



Waitematā
District Health Board

Best Care for Everyone



Starting insulin for people with type 2 diabetes

What you need to know

Contents

Why do I need insulin?	2
What does insulin do?	3
Why are there different types of insulin?	3
How do I take insulin?	3
How do I use my insulin pen?	4
Where do I inject my insulin?	5
How do I store my insulin?	5
How often do I need to inject insulin?	6
When do I inject insulin?	6
Does insulin have any side effects?	6
Do I need to change what I eat?	7
Monitoring my glucose levels	7
My glucose levels	8
What is hypoglycaemia and hyperglycaemia?	8
What does a 'hypo' feel like?	9
What causes a 'hypo'?	9
What should I do if I have a 'hypo'? (Glucose <4mmol/L)	10
Hyperglycaemia, or high glucose (>15mmol/L)	12
What should I do if my glucose stays high?	12

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 42505. An interpreter can be arranged for clinic appointments if you need one.

For health advice 24-hours, seven days-a-week, contact Healthline 0800 611 116 or www.healthline.co.nz. For further resources, visit Health Navigator www.healthnavigator.org.nz or Diabetes New Zealand 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

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

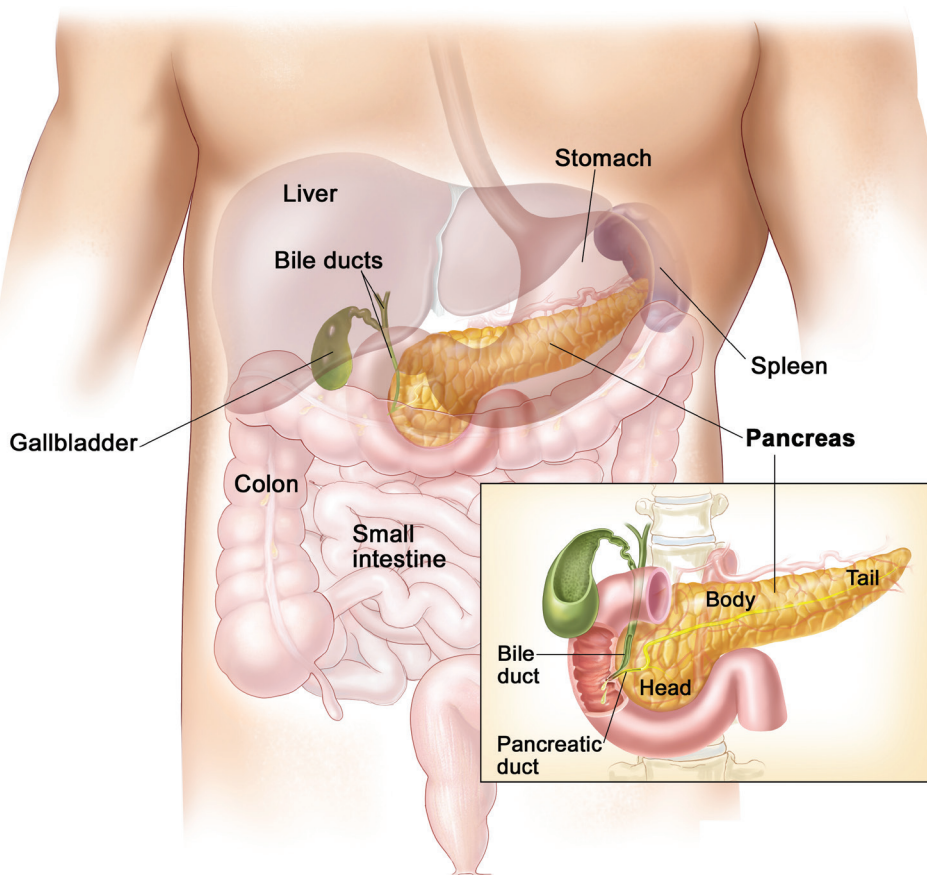
Why do I need insulin?

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 type 2 diabetes is progressive and, 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. Glucose that can't get into your cells will stay in your blood and cause your 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 glucose range for people with diabetes is usually between **4-8mmol/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 glucose level over 2-3 months. An HbA1C level of 50-55 is the target for most people with diabetes. Talk to your diabetes team or doctor about what your target should be.

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 in them (premixed).

- Your doctor and diabetes team will help you decide which insulin is best for you.
- They will help you change your dose to keep your glucose level as close to the normal range as possible (4-8mmol/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. You will need to prime your insulin pen before every injection.



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

Used needles must not be put into household rubbish. Ask your pharmacy about free disposal for your needles or contact Diabetes New Zealand's Auckland branch and ask about its disposal scheme (09) 622 0551 or 0508 DIABETES (0508 342 238) reception@diabetesauckland.org.nz

Remember:

- change needles every day
- change insulin cartridge every four 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 your glucose level (a hypo)
- keep the insulin you are using at room temperature
- keep spare insulin vials or spare pens in the refrigerator; do not put used insulin pens back in the fridge.



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 to change injection sites by moving across your stomach each time. This helps to stop the formation of fatty lumps that 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, keep any insulin you are carrying with you or in the car, 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 more each day. The time of your injection will depend on when your glucose level is highest.

When do I inject insulin?

Most people find their glucose levels are too high when they wake in the morning (above seven 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 glucose lower, you will need to have insulin at bedtime.

A few people find that their 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 glucose levels are stable
- Some people may need to use insulin 2 or more times a day to get better control of their glucose level.

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 glucose level may drop too low. This is called hypoglycaemia (a 'hypo')

On page 10, 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. Keeping to a healthy food plan will benefit your overall health and can make it easier to control your glucose levels.

You are likely to put on extra weight if you eat more food than your body needs for energy. Your insulin requirements can change if your weight changes.

If you would like help with your insulin and food choices, ask to speak to a Dietitian.

Monitoring my glucose levels

Your nurse or pharmacist will show you how to check your own glucose levels using your 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 their glucose levels as close to the normal range as possible (4-8mmol/L before meals).

When you first start insulin, you will need to test your glucose level at least three to four 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 glucose levels two hours after meals. Occasionally you may be asked to test overnight.

**It is important you do more testing if you are unwell
because it can change your glucose level.**



My glucose levels

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

What is hypoglycaemia and hyperglycaemia?

- Hypoglycaemia, or a ‘hypo’ or ‘low glucose’ is when your glucose level falls below 4mmol/L
- Hyperglycaemia or ‘high glucose’ is when your 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
- hunger
- pounding heart
- a pale complexion and sweaty skin
- headache
- light-headedness
- dizziness
- trembling hands
- weak and trembling knees
- confusion or disorientation.

Some people feel anxious or irritable as well.

What causes a 'hypo'?

- Missing meals, late meals or not eating enough carbohydrate (starchy) foods.
- More exercise or unexpected 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'? (Glucose <4mmol/L)

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

Three teaspoons of jam or honey or sugar mixed in water, or from the spoon



OR

HALF a glass of normal (not diet) lemonade or sugary drink (e.g. 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**

One Hypofit® sachet **or**

Two heaped teaspoons of glucose powder dissolved in water

THEN

After 5-10 minutes, check your glucose level again. If it is still below 4mmol/L, take one of the above food or drink again.

OR

If you do not have your meter and you feel no better after 5-10 minutes, take one of the above foods or drinks again.

THEN

Check every 5-10 minutes until your glucose level is **more than 4 mmol/L** or until you feel better.



When your glucose level is more than 4mmol/L, have a meal if it is your usual meal time or have a snack such as:

a thin slice of bread



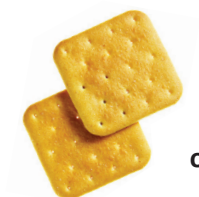
or

- a glass of milk



or

- 2-3 cracker biscuits



or

- a small container of yoghurt



or

- a whole piece of raw fruit (e.g. an apple).



Be prepared

Always carry something sugary with you in case you have a 'hypo'.

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

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

Signs that your glucose level is too high are:

- you are more thirsty or have a dry mouth
- you are going to the toilet more than usual to pass water
- you feel more tired or fall asleep while watching TV
- you have blurred vision
- you have frequent infections.

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

Your 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 glucose stays high?

If your 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 to increase your insulin dose.

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



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