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## Diabetes and exercise

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### Summary

- Exercise has many benefits for people with diabetes, especially when combined with healthy eating.
  - Before you start exercising, make sure you have an individualised diabetes management plan, and a health check with your GP.
  - An exercise physiologist can develop a personalised exercise plan for you.
  - Check your blood glucose levels (BGLs) before, during and after exercise to see how the exercise you are doing affects them.
  - If your BGLs are above the normal range increase your fluids to stay hydrated when you exercise.
  - If you are unwell and your BGLs are high, avoid exercising until your BGLs have returned to the normal range.
  - If you have type 1 diabetes and you are unwell, avoid exercise until you feel better to reduce your risk of ketoacidosis.
  - Always carry portable hypoglycaemia treatment with you if you take insulin or sulphonylurea medication.
  - If you have existing diabetes complications such as eye or kidney problems, check with your diabetes specialist if it is safe to do certain types of activity.
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Exercise has benefits for everyone, including people with diabetes, especially when combined with healthy eating.

### Benefits of exercise

According to Australia's Physical Activity and Sedentary Behaviour Guidelines, it's important to accumulate 2½ to 5 hours per week of moderate exercise or 1¼ to 2½ hours of vigorous exercise to obtain health benefits. This can be broken up throughout the week to suit your needs.

Exercise helps to:

- improve mood and sleep
- improve muscle strength and bone mass
- lower blood glucose levels (BGLs)
- lower cholesterol and blood pressure
- improve heart and blood vessel health
- maintain or achieve a healthy body weight
- reduce stress and tension
- improve mental health.

If you are at risk of type 2 diabetes, exercise can be part of a healthy lifestyle that can help to reduce this risk.

### Diabetes – precautions to take before starting an exercise program

While exercise has many benefits it is also important to know about some guidelines for diabetes and exercise. This makes exercise safer and more enjoyable.

People with diabetes are at increased risk of heart and blood vessel disease and foot problems, so it's important that your exercise is right for you.

People with type 1 diabetes and people with type 2 diabetes using insulin or some glucose-lowering medications called sulphonylureas are at risk of hypoglycaemia, and their risk increases during and after exercise.

- Make sure you have an individualised diabetes management plan – your diabetes health professional can help you with this.
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- If you have never exercised before, start with low impact exercise such as walking or strength training and go slowly. This will help build exercise tolerance. You will also be more likely to continue doing regular exercise and prevent injuries.
- Consider seeing an **exercise physiologist** for an individualised exercise program. This is especially helpful if you have pain or limited movement.
- Discuss with your doctor or diabetes educator the most appropriate areas of the body to inject your insulin, especially during exercise.

### **Diabetes, exercise and foot care**

People who have had diabetes for a long time or those who have consistently high BGLs are at higher risk of developing foot problems. If you have nerve damage to your feet (called peripheral neuropathy) this makes you more prone to injury and to problems such as foot ulcers.

The health of your feet can be checked by a podiatrist to make sure you are safe to do the exercise you are planning.

You can prevent foot injuries and infections by:

- wearing well-fitting socks and shoes
- wearing the right shoe for the activity you are doing
- inspecting your feet daily
- having annual foot checks by a podiatrist
- reporting to your doctor any changes to your feet, such as sores, as soon as you detect them.

### **Diabetes, exercise and blood glucose levels**

Exercise causes your muscles to use more glucose, so it can lower your BGLs. It is important for people with diabetes to keep track of their BGLs when they exercise.

#### **Hypoglycaemia**

Hypoglycaemia or a low BGL (4.0 mmol/L or less) can occur in people who inject insulin or take a type of glucose lowering medication (sulphonylurea).

Exercise causes your muscles to use more glucose. This lowers your BGLs. For people taking insulin or diabetes tablets (which make you produce more insulin) there is a risk of your BGLs going too low.

Check your BGLs before during and after exercise to see how the particular exercise you are doing affects your BGLs. The type, length of time (duration) and intensity of exercise can all have an effect.

You can reduce your risk of hypoglycaemia during and after exercise by:

- checking your BGLs before exercise – make sure your BGL is at least 7.0mmol/L before exercise
- checking your BGL regularly during and after exercise
- increasing your carbohydrate intake as necessary according to intensity, duration and type of exercise
- decreasing medication or insulin as necessary, after talking to your doctor.

Your risk of hypoglycaemia during exercise is increased if:

- you have **type 1 diabetes**
- you have longstanding diabetes and inject insulin
- you have had recurring episodes of hypoglycaemia
- you are unable to detect the early warning signs and symptoms of hypoglycaemia
- you have an episode of hypoglycaemia before exercise (both exercise and hypoglycaemia reduce your ability to detect further hypoglycaemia)
- you have drunk alcohol before exercise (alcohol reduces your ability to detect hypoglycaemia).

Always take easy to carry hypoglycaemia treatment with you if you are at risk of hypos. And wear a medic alert bracelet.

For more information on hypoglycaemia management please refer to the Better Health Channel's [hypoglycaemia](#) fact sheet.

### **Hyperglycaemia**

Hyperglycaemia is another way of saying that BGLs are too high (over 11mmol/L).

Exercising when your blood glucose is higher than normal can lower your levels. However, if you are unwell and your BGLs are higher it is best to avoid exercising until your BGLs have returned to the normal range.

People with diabetes who have BGLs above the normal range are more at risk of dehydration so increase your fluids to stay hydrated when you exercise.

If you have type 1 diabetes refer to the 'Diabetes, exercise and ketoacidosis' section below.

### **Diabetes, exercise and ketoacidosis**

People with type 1 diabetes are at risk of developing a build-up of ketones (**ketoacidosis**) if they are unwell or have forgotten to take their insulin.

If you have type 1 diabetes and you are unwell, avoid exercise until you feel better. If your BGL is above 15mmol/L and you have positive blood or urine ketones, you need to clear the ketones from your blood before beginning exercise. Extra insulin is needed to clear ketones. Ask your diabetes health professional for an individual management plan.

People with type 2 diabetes are generally not at risk of developing dangerous levels of ketones and therefore do not need to check for them.

### **Diabetes complications and exercise**

If you have existing diabetes complications such as heart, eye or kidney problems, check with your diabetes specialist if it is safe to do certain types of activity. They can advise you about which types of exercise to avoid in order to prevent worsening complications.

### **Where to get help**

- Your **GP (doctor)**
- In an emergency, always call triple zero (000)
- Emergency department of your nearest hospital
- **NURSE-ON-CALL** Tel. 1300 60 60 24 – for expert health information and advice (24 hours, 7 days)
- **Diabetes Victoria** Tel. 1300 437 386 Monday to Friday, 9.00 am to 4.00 pm

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