

FACTSHEET | MAY 2021

Low blood glucose in type 1 diabetes - hypoglycaemia

RSS Diabetes Service

People with type 1 diabetes balance their carbohydrate intake, physical activity and insulin therapy 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)?

Insulin therapy is used to reduce the level of glucose in type 1 diabetes. People prescribed any type of insulin therapy are at risk.

What blood glucose level is "too low"?

Low blood glucose is defined as a blood glucose less than 4.0mmol/L. This definition may be modified in the aged or in persons with impaired hypoglycaemia awareness or other medical conditions.

What causes low blood glucose?

Low blood glucose can be caused by;

- too much insulin
- not eating enough carbohydrate
- delayed or missed meal
- drinking too much alcohol
- drinking alcohol without eating enough carbohydrate
- unplanned physical activity
- strenuous physical activity
- fasting for surgery or a procedure
- illness (e.g. vomiting or diarrhoea).

How do I know if my blood glucose is low?

Symptoms vary from person to person. Early warning symptoms may include shaking, trembling or weakness, sweating, hunger, headache, dizziness, tingling sensation around the mouth and lips.

If left untreated, these symptoms worsen and may include poor concentration or behaviour change, confusion, slurred speech, unsteadiness and loss of consciousness.

Impaired hypoglycaemia awareness occurs when a person does not feel the early warning symptoms. If you have had diabetes for many years, the risk of not feeling the symptoms is more likely. Hypoglycaemia unawareness can be dangerous because you may not realize you are having a 'hypo' until your blood glucose is very low. When your blood glucose is very low, it is difficult to think and self-treat.

Testing the blood glucose is the best way to check if you are having a 'hypo'.

Always treat the 'hypo' if your blood glucose is less than 4.0mmol/L, even if you feel fine and do not have symptoms. If you cannot check your blood glucose, it is better to be safe and use your 'hypo' treatment immediately.



What should I treat my low blood glucose with?

As a general recommendation, the steps to treat are:

Step 1. Have some easily absorbed carbohydrate (e.g. 100mL Lucozade® **OR** 150mL soft drink (not diet) **OR** 6-7 regular jelly beans **OR** 4-5 large jelly beans). This amount equals 15g of carbohydrate.

Step 2. 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 3. Once back in target, have some extra carbohydrate (e.g. 250mL of milk **OR** 1 piece of fruit **OR** a slice of bread or toast **OR** 2 semi sweet biscuits **OR** your usual meal with adequate carbohydrate). If using an insulin pump, this step may not be required.

Avoid over-treating a 'hypo' as this may cause blood glucose to rise higher than your target.

Measure your blood glucose more often for 12 hours after the 'hypo' to check for repeat 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 5.0mmol/L. Test again to confirm it remains above 5.0mmol/L, before driving off. Stop and test blood glucose every 2 hours if driving.

Do I need glucagon?

Glucagon is a hormone that increases blood glucose. A glucagon injection is used for severe hypoglycaemia (e.g. when you are unconscious or just too drowsy to swallow food or fluid safely). Your doctor can provide you with a prescription and a credentialed diabetes educator can educate your family/carer on how and when to use it.

Key points to remember

- have a hypo action plan and always carry your 'hypo' treatment with you
- treat your blood glucose if less than 4.0mmol/L even if you don't have symptoms
- wear medical alert identification and have ambulance cover
- tell friends, family and work mates that if you become unconscious, they should never put anything in your mouth and should call an ambulance, clear your airway and position you on your left side on the floor
- if you have a severe 'hypo' (you need help from someone else), it is essential that you do not drive again until your diabetes specialist confirms you are safe to resume driving
- if you think you have impaired hypoglycaemia awareness or do not know the cause of the 'hypo', contact your doctor and credentialed diabetes educator so you can reduce future risk.

Where can I get more information?

- Healthdirect Australia (24hr health advice line)
- Diabetes Australia
- Medic Alert
- SA Ambulance

Phone: 1800 022 222

www.diabetesaustralia.com.au

www.medicalert.com.au

www.saambulance.com.au

For more information

Rural Support Service

Diabetes Service

PO Box 287, Rundle Mall
ADELAIDE SA 5000

Email: Health.DiabetesService@sa.gov.au

www.chsa-diabetes.org.au

www.sahealth.sa.gov.au/regionalhealth

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SA Health

My 'Hypo' Action Plan

Emergency contact details Ambulance: 000 Hospital: _____ Ph: _____ Doctor: _____ Ph: _____ Diabetes Educator: _____ Ph: _____ Family / Carer: _____ Ph: _____ 24hr Healthdirect Phone: 1800 022 222		My contact details U.R. No: _____ Surname: _____ Given Name: _____ DOB: _____ Sex/Gender: _____	
My low blood glucose (BG) definition <i>A higher BG may be recommended in the aged, for impaired hypoglycaemia awareness or due to other medical conditions.</i>		Treat if BG less than _____ mmol/L even when there are no symptoms. Ensure BG is above 5.0mmol/L before driving.	
My 'Hypo' treatment Step 1. Easily absorbed carbohydrate <i>Hypo treatment may be weight dependent in children and young persons.</i> <i>If using an insulin pump and BG between 2.0-3.9mmol/L, do not disconnect the pump.</i>		At home: _____ Out / car: _____	
Step 2. Check BG <i>If I repeat step 1 three times and I am still low, I need to seek medical advice immediately.</i>		Monitor BG in 10-15 minutes. If BG still below target, repeat step 1.	
Step 3. Some extra carbohydrate <i>If using an insulin pump, extra carbohydrate may not be required.</i>		Once BG is above _____ mmol/L. At home: _____ Out / car: _____	
Step 4. Monitor risk of repeat 'hypo' <i>Causes of recurrent 'hypos' include excessive or ongoing action of insulin, if fasting or unwell, during and after intense physical activity, excessive alcohol use.</i>		Monitor BG _____ hourly for _____ hours. _____ _____	
Other issues to consider <i>If unconscious or unable to swallow – I am not to be given anything by mouth. My airway is to be clear and I am to be positioned on my left side on the floor. An ambulance must be called immediately</i> <i>If using an insulin pump and BG less than 2.0mmol/L, or unconscious or confused, disconnect the insulin pump tubing from the infusion set immediately.</i>		Glucagon trained person: _____ Medic alert: _____ Notification of driver licensing authority: _____ NDSS Diabetes & Driving booklet given: _____ Workplace: _____ Employment and machinery: _____	
When to contact doctor or credentialled diabetes educator		1. If I have had a severe hypoglycaemia (e.g. I needed help from someone). 2. If I have _____ mild hypos in a week.	
Date: __/__/____		Name: _____ Signature _____	