

NDSS

National Diabetes Services Scheme

An Australian Government Initiative

NDSS Helpline 1800 637 700
ndss.com.au

Starting Insulin

An information booklet for people with type 2 diabetes who want to find out more about insulin and what it might mean for them



Find this resource at ndss.com.au

 **diabetes
australia**

The NDSS is administered by Diabetes Australia



The Australian Centre
for Behavioural Research
in Diabetes

Acknowledgments

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We thank all the people with diabetes and our health professional advisors who reviewed and contributed to this booklet.

This information is intended as a guide only. It should not replace individual medical advice. If you have any concerns about your health, or further questions, you should contact your health professional.

Contents

About this booklet & using this booklet	2
Understanding my diabetes and the role of insulin	3
Options for managing my diabetes	4
How do I know if my blood glucose is 'within target'?	5
Insulin: why, when, who, how, and what?	6-9
Benefits and side-effects of insulin	10-11
Frequently asked questions about insulin	12-15
So, how do I feel now about starting insulin?	16-17
Discussing insulin with my health care team	18-19
Where can I find more information and support?	20

“I’ve accepted the need for insulin. I realise the benefits and I can see the benefits so that’s made me happier with the outcome.”

Peter, 66 years old



About this booklet

This booklet is for people with type 2 diabetes who are interested in learning more about insulin as a way of managing their diabetes. Your doctor may have recommended that you start insulin now, or that you may need insulin in the future.

This booklet provides information about insulin and answers common questions that people with type 2 diabetes have about starting insulin.

It can be helpful to reflect on your own situation and think about your own questions. There is space in this booklet to write down any thoughts or questions you might have about insulin or your diabetes. You can keep these notes just for yourself, or, if you choose, discuss them with your health care team.

This booklet does not replace medical advice from your health care team. It is important that you make an appointment to discuss your diabetes management with your health care team.

Using this booklet

You can use this booklet to write down your thoughts and questions and bring them with you to your next appointment with your doctor or diabetes health care team.



Activity 1: What are your questions, thoughts, and feelings about insulin injections?

Before reading this booklet, take some time to think about any questions, thoughts or feelings you have about insulin.

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Take the time to return to your questions and concerns after you finish reading the booklet. Did the booklet answer your questions? How do you feel about insulin now? Do you have new questions? You can discuss these with your diabetes health care team or call the NDSS Helpline on **1800 637 700**.

Understanding my diabetes and the role of insulin



When a person is diagnosed with type 2 diabetes, they have too much glucose in their blood. This is because their body is no longer making enough insulin, and/or is unable to use the insulin it makes. In type 2 diabetes, the body's ability to produce enough insulin reduces over time.

What is insulin?

Insulin is a hormone that the pancreas produces. It plays an essential role in helping to fuel our bodies.

How does insulin work?

When we eat or drink, our body breaks down the carbohydrate and turns it into glucose (a type of sugar). The glucose moves around the body through the bloodstream. Insulin acts like a key that unlocks the doors of the body's cells. This allows glucose to move out of the blood and into the cells, where it can be used for energy. In someone without diabetes, insulin is released throughout the day and increases after eating or drinking.

Without insulin, glucose cannot be absorbed into the body's cells, and they remain 'hungry'. This means there may be too much glucose trapped in the bloodstream, and blood glucose levels will rise. This is known as **hyperglycaemia** (high blood glucose).

The impact of hyperglycaemia (high blood glucose)

In the short term, when glucose is not being converted to energy a person may feel tired. They may also feel thirsty, due to dehydration caused by excess glucose in the blood.

Over time, high blood glucose can cause serious damage to various parts of the body, including the eyes, the kidneys, the feet and the heart. Unfortunately, most of this damage can happen without any symptoms. This means a person might not feel unwell or notice any changes. The good news is this damage can be prevented or delayed.

This is why it is important to have regular medical check-ups and do your best to manage your diabetes well.

Options for managing my diabetes

Healthy eating, regular physical activity, adequate sleep, maintaining a healthy weight and taking diabetes medications are all important for keeping your blood glucose within your recommended target range (see page 5).

Several different types of diabetes medication are available. Most are in the form of tablets but some, including insulin, need to be injected. Lifestyle changes and diabetes tablets stimulate the body to make more insulin or to make better use of the insulin it produces. However, over time, lifestyle changes and other medications alone may not always be enough to keep your blood glucose within your target range. Some people with type 2 diabetes need to inject insulin.

Often, medications will need to be taken in combination. This means that you may need to take two or more different types of tablets, and you may also need to add injections.

The options available to you will depend on **your** personal situation. Over time, the type and dose of medication you need is **likely to change**. It is important to understand that this is the natural course of type 2 diabetes. Your body may need more help over time to make or use insulin.

Read more in the NDSS fact sheet 'Medications for type 2 diabetes' (ndss.com.au/medications-for-type-2-diabetes)



“That’s the progression part of it. Your body works harder to make hormones, and if it’s not getting where it needs to be that’s when you’ve got to have insulin. I’m helping my body cope — to do something that it’s having trouble doing itself.”

John, 68 years old

How do I know if my blood glucose is ‘within target’?

By checking a person’s blood glucose levels, you and your health care team can identify if your current diabetes medications are working effectively.

Everyone with diabetes can expect to have their HbA1c checked regularly (at least every 6 to 12 months). HbA1c is a measure that reflects the level of glucose in the bloodstream over the past 10-12 weeks. It is checked by having a blood sample taken, which your health professional can arrange.

For most people with type 2 diabetes, the recommended target for HbA1c is less than 7% (53 mmol/mol) – but targets vary for each person based on their personal situation. If you don’t know what your HbA1c level is or you don’t have a set target, talk to your health professional.

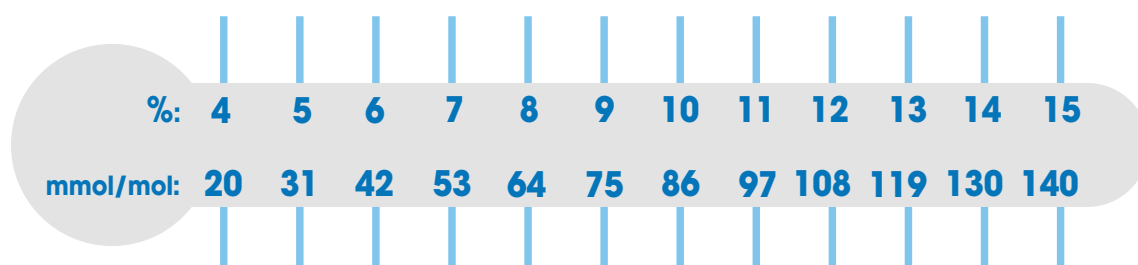
If your last HbA1c was higher than your target level, this may signal the need for a change in your diabetes management. For example, you may need to add another tablet or start injecting insulin.



Activity 2: Your blood glucose level and targets

The ‘thermometer’ below shows HbA1c in both % and mmol/mol. For example, an HbA1c of 7% is the same as an HbA1c of 53 mmol/mol. Above the thermometer, put a cross (X) on the line to show your latest HbA1c. Below the thermometer, put a X to show your target HbA1c.

My latest HbA1c (average blood glucose level) is:



My target HbA1c is:

Insulin: why, when, and who?

Why might my health professional recommended insulin to me?

Insulin is very effective for lowering blood glucose levels. Typically, doctors recommend insulin when other medications are unable to keep your blood glucose within your target range.

They also do recommend insulin when your body can't tolerate other diabetes medications. For example, your body may not respond to other medications, or you may have had serious side-effects from other medications. Insulin might also be recommended if you have other health conditions or personal circumstances that make it difficult to use other diabetes medications.

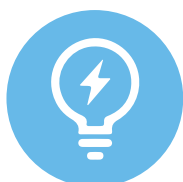
When is insulin needed?

For many people with type 2 diabetes, insulin is recommended several years after they are diagnosed with diabetes — but some people may benefit from taking insulin much earlier, even when they are first diagnosed. Everyone is different.

Who injects insulin?*

Around one in three Australians with diabetes (approximately 400,000 people) currently inject insulin. This includes people with type 1 diabetes, type 2 diabetes, gestational diabetes and other forms of diabetes.

Over 270,000 people with type 2 diabetes currently manage their diabetes with insulin; that's one in four Australians with type 2 diabetes.



Did you know?

You don't have to have type 1 diabetes to need insulin. In Australia, more people with type 2 diabetes inject insulin than people with type 1 diabetes

- ~120,000 Australians with type 1 diabetes inject insulin
- ~277,000 Australians with type 2 diabetes inject insulin

* NDSS Insulin Therapy Statistical Snapshot 31 December 2018

Insulin: how, how often and how much?

How is insulin taken?

Insulin can only be injected. Currently, it cannot be given in tablet form, because it would be destroyed in the stomach and would not work.

Insulin works best when it is injected into the fatty layer just below the skin and above the muscle. This is known as the subcutaneous layer. Most people inject it into their tummy, but some people prefer to inject it in their buttocks or thighs instead. Where you inject your insulin can affect how quickly it works. It is also important to inject in a slightly different place each time. Your health care team will be able to teach you how and where to inject your insulin, as well as how to look after your insulin.

You can read more about injecting insulin, insulin storage and sharps disposal in the fact sheet 'Insulin' (ndss.com.au/insulin).

Insulin-injection devices

Insulin is most commonly injected using an insulin pen device. An insulin pen contains a prefilled insulin cartridge, and you dial up your dose before injecting. Insulin can also be injected using a syringe by drawing up insulin from a vial or bottle.

Many people find using an insulin pen easier and more convenient than syringes. If you have problems with your eyesight or with arthritis in your hands, you may find it easier to use an insulin pen. Each type or brand of insulin has its own type of pen. Talk with your diabetes health professional about what insulin injection device is best for you and how to use it.

How often will I need to inject insulin?

How often you inject insulin will depend on what type of insulin you are taking (see page 8). When starting insulin injections, most people with type 2 diabetes will inject once or twice daily.

How much insulin will I need to inject?

It is important to inject the amount of insulin recommended by your doctor. Your doctor will advise you when to change the dose and by how much. This is to make sure that you get the right dose of insulin for you. Everyone is different.



“I was surprised when they demonstrated this ultra-fine needle, this pre-loaded pen. It looks like a fountain pen. That was an eye opener.”

Sam, 52 years old

Insulin: what type and what else?

What type of insulin will I need?

Insulin lowers the level of glucose in your blood. When insulin works most strongly to lower the blood glucose level, it is said to have reached its 'peak'. After this, its effect gradually wears off. There are five types (or classes) of insulin. Each type differs in how quickly it reaches its peak and how long it works in the body.

For example, a 'long-acting' insulin (also known as basal insulin) provides a constant slow release of insulin for up to 24 hours. Meanwhile, 'fast-acting' insulins (also known as bolus insulin) peak between one and two hours after being injected. Basal insulins are injected once or twice a day, while bolus insulins are injected with meals. You may be prescribed more than one type of insulin or a 'mixed insulin' (mixture of long-acting and fast-acting insulin). This is given before meals once or twice a day. The fast-acting part of the insulin helps to stop blood glucose levels from rising too much after a meal. The long-acting part works for the rest of the day.

Your insulin needs can also change over time. You may need to change your insulin dose or type or use more than one type of insulin. It is important to have regular reviews of your diabetes management with your health care team.

Learn more about the different types of insulin in the NDSS fact sheet 'Insulin' (ndss.com.au/insulin).

What else will I have to do?

People who take insulin need to self-monitor their blood glucose levels. This is usually done by pricking your finger to obtain a small drop of blood, which is then checked with a blood glucose meter. Regular monitoring can help you see the effects of food, drink, physical activity, medications and illness on your blood glucose levels. It can also help you identify any patterns or changes in your blood glucose levels. Your health care team will help you decide your target range and when and how often you check your blood glucose levels. Read more in the NDSS fact sheet 'Blood glucose monitoring' (ndss.com.au/blood-glucose-monitoring-fact-sheet).

“I was keen to know how insulin was going to impact me. I was checking my blood glucose several times a day to monitor it, quite excited about how I was bringing it down very quickly.”

Kevin, 57 years old



Benefits and side-effects of insulin

How can insulin benefit me?

Taking insulin will lower your blood glucose levels. It may take a week or two before you notice an improvement in your blood glucose levels. This is because it can take some time for you and your doctor to find the right type and dose of insulin for you. Checking your blood glucose levels at home and an HbA1c check will help you to see the effect of taking insulin.

Taking insulin can also make you feel better. This is because keeping blood glucose levels in your target range gives you more energy to live your life as you want.

Taking insulin can improve your long-term health. Keeping your blood glucose levels within your target range reduces your risk of long-term complications. It can also prevent any complications you already have from getting worse. You can read more about long term complications in the NDSS fact sheet 'Diabetes-related complications' (ndss.com.au/diabetes-related-complications).

What side-effects could I experience?

When used correctly, insulin is very safe — but it is important to understand that it does have some side effects.

Weight gain

Taking insulin can lead to some weight gain (usually, 1-3 kg). When you have high blood glucose, your body is unable to turn its glucose into energy. The kidneys get rid of this extra glucose through the urine. This causes the common symptoms of high blood glucose levels — frequent urination, extreme thirst and tiredness. This can make you dehydrated, and you may lose weight — but it is not a healthy weight loss. After you start taking insulin, your body is better able to turn the glucose from your food and drink into energy. This means you may gain some weight in the short term. If you are concerned about this side effect, your health care team can help you plan how to manage your weight.



“I’m much happier with where I’m at than where I was. Just the fact that I generally feel better, more active, more aware”.

Sharon, 67 years old

Hypoglycaemia

Taking insulin increases the risk of hypoglycaemia or ‘hypos’. A hypo is a low blood glucose level, i.e., below 4mmol/L.

Common causes of a hypo include taking too much insulin, missing meals, not eating enough carbohydrates, drinking alcohol, or being more active than usual. Hypos can also be caused by illness (e.g., if you have a tummy upset), weight loss, stress, hot weather or hormonal changes.

Symptoms of a hypo vary from person to person. You might feel dizzy, shaky or confused.

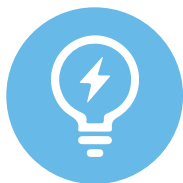
It is a good idea to keep your blood glucose meter nearby, so you can quickly check if your blood glucose is low. Easily absorbed carbohydrates (e.g., jelly beans or fruit juice) can be used to treat a hypo.

If left untreated, blood glucose levels may continue to drop, and this may lead to a severe hypo. A severe hypo is one you cannot treat yourself and where you need help from someone else to recover. It can lead to loss of consciousness or coma. It is important that your family and friends know you manage your diabetes with insulin and what they may need to do to help you in case of a severe hypo. More information is available in the NDSS fact sheet ‘Managing hypoglycaemia’ (ndss.com.au/managing-hypoglycaemia).

Your health care team will be able to advise you on how to prevent, recognise and treat hypos. They can also teach you how adjust your insulin (if needed) and check that your insulin doses are still right for you.

“I was getting hypos at night. After talking it over with the doctors, they adjusted my dose and I don’t tend to have many hypos now.”

Billy, 42 years old



Did you know?

A GP Management Plan provides an organised written approach to your care. It can help you manage your diabetes effectively. This plan also enables you to receive a Medicare rebate to see other members of the health care team, such as diabetes educators, dietitians, podiatrists and exercise physiologists. For more information about GP Management Plans, talk with your doctor or diabetes health care team.



Frequently asked questions

Many people worry or feel anxious about starting insulin injections. If you feel this way, you are not alone. It is okay to have questions and concerns about injecting insulin. Here are some common questions, along with their answers. You can also read the NDSS fact sheet 'Concerns about starting insulin' (ndss.com.au/concerns-about-starting-insulin).

1. Does taking insulin mean I now have type 1 diabetes?

No. Type 1 and type 2 diabetes are two different conditions, with different causes and management plans. People with type 1 diabetes need to inject insulin from the time they are diagnosed. In type 2 diabetes, however, insulin injections may not be required for several years after diagnosis. People with type 2 diabetes may also need other tablets to help manage their diabetes.

2. Does taking insulin mean that my diabetes is worse or that I've failed in managing my diabetes?

No. Many people with type 2 diabetes think of insulin as a 'last resort' treatment or that needing insulin is a sign of 'failure' and that they haven't managed their diabetes well enough. This is a myth. In people with type 2 diabetes, the body's ability to make and use insulin declines over time — this is the natural progression of the condition. This means that the type and dose of medications you need to manage your diabetes are also likely to change over time. Needing insulin is not your 'fault', and you have not 'failed' in any way. Injecting insulin can help you to stay healthier by keeping your blood glucose levels within your target range.

3. Is taking insulin painful?

Everyone is different. Many people report that they don't feel their injections, or that it's less painful than pricking their finger for blood glucose monitoring. But some people find their injections painful. These days, insulin pens have extremely fine needles that can be used with very little discomfort.



“I'm more satisfied now that I'm doing everything I can to control my diabetes”.

Dave, 63 years old

“I must admit the very first time when the nurse did it, I’m thinking “oh it’s going to hurt”, and I didn’t feel a thing. I mean, the needles are so small and so short”.

Jane, 69 years old



4. Is taking insulin difficult or complex?

At first, injecting insulin may feel like a daunting task. Injecting insulin does require careful attention, but most people report that it’s quick and easy to do. Your health care team can advise you on how to store insulin, prepare and dispose of insulin pens and syringes, and how to inject insulin. To ease your nerves, ask your health care team if you can practise using the insulin device with their help at the clinic.

5. Will other people see me differently if I start injecting insulin?

Many people worry that starting insulin may cause their family and friends to be more concerned about them or that people may see them as ‘sick’. Other people may not understand what the changes to your diabetes management mean for you. To help your loved ones support you, you might find it useful to talk to them about your new way of managing diabetes. They may be reassured to know that, by taking insulin injections you’re doing your best to look after yourself and are likely to feel better rather than worse, as a result.

6. Will taking insulin make day-to-day life less flexible?

Taking insulin will involve injecting at least once per day or, for some people, several times per day. Like other medications you may take, insulin injections may need to be taken at a set time each day (e.g., before breakfast, or with meals). Most people find that injecting insulin fits in with their usual medication-taking routine.



“I remember thinking “oh what a pain” because I’ve got to remember to take it. But now it’s just part of living, so it’s fine.”

Kate, 32 years old

7. I like to go out for meals with friends. Can I inject insulin in public?

Yes, you can. It’s best to inject somewhere that is clean and comfortable for you. This might be at a restaurant table or in a private room. Everyone is different. Find what works best for you. No one should make you feel uncomfortable about taking your medication when and where you need to.

8. Will taking insulin make me more dependent on my family and friends?

Everyone is different. Many people let their loved ones know they are taking insulin and what to do in case of a hypo. Some people ask their family and friends to actively help them manage their diabetes, for example, by preparing healthy meals and reminding them to take their tablets or insulin. Others prefer to manage their diabetes independently and keep it private. It is up to you if, when and how to involve your family and friends.

9. Will taking insulin make me more dependent on my doctor?

In the first couple of months after starting insulin injections, you may need to visit your diabetes health care team a few times. This is so you can discuss how the insulin is working and learn when/how you can make some simple adjustments to your dose. After this, you will most likely need to visit your health care team every 3-6 months.

“We are going overseas next month for 6 weeks. I know I’ve got to take double the amount of insulin with me and take my prescriptions. So I just need to organise all of that.”

Morgan, 45 years old



10. Does taking insulin mean I won't be able to travel?

No. You will still be able to travel wherever you want, locally and internationally. Careful planning before travelling is essential, especially if you are travelling for some time. You'll need to save some luggage space for your diabetes supplies. For example, you will need to pack a letter from your doctor, medication prescriptions, enough insulin and other supplies (e.g. needles, pens and glucose-monitoring equipment) to last the trip, plus some spares. For a smooth trip, talk with your health care team on how to best prepare for travel. More information is available in the NDSS fact sheet 'Travel' (ndss.com.au/travel-fact-sheet).

11. Does taking insulin mean I won't be able to drive?

No. Many people who inject insulin also drive. However, you are required to inform the relevant driving licensing authorities where you live about your diabetes and provide a medical certificate every two years, which indicates your "fitness to drive". The main risk when driving is having a hypo. Usually, hypos can be prevented by following these tips:

- » Before driving, and every two hours on a long trip, check your blood glucose levels. It needs to be above 5mmol/L and stable before you drive.
- » Carry a blood glucose meter with you when you drive.
- » Carry some carbohydrates (food or drinks) with you and keep extra supplies in your vehicle.

More information is available in the NDSS booklet 'Diabetes & Driving' (ndss.com.au/driving).

So, how do I feel now about starting insulin?

This booklet has provided the why, who, when, how and what of insulin injection therapy and answered some frequently asked questions. Now it's time to consider *what is important to you*.

When you need to make a big decision, it can help to write down the advantages and disadvantages of each option. In the space below write down *your* pros and cons of starting or not starting insulin. After you've written them down, consider which are most important to you.



Activity 3: So, how do I feel now about starting insulin?

	Pros	Cons
Start insulin	e.g. Insulin will help...	e.g. I'm worried about...
Don't start insulin		

Discuss your priorities and any questions or concerns you have about injecting insulin with your health care team.



“I look at it in a positive way... taking insulin keeps my blood glucose down and stops or delays eye, foot and kidney problems later on.”

Dianne, 52 years old

“I realised that injecting wasn’t the traumatic experience that I expected it to be. I was quite pleasantly surprised actually.”

Michael, 37 years old



Discussing insulin with my health care team

Now that you've learnt more about insulin and considered what's important to you, it may be time to make an appointment with your diabetes health care team for a discussion.

Your doctor can provide information and advice to help you to decide which diabetes management is best for you and to support you as you start new medications. You might also ask to visit a Credentialed Diabetes Educator. Diabetes Educators are trained to provide diabetes management education. They can teach you how to prepare, inject and store insulin and also answer any questions you might have about insulin or diabetes in general.

Before you meet with your health care team, think about what you want to get out of your discussion. It can help to write a list of questions or prompts to remind you on the day. Here are some examples. You may want to use some of these, or you may have other questions to ask. Remember, there are no silly questions.

Example questions/prompts:

1. What is my target HbA1c?
2. Is my most recent HbA1c within my target range?
3. What are my treatment options?
4. If I need insulin, what type of insulin would be best for me and why?
5. Will I have to check my blood glucose levels at home? How often?
6. Can I see and practice using an insulin injection device during an appointment?
7. What kind of support and education is available to help me as I start taking insulin?
8. I need more information on: _____
(e.g. insulin injection devices, treating a hypo or managing my weight).

Where can I get more information and support?

My health care team

Make an appointment with your health care team to discuss insulin. This might include your doctor, a diabetes educator or a practice nurse. Only a doctor can prescribe insulin. A diabetes educator can provide additional training and support.

Attend a diabetes group education session

Your local state/territory diabetes organisation may run group education sessions for people with type 2 diabetes starting insulin therapy. Call the free national NDSS Helpline (**1800 637 700**) for information on education sessions available near you. Some diabetes clinics and hospitals also run group education sessions.

Peer support

Talking with others about their experiences with diabetes can be useful and may help you to feel less concerned about starting insulin. You might like to join a diabetes peer support group to meet other people with type 2 diabetes who are taking insulin. Check out the NDSS fact sheet on 'Peer support for diabetes' (ndss.com.au/peer-support) to learn more. Call the free national NDSS Helpline (**1800 637 700**) for information on peer support groups available in your state/territory.

Support from family and friends

You might find it helpful to talk with your family and friends, if you feel comfortable to do so. Sharing how you feel can help them understand how best to support you.

Call the NDSS Helpline 1800 637 700

Diabetes Australia offers a free national NDSS Helpline, through which people with diabetes and their carers can access diabetes information, education programs, peer support groups and events, and speak with a health professional.

More information

Check out the NDSS website (ndss.com.au) for more information about diabetes management.

NDSS Helpline 1800 637 700
ndss.com.au