

Exercise advice for young people with type 1 diabetes

Nutrition and Dietetics

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Information for Patients

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Introduction

This leaflet is for young people with diabetes who are taking insulin to help manage blood glucose during and after exercise.

Being active is an important part of a healthy lifestyle. Being more active may affect your blood glucose levels. To manage exercise safely you need to understand how different activities may affect your blood glucose.

Managing blood glucose levels during exercise may feel scary at first. To help stop blood glucose levels becoming too low or too high you should check your levels regularly, consider adjusting insulin doses and / or have extra carbohydrates.

Remember, this information is a starting point and everybody responds very differently. Contact your diabetes team for more personalised advice.

**Health information and support is available at www.nhs.uk
or call 111 for non-emergency medical advice**

Visit www.leicestershospitals.nhs.uk for maps and information about visiting Leicester's Hospitals
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Activity types

The type of activity and how long you do it for will have different effects on blood glucose levels. This will also depend on how much 'active' insulin you have in your body.

It is important to regularly check your glucose levels to understand how you are affected by different activities.



Short, sharp bursts of activity that make your heart beat fast will usually push blood glucose levels up. Examples include weight lifting and sprinting.
High adrenaline activities, such as climbing or go-karting, may also have this effect.



Activities that last a longer time like jogging, cycling and swimming usually lower blood glucose levels. This is because your muscles need more glucose to power the activity.



Mixed activities like football or netball may push blood glucose levels up or down depending on how much effort you put in, how sensitive you are to insulin and how long since you last ate carbohydrates.

Before activity

Before exercising, aim for blood glucose level between _____ **mmol**. You can either do this by eating extra carbohydrates or by adjusting insulin if eating within 90 minutes of exercise.

- **If below 4 mmol** it is important to treat this before exercising. After treating, have a 10 to 15g carbohydrate 'follow-up' snack to stop low blood glucose readings later on.
- **If between 4 and 7 mmol** before exercising, have a snack containing 10 to 15g carbohydrate.
- **If 7.1 mmol or above** and you have had insulin in the last 3 to 4 hours, do not have a correction dose. There is no need for extra carbohydrates. You can continue with the activity.
- **If 14 mmol or above**, check for ketones:
 - If ketones are above 0.6mmol/L, **do not** exercise and call a parent or your diabetes team.
 - If ketones are below 0.6mmol/L and you feel well, it is safe to exercise.

During activity

- During activities lasting 1 hour or more, try to check blood glucose levels every 30 minutes to know what is happening.
- If your blood glucose level is below 7 mmol and falling, extra carbohydrates may be needed.
- Keep in mind that the effects of exercise can often make it harder to notice low blood glucose (hypo) symptoms.

Remember! If activity is unplanned, you will need more carbohydrates to prevent low readings. In some cases, blood glucose levels can fall for several hours after activity.

If you are active in the afternoon or evening, you may need to reduce your insulin with meals later in the day to prevent night time lows.

After activity

- If a continuous glucose monitor (CGM) or flash glucose monitor is available, look at the trend arrows and act if glucose levels are falling.
- After intense exercise, blood glucose levels may be high. Be cautious when correcting high levels after activity. It may be worth considering a gentle cool down if this is the case.
- If you have low blood glucose levels after exercise on a regular basis, you may need to reduce the insulin you have with your meal after exercise or consider having an extra snack.
- If you have low blood glucose levels throughout the night, a carbohydrate snack with protein before bed may be helpful. Examples include a glass of milk and biscuit, cheese and crackers, or peanut butter on toast.

Background insulin

- If you are on an insulin pump, reducing your background insulin may be useful, especially if you are exercising over a long time. This option may be useful if you have hypo's during the night or early hours of the next morning.
- Some closed loop insulin pumps have an activity / exercise option. Speak to your diabetes team about using this. It is often useful to activate this 1 hour before starting activity.
- If you are on insulin injections, reducing your long-acting insulin (Lantus, Degludec) may not be helpful unless exercising over a period of a few days (for example, skiing, activity camps, walking holidays)
- If you are using Levemir (insulin detemir), you may wish to consider adjusting your dose. Contact your diabetes team for further information.



Top tips for safe activity

- Always wear or carry diabetes I.D.
- Always have blood glucose meter and hypo treatment with you.
- Check blood glucose levels often.
- Drink plenty of fluids whilst exercising.
- If activity lasts for longer than 1 hour, you may wish to have a carbohydrate containing drink.
- Always check blood glucose levels before going to bed.

Further information

- **Diabetes UK**
www.diabetes.org.uk/guide-to-diabetes/your-child-and-diabetes/physical-activity
- **Digibete**
www.digibete.org/video/guide-exercise-type-1-diabetes/
- **JDRF**
www.jdrf.org.uk/information-support/living-with-type-1-diabetes/everyday-life/exercise/
- **Runsweet.com**
www.runsweet.com/starting-sports/

Contact details

Department of Nutrition and Dietetics

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