

# Low blood glucose in type 1 diabetes (hypoglycaemia)

The aim of diabetes treatment is to keep blood glucose as close to target as possible. People with type 1 diabetes need long acting insulin to manage their basal insulin needs and rapid acting insulin to match their carbohydrate intake to achieve blood glucose targets. Sometimes blood glucose levels can go lower than the target range and this is called hypoglycaemia (low blood glucose) or 'hypo'.

## Who is at risk of low blood glucose (hypoglycaemia)?

All people with type 1 diabetes are at risk of low blood glucose regardless of the type of insulin used. It is important that you have a hypo action plan.

## What causes low blood glucose?

Low blood glucose can be caused by;

- > miss match between rapid acting insulin and carbohydrate intake
- > too much basal insulin
- > delay in eating after injection of rapid acting insulin
- > missing a meal after injection of rapid acting insulin
- > more strenuous physical activity than usual
- > unplanned physical activity
- > drinking too much alcohol
- > fasting, vomiting or diarrhoea.

## How do I know if my blood glucose is low?

Symptoms vary from person to person and can come on slowly or quickly depending on the cause.

Symptoms may include sweating, weakness, trembling, headache, dizziness, sinking hungry feeling, tingling sensation of mouth and lips. If left untreated, these symptoms can worsen to:

- > confusion
- > behaviour changes
- > unsteady
- > unconsciousness.



If you have had diabetes for many years, the risk of not feeling the symptoms of hypos is more likely. Hypo unawareness (also known as impaired hypoglycaemia awareness) can be dangerous because by the time you realise you are having a hypo, you may find it hard to treat it.

Testing blood glucose is the best way to check if you are having a hypo. If you can't check blood glucose, it is better to play it safe and treat immediately as a low blood glucose. Your doctor or credentialed diabetes educator can advise on a safe blood glucose level for you. Most people treat blood glucose as too low when it is less than 4mmol/L.

## What should I do if my blood glucose goes too low?

**Always treat low blood glucose even if you don't have symptoms.**

If you are using an insulin pump, your doctor or credentialed diabetes educator will discuss how to treat and manage hypoglycaemia. As a general recommendation:

### **Step 1. Have a carbohydrate exchange such as:**

- > 100mls Lucozade
- > 5-6 jelly beans OR
- > 150mls soft drink (not diet).

Check your blood glucose in 10-15 minutes, if blood glucose is still below target, repeat step 1. If you repeat step 1 three times and you are still low, seek medical advice immediately.

### **Step 2. Once back in target, have another exchange of carbohydrate,**

- > a slice of bread or toast OR
- > a glass (250mls) of milk OR
- > 1 piece of fruit OR
- > biscuits (eg 2 semi sweet biscuits, tiny teddy snack pack) OR
- > your usual meal (with adequate carbohydrate).

Measure your blood glucose more often for 12 hours to check for repeat hypos. Talk to your doctor or credentialed diabetes educator if you continue to have hypos.

***If you are driving and you feel hypo symptoms, safely pull over, turn the car off and take the keys out of the ignition. Treat as above and wait at least 30 minutes after your blood glucose reads above 5mmol/L. Test again to confirm it remains above 5mmol/L, before driving again.***

## Do I need glucagon?

Glucagon injection is a hormone that increases blood glucose. You may be unconscious or just unable to swallow because you are too drowsy. A credentialed diabetes educator can educate your family/friend on how and when to inject glucagon. Ask your doctor for a prescription and store it in the refrigerator until the expiry date.

## Key points to remember

Tell friends, family and work mates that if you become unconscious, they should never put anything in your mouth. They should call an ambulance, clear your airway and position you on your side.

- > have a hypo action plan and always carry some quick acting carbohydrate food to treat early
- > treat your blood glucose if less than 4mmol/L even if you don't have symptoms
- > wear medical alerting identification and have ambulance cover
- > find and correct the cause of hypo so you can reduce future risk
- > if you think you have hypo unawareness, discuss this with your doctor and credentialed diabetes educator as they will advise you on how to manage this problem
- > if you have a severe hypo (you need help from someone else) contact your doctor and endocrinologist to discuss insulin adjustment and driving
- > you must notify the Registrar of Motor Vehicles your diagnosis of type 1 diabetes.

## Where can I get more information?

Your local diabetes service or general practice  
Health Direct Australia (24hr health advice line)  
Diabetes Australia  
Medic Alert  
SA Ambulance

Phone: 1800 022 222  
[www.diabetesaustralia.com.au](http://www.diabetesaustralia.com.au)  
[www.medicalert.com.au](http://www.medicalert.com.au)  
[www.saambulance.com.au](http://www.saambulance.com.au)

## My hypo action plan

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|---|--|
| <p>Contact details<br/>         Family / Friend: _____<br/>         Doctor: _____<br/>         Credentialed diabetes educator:<br/>         _____<br/>         Health Direct (24hr health advice line)<br/>         Phone: 1800 022 222</p> | <p><i>Affix Patient Identification Label</i></p>   |
| <p><b>Blood Glucose (BG) target</b><br/> <i>A higher individual target may be recommended for impaired hypoglycaemic awareness, in the young, the aged or due to other medical conditions.</i></p>  | <p>Treat if BG less than _____ mmol/L even when there are no symptoms.<br/>         Ensure BG is above 5mmol/L before driving.</p>   |
| <p><b>Step 1</b><br/> <i>Hypo treatment may be weight dependent in children and young persons.<br/>         If using an insulin pump and BG between 2.0-3.9mmol/L, do not disconnect the pump.</i></p>                                      | <p>At home: _____<br/>         Out / car: _____</p>  |
| <p><b>Step 2</b></p>  | <p>Monitor BG – 10-15 minutes and repeat Step 1 until BG over 4mmol/L<br/>         OR _____</p>  |
| <p><b>Step 3</b></p>  | <p>Once BG is above _____ mmol/L treat with<br/>         At home: _____<br/>         Out / car: _____</p>  |
| <p><b>Step 4</b></p>  | <p>Monitor BG 2hrly until sure the risk of repeat hypo is gone<br/>         OR _____</p>   |
| <p><b>Other issues to consider</b><br/> <i>If using an insulin pump and BG less than 2.0 mmol/L, or person is unconscious or confused, disconnect insulin pump tubing from the infusion set immediately.</i></p>                            | <p>If unconscious or unable to swallow.<br/>         Do not give anything by mouth. Ensure airway is clear and place on side on floor.<br/>         Phone ambulance (dial 000).<br/>         Glucagon (if trained person available): _____<br/>         Medic Alert: _____<br/>         Driving (vehicle or equipment)<br/>         &gt; Notification of Registrar of Motor Vehicles: _____<br/>         &gt; Diabetes &amp; Driving booklet given: _____<br/>         &gt; Physical Activity: _____</p> |
| <p><b>When to contact doctor or credentialed diabetes educator</b></p>  | <p>1. If you have a severe hypoglycaemia (you need help from someone).<br/>         2. If you have _____ mild hypos in a week.</p>   |
| <p>Date: _____</p>  | <p>Name: _____ Signature: _____</p>  |

### For more information

**CHSA Diabetes Service**  
**Country Health SA LHN**  
 PO Box 287, Rundle Mall  
 ADELAIDE SA 5000  
 Telephone: (08) 8226 7168  
[www.chsa-diabetes.org.au](http://www.chsa-diabetes.org.au)