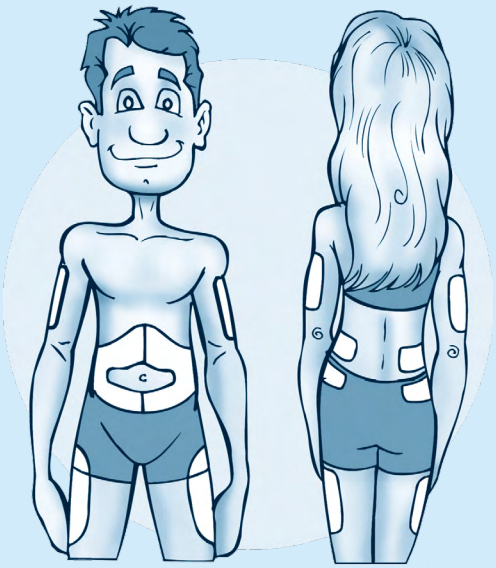
DIABETES CANADA

Getting started with insulin

Insulin Injection Sites



NOTE: It is really important to change (rotate) where you give yourself insulin to prevent fatty lumps from forming since these can affect how your body absorbs insulin. For example, you can move from one side of your abdomen to the other side, and you can also move your injection site to a different location within each side of your abdomen.

Avoid a 2-inch area around the belly button as well as scar tissue.

Insulin Pens:

Your pen comes with an instruction book. Please review it to understand how your pen works, how to load the cartridge, and how to prepare your pen for an insulin injection. There are different sizes and lengths of needle tips available. Most often the shortest needle is recommended. Talk with your health care professional about which needle tip would be best for you.

Mixing Insulin:

Insulin that is cloudy (NPH, premixed) needs to be mixed before using. The pen should be rolled ten times, tipped ten times, and checked for a milky-white consistency.

Check Insulin Flow (Prime):

Attach pen needle. Dial up 2 or 3 units (whichever the manufacturers recommends) and, with pen tip facing upwards, push the dosing button. If no stream of insulin appears, repeat this step again.

Giving Your Injection:

After you have checked the insulin flow, dial up the dose of insulin to be taken. Insert pen tip into skin at a 90° angle. Push the dosing button until you see '0'. Count 10 seconds before removing the needle from your skin to ensure you receive the full dose. With longer needles (≥ 8mm), you may need to gently lift the skin before injection or inject on an angle.

Site	Things to think about
Abdomen (tummy) Stay 2 inches (5 cm) away from your belly button	Easy to reach. Insulin absorbs fast and consistently.
Buttock and thigh	Slower absorption rate than from abdomen and arm sites.
Outer arm	After abdomen, arm provides the next fastest absorption rate. This area is hard to reach when injecting yourself, so it is often not recommended.

Insulin Types:

Type	Onset (How quickly it starts working)	Peak (When it is most effective)	Duration (How long it works)	Timing of injection (When should it be given)
Bolus insulins				
Rapid acting analogues • Apidra / Admelog / Humalog (U100, U200) / NovoRapid / Trurapi • Fiasp	10 – 15 min 4 min	1 – 2 hours 30 min – 1.5 hours	3 – 5 hours 3 – 5 hours	Given with one or more meals per day. Should be injected 0 – 15 minutes before or after meals. Fiasp is to be given two minutes before the start of your meal or within 20 minutes after.
Short-acting • Entuzity U500 • Humulin-R / Novolin ge Toronto	15 min 30 min	4 – 8 hours 2 – 3 hours	17 – 24 hours 6.5 hours	Given with one or more meals per day. Should be injected 30 – 45 minutes before the start of the meal.
Basal insulins				
Intermediate-acting • Humulin-N / Novolin ge NPH	1 – 3 hours	5 – 8 hours	up to 18 hours	Often started once daily at bedtime. May be given once or twice daily. Not given at any time specific to meals.
Long-acting analogues • Basaglar / Lantus U100 • Levemir • Toujeo U300 • Tresiba U100, U200	90 min	not applicable	up to 24 hours 16 – 24 hours > 30 hours >42 hours	Basaglar, Lantus U100, and Levemir are often given once daily at bedtime, while Toujeo U300 and Tresiba U100, U200 are given once daily at any time of day. Levemir may be given once or twice daily. Not given at any time specific to meals.
Premixed insulins				
Premixed regular insulin • Humulin 30/70 • Novolin ge 30/70, 40/60, 50/50	The onset, peak, and duration of premixed insulins depend on the amounts of rapid-acting or short-acting insulin and intermediate-acting insulin. See above for more information based on the specific insulins contained in the premixed insulin.			Given with one or more meals per day. Should be injected 30 – 45 minutes before the start of the meal.
Premixed insulin analogues • Humalog Mix 25, Mix 50 / NovoMix 30				Given with one or more meals per day. Should be injected 0 – 15 minutes before or after meals.

Insulin Care and Storage:

Unopened insulin should be stored in the fridge between 2°C and 8°C. The insulin you are using can be stored at room temperature for up to 1 month. Levemir, Toujeo and Tresiba are the exception; Levemir and Toujeo are safe at room temperature for 42 days, while Tresiba is safe at room temperature for 56 days. Discard insulin that has been frozen, exposed to temperatures greater than 30°C, or expired.

Diabetes Identification:

You should always wear idenfication, such as a bracelet or necklace, to identify that you have diabetes. Identification bracelets, such as MedicAlert®, can be purchased at pharmacies and jewellery stores. Always carry identification in your wallet or purse that provides information about your diabetes.

Low Blood Sugars (Hypoglycemia):

Treatment of Low Blood Sugar (Hypoglycemia)

What is low blood sugar?

When the amount of sugar in your blood (blood glucose) has dropped below your target range (i.e. is generally less than 4.0 mmol/L), a condition called low blood sugar or hypoglycemia occurs.

When this happens, you may feel:

- Shaky, light-headed, nauseated
- Nervous, irritable, anxious
- Weak, drowsy, vision changes
- A faster heart rate
- Sweaty, headachy
- Hungry
- Confused, difficulty concentrating or speaking
- A numbness or tingling in your tongue or lips

How do I treat low blood sugar?

If you are experiencing the signs of a low blood sugar level, check your blood sugar immediately. If you do not have your meter with you, treat the symptoms anyway. It is better to be safe.

Eat or drink a fast-acting carbohydrate source (containing 15 grams). For example:

- 15 g of glucose in the form of glucose tablets (preferred choice)
- 15 mL (1 tablespoon) or 3 packets of table sugar dissolved in water
- 5 cubes of sugar
- 150 mL (2/3 cup) of juice or regular soft drink
- 6 LifeSavers® (1 = 2.5 g of carbohydrate)
- 15 mL (1 tablespoon) of honey (do not use for children less than 1 year)

Low blood sugar can happen quickly, so it is important to treat it right away. If your blood sugar drops very low, you may need help from another person.

Causes of low blood sugar:

- More physical activity than usual
- Not eating on time
- Drinking alcohol
- Eating less than usual
- Taking too much medication

If you are planning on fasting, consult your diabetes health-care team well in advance.

Checking Blood Sugars and Adjustment of Insulin:

Insulin: Starting Dose: units at

Blood sugar goals:

Contact for help with insulin adjustments:

What to do with your diabetes pills:

Please check blood sugars using the following schedule.

	Breakfast		Lunch		Supper		Bedtime	Night
	before	after	before	after	before	after		
Insulin								
Blood sugar								

Proper Use of Pen Tips (needles):

Use pen tips only once; they are thin and can become bent or broken if re-used. Reusing pen tips can make the injection more painful. Leaving pen tips on the cartridge may cause leaking or allow air into the cartridge which may affect the concentration of the insulin.

Safe Sharps Disposal:

Pen tips and lancets should be disposed of in a sharps container. Check with your local pharmacy. Many pharmacies supply safe, puncture-proof containers. When the container is full, it is returned to the pharmacy in exchange for a new container. Sharps otherwise should be disposed of in accordance with local regulations.

Diabetes Driving Guidelines

Prevention of low blood sugar for all insulin-treated drivers

- Measure your blood sugar level immediately before and at least every 4 hours during long drives.
- Always carry blood sugar monitoring equipment and an emergency supply of fast-acting carbohydrate within easy reach (e.g. attached to the visor).
- Do not start driving if your blood sugar is less than 4.0 mmol/L. If you feel symptoms of low blood sugar while you are driving, stop the vehicle in a safe location and remove the keys from the ignition.
- If your blood sugar is less than 4.0 mmol/L, you should have 15 grams of carbohydrate and not begin to drive until your blood sugar is at least 5.0 mmol/L. It is suggested to wait for 40 minutes to recover fully from low blood sugar.
- If your blood glucose is < 2.8 mmol/L while driving you must refrain from driving immediately, and notify a member of your health-care team as soon as possible.

Professional Drivers

- You should follow the above recommendations as well as perform any diabetes self care as required by your licensing province.

Each province has its own rules regarding sugar control and being able to drive.

I want to apply for a commercial licence. Can I drive in Canada? In the United States?

Canadians with diabetes who are using insulin can apply for a commercial licence. Motor vehicle licensing authorities require a greater level of medical fitness for drivers operating passenger vehicles (buses/commercial vans), trucks, and emergency vehicles. Commercial drivers spend more time driving and are often under more adverse conditions than private drivers.

Canadians with diabetes who are using insulin can be licensed to drive a commercial vehicle in Canada. The Canada/US Medical Reciprocity Agreement (effective March 1999) recognizes the similarity between Canadian and American medical standards and provides for reciprocal arrangements on medical fitness requirements for Canadian and American drivers of commercial vehicles.

However, Canadian commercial drivers who have diabetes requiring insulin, are not permitted to drive in the United States.

What is Diabetes Canada's position on diabetes and driving and licensing?

Diabetes Canada believes people with diabetes should be assessed for a driver's licence on an individual basis.

For more information, see http://www.diabetes.ca/about-cda/public-policy-position-statements/driving-licensing.

Related articles: *Lows and highs: blood glucose Levels, Thinking of starting insulin, Managing your blood sugar*

Interactive Self-monitoring of Blood Glucose Tool

See Diabetes Canada on YouTube for videos about using insulin.

DIABETES CANADA **diabetes.ca | 1-800 BANTING (226-8464) | info@diabetes.ca**

Diabetes Canada is making the invisible epidemic of diabetes visible and urgent. Close to 11.5 million Canadians have diabetes or prediabetes. Now is the time to End Diabetes - its health impacts as well as the blame, shame and misinformation associated with it. Diabetes Canada partners with Canadians to End Diabetes through education and support services, resources for health-care professionals, advocacy to governments, schools and workplaces, and, funding research to improve treatments and find a cure.