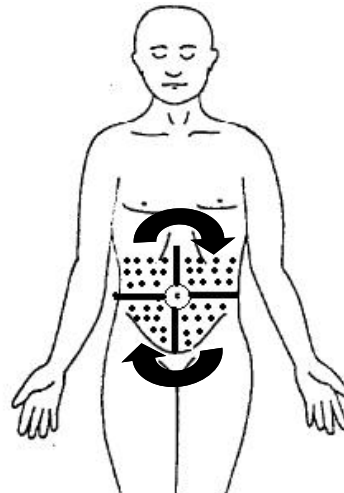
Where to Inject

Insulin needs to be injected into fat. The 4 most common sites to inject are:

- Abdomen
- Upper Arm
- Outer Thigh
- Buttocks

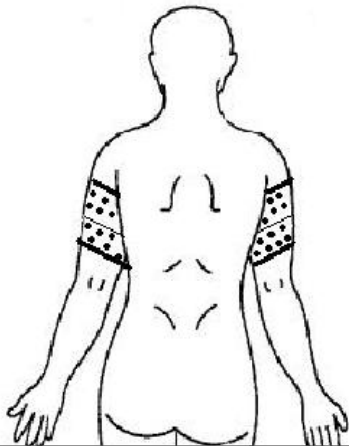
Abdomen

- Imagine 2 lines crossing at the belly button dividing the abdomen into 4 sections (quadrants)
- Avoid the area about 2 inches around the belly button
- Recommended for mealtime insulin



Upper Arm:

- This area is about 4 fingers above the elbow in the fleshy part of the arm and just below the muscle-line
- It can be divided into two sections (halves)
- Talk to your pharmacist or diabetes educator about ways to make it easier to inject into this area.



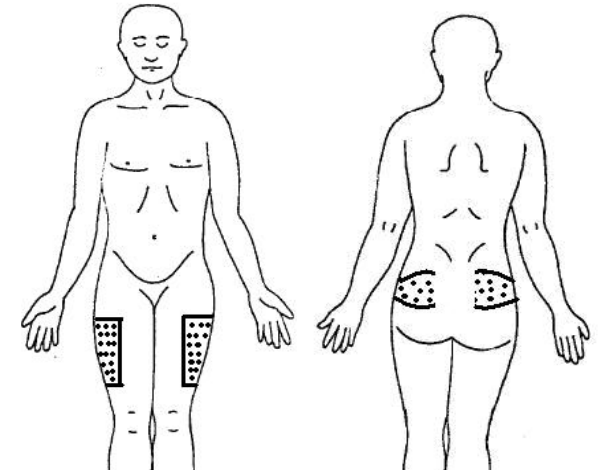
Remember:
Insulin needs to be injected into fat



Where to Inject

Outer Thigh and Upper Buttock:

- Thigh - Place one hand above the knee and the other hand at the top of the thigh; draw an imaginary line down the middle front of the thigh and along middle outside of the thigh. This area can be divided into two halves.
- Upper Buttock - Place your thumb on your hip bone, make a right angle between your thumb and your index finger
- Recommended for night time injections of insulin that is cloudy eg. Humulin N or Novolin NPH (Slowest rate of absorption)



Picking the best site to inject will depend on the amount, type, and speed of absorption of your insulin

Ask about the best injection site for your insulin



Questions? Ask your pharmacist or diabetes educator