



Waitemata  
District Health Board

Best Care for Everyone



# Starting insulin treatment for people with type 2 diabetes

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*What you need to know*

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## Information

To receive this information in Chinese, Korean, Samoan or Tongan, contact the Diabetes Service at North Shore or Waitakere Hospitals (09) 486 89 20 extn 2505.

An interpreter can be arranged for clinic appointments if you need one.

For health advice 24hours/day contact Healthline 0800 611 116 or [www.healthline.co.nz](http://www.healthline.co.nz)

For further resources, visit Health Navigator [www.healthnavigator.org.nz](http://www.healthnavigator.org.nz) or Diabetes New Zealand [www.diabetes.org.nz](http://www.diabetes.org.nz)

## Any questions?

This booklet does not tell you everything about your medicines.

Talk to your doctor, pharmacist or nurse if you do not understand or want to know more about your medicines

## Glossary of terms

<b>Cartridge</b>	Vial of insulin designed to fit into insulin pens
<b>Confusion</b>	Getting mixed up or muddled
<b>Glucose</b>	The main type of sugar in the blood
<b>Hyperglycaemia</b>	High blood glucose
<b>Hypoglycaemia</b>	Low blood glucose
<b>Insulin</b>	A hormone that lowers blood glucose levels
<b>Monitoring</b>	Checking (eg monitoring blood glucose levels)
<b>Pre-filled pen</b>	A disposable pen device to give insulin
<b>Prime</b>	Set up (eg prime insulin pen)

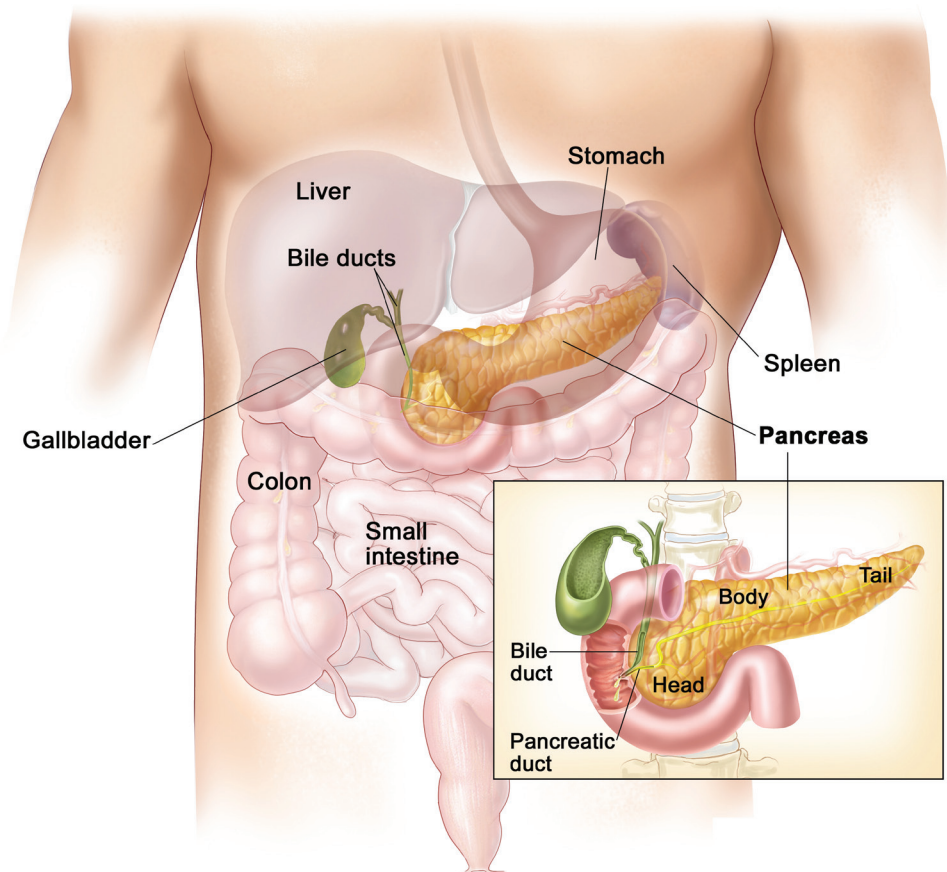
## Why do I need insulin?

Your doctor has suggested that you start insulin because this is the next step in the treatment of your diabetes.

In the past, you may have been able to control your diabetes with healthy eating, regular exercise and tablets. These treatments are still important but now you need to add insulin to your treatment plan.

It is common for people with type 2 diabetes to eventually need insulin to help control their diabetes and stay healthy.

This is because, over time, the cells in your pancreas begin to slow down and stop making enough insulin for your body.



## What does insulin do?

Insulin helps move glucose from your blood into the cells of your body to make energy. If glucose can't get into your cells it will stay in your blood and cause your blood glucose level to rise. This will slowly cause damage to blood vessels, nerves, your eyes, heart and kidneys. You will also lose energy.

The best blood glucose range for people with diabetes is usually between **5-7mmol/L** (before meals); ask your doctor about the best range for you.

A blood test called HbA1C will also be arranged by your doctor to check your diabetes control. The HbA1C shows your average blood glucose level over 2-3 months. An HbA1C level of 50-55 is the target for most people with diabetes.

## Why are there different types of insulin?

Some types of insulin work over a short period of time (rapid and short acting) and other types work longer (intermediate and long acting). Some have a mixture of short and long acting ability in them (premixed).

- Your doctor and the diabetes team will help you decide which insulin will work the best for you
- They will help you change your dose to keep your blood glucose as close to the normal range as possible (**5-7mmol/L** before meals).

It is important that you know which type of insulin you are using.

## How do I take insulin?

Insulin cannot be put into a tablet because the acid in your stomach will destroy it. This is why you need to inject insulin. Insulin can be injected using a syringe, but most people use insulin pens.



## How do I use my insulin pen?

### Mix

To make sure insulin is evenly mixed, rotate pen up and down at least 20 times.



### Prime

Dial up two units.

Remove needle cap with the needle pointing upwards, press plunger checking to see if insulin flows from the tip of the needle. Repeat process until insulin appears.



### Inject

Dial up your dose and inject.

After pushing the plunger in, count to 10 before removing the needle. Withdraw needle on the same angle as the injection was done to prevent bruising.



### Dispose

ALWAYS dispose of your sharps safely. Please ask your diabetes nurse what you should do, each region has their own means of sharps disposal.

### Remember

- Change needles every day
- Change insulin cartridge every 4 weeks even if there is still insulin in it
- Avoid hot showers and baths within 30 minutes of an injection to decrease the risk of a sudden drop in blood sugar level (a hypo)
- Keep the insulin you are using at room temperature
- Keep spare insulin vials or spare pens in the refrigerator



## Where do I inject my insulin?

- Your stomach is the best place to inject your insulin; it needs to be injected into the layer of fat just under the skin
- It is important that every time you inject yourself you change where you do it, by moving across your stomach each time; this helps to stop fatty lumps from forming which would reduce the effect of insulin
- Your nurse or doctor will show you how to do this
- Most people say that injecting insulin is less painful than a finger-prick



## How do I store my insulin?

Your unopened insulin should be kept in the fridge.

The insulin you are using can be kept at room temperature for **one month**, after that it must be thrown away. During summer, when carrying insulin with you, or in the car, keep it in a chilly bag. Heat and direct sunlight can damage insulin and it may not work.

**Do not** use insulin that has changed colour or gone lumpy  
**Do not** use insulin that has passed its 'expiry date'  
**Do not** freeze your insulin or leave it anywhere too warm or in the sun  
**Do not** use insulin cartridges or pens that are cracked or leaking

## How often do I need to inject insulin?

You may need to inject insulin once or twice a day. The time of your injection will depend on when your blood glucose level is highest.

## When do I inject insulin?

Most people find their blood glucose levels are **too high when they wake** in the morning (above 7 is too high). This happens because your body makes glucose during the night, not because of what you ate the night before. To get your morning blood glucose lower, you will **need to have insulin at bedtime**.

A few people find that their blood glucose levels are **highest later in the day**. It may be best to start **insulin in the morning**.

- Your doctor or nurse will help you start and change your insulin doses.
- It will usually take several weeks to get your dose right.
- You will need weekly contact until your blood glucose levels are stable.
- Some people may need to use insulin 2 or more times a day to get better blood glucose control.

Please talk to your doctor, nurse or pharmacist  
if you have any problems or if you are worried about your insulin.

## Does insulin have any side effects?

Side effects from insulin are not very common. However, if you do not balance your eating, exercise, diabetes tablets and insulin, your blood glucose may drop too low. This is called hypoglycaemia (a 'hypo').

On page 11 we will tell you what to do if you have a 'hypo'.

If you have any side effects that you think may be caused by your insulin, talk to your doctor.

## Do I need to change what I eat?

Healthy eating will still be an important part of your diabetes treatment. If you do not follow a healthy food plan, it will be harder to control your blood glucose levels.

You are also likely to put on extra weight if you eat more food than your body needs for energy. The more weight you have, the more insulin you may need.

It is important that you have regular meals containing carbohydrate so that you balance what you eat with how much insulin you inject. Some people need snacks between meals, but if you want to control your weight, snacks may not be necessary. Check with your doctor or nurse for advice.

## Monitoring my blood glucose

Your nurse or pharmacist will show you how to check your own blood glucose levels using your blood glucose meter. Checking your levels at home will help you to see how well your body responds to your food plan, exercise, diabetes tablets and insulin. The goal for most people is to keep blood glucose levels as close to the normal range as possible (5-7mmol/L before meals).

When you first start insulin you will need to test your blood glucose at least 3 to 4 times a day. But once you have found the insulin dose that best suits you, you can do less testing. Sometimes people also need to test their levels 2 hours after meals. Occasionally you may be asked to test overnight.

If you are unwell it is important you do more testing because it can change your blood glucose level.



## My blood glucose tests

Keep a record of your glucose levels in a table like this one, or you can use an App. This will show how well your diabetes is controlled and if you need any changes to your treatment.

Before breakfast	2 hours after	Before lunch	2 hours after	Before dinner	2 hours after	Bedtime	2am

**You should think about wearing a MedicAlert® bracelet.**

If there is an emergency this will tell other people that you take insulin.

Contact MedicAlert® on 0800 840 111 or [www.medicalert.co.nz](http://www.medicalert.co.nz)

## What is hypoglycaemia and hyperglycaemia?

- Hypoglycaemia, or a 'hypo' or 'low blood glucose' is when your blood glucose falls **below 4mmol/L**
- Hyperglycaemia or 'high blood glucose' is when your blood glucose level stays higher than **15mmol/L**

Please read the following pages as it is important to know how to treat a 'hypo' immediately.

## What does a 'hypo' feel like?

You may have **some** or **all** of these symptoms:

- Blurred vision
- Pins & needles on the lips or tongue
- Hungry
- Pounding heart
- Look pale and have sweaty skin
- Headache
- Light-headed
- Dizziness
- Trembling hands
- Weak and trembling knees

Some people feel confused, anxious or irritable as well.

## What causes a 'hypo'?

- A missed meal or snack, late meal or snack or not eaten enough carbohydrate (starchy) foods
- More exercise or physical activity than usual without eating extra carbohydrates
- Having too much insulin or too many diabetes tablets
- Drinking alcohol without food

Talk to your doctor or nurse if you have a 'hypo' while first starting insulin or if 'hypos' are happening often.

## What should I do if I have a 'hypo' (Blood glucose <4mmol/L)?

Check your blood glucose if possible. If you feel any of the 'hypo' symptoms, treat it right away. Take ONE of the following 'sugary' foods or drink to raise your blood glucose quickly:

**3 teaspoons** of jam or honey or sugar in water



**OR**

**HALF a glass** of normal (not diet)  
lemonade or sugary drink (eg fizzy drink or juice)



**OR**

**6-7 small** jelly beans




**OR**

Use glucose tablets, gel or powder from your pharmacy:  
3-4 glucose tablets or  
1 Hypofit® sachet or  
2 heaped teaspoons of glucose powder dissolved in water

**THEN**


If you still feel 'hypo' symptoms, test your blood glucose again. If it you do not have your meter with you, take one of the above every 5-10 minutes until you feel better, or until your blood glucose is up to 4mmol/L if you have your meter.


**When your blood glucose is up to 4mmol/L, have a meal if it is your usual meal time or have a snack such as:**

- A thin slice of bread  or

- A glass of milk  or

- 2-3 cracker biscuits  or

- A small container of yoghurt  or

- A whole piece of raw fruit (eg an apple) 

### **Be prepared**

You should always carry something sugary with you in case you have a 'hypo'.

## Hyperglycaemia, or high blood glucose (>15mmol/L)

If you have eaten too much sweet or starchy food your blood glucose may get too high. This is when your blood glucose level stays over 15mmol/L.

Signs that your blood glucose is too high are:

- You are more thirsty
- You are going to the toilet a lot to pass water
- You feel more tired
- You have blurred vision

Some people may have no symptoms and only notice that their blood glucose is too high by checking their blood glucose levels.

Your blood glucose may also be too high when:

- You are unwell or have an infection
- You change the amount of exercise you do
- Your dose of insulin is too low, or you miss an injection

## What should I do if my blood glucose stays high?

If your blood glucose falls after a few hours you usually don't need to worry. But if it stays high (over 15mmol/L) after 2 or 3 days, you may need more insulin.

- Check your blood glucose level more often.
- See your doctor or nurse for advice.





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