Exercise and Type 1 Diabetes - Getting started advice

Children and Young People’s Diabetes Service

Introduction
Being active is an important part of a healthy lifestyle. All young people should be active for at least 60 minutes every day. Being more active may affect your blood glucose levels. To manage activity you need to understand a bit about how different activities affect your blood glucose levels, you need to check blood glucose levels regularly, adjust insulin doses and use low fat carbohydrate foods to prevent hypoglycaemia. This guide is about preventing low blood glucose levels during and after activity.

Activity types
Different types of activity will have different effects on your blood glucose levels.

- Short, sharp fast bursts of activity that make your heart beat very fast and you get very out of breath will usually push blood glucose levels up (anaerobic activity)

- Activities that last a longer time, for example running, cycling, swimming will usually lower the blood glucose levels (aerobic activity)

- Mixed activities like team sports may push the blood glucose levels up or down

The only way to know how an activity affects the blood glucose level is to check before, during and after the activity. Remember these guidelines are a starting point – contact the diabetes team for individual advice.
Getting started

Before an activity begins aim for the blood glucose level to be at least 5mmol/l. You can do this by adjusting insulin doses at the meal before the activity or by eating an extra low fat carbohydrate snack before the start of the activity. Aim for blood glucose levels to be 5-10mmol/l during activity, optimal blood glucose levels for performance are 6-8mmol/l

- If the activity is planned within 1-2hours of a meal with insulin reduce the mealtime insulin dose to prevent low blood glucose levels.
- Check the blood glucose level before the activity begins, if the blood glucose level is below 5mmol/L have a 15-20g carbohydrate snack, if the blood glucose is between 5 and 10mmol/l have a 10-15g snack.
- If the blood glucose is above 10mmol/L and you have taken insulin in the last 2hours do not give a correction dose.
- If you use a SMART blood glucose meter or insulin pump, check active insulin. Active insulin means more carbohydrate will be needed to prevent hypos during activity.

During activities

During activity try and check blood glucose levels every 30minutes to know what is happening.

- If the blood glucose level is below 10mmol/L and/or falling, extra carbohydrate snacks will be needed.
- Remember that exercise can make it harder to notice hypo symptoms.
- If CGM or flash glucose sensing is available look at the trend arrows and act if glucose levels are falling quickly.

After activity

- Being active may affect the blood glucose levels for the next 12 to 24hours. Very strenuous activity may have an impact for up to 36hours.
- Immediately after activity blood glucose levels may rise for 1-2hours.
- High blood glucose levels after exercise should be managed with caution. Only ever do a 50% (half) correction after exercise and monitor blood glucose levels closely.
- Blood glucose levels often fall 6-11hours after activity. If you are active in the afternoon or evening, you may need to reduce food insulin and background (basal) insulin to prevent night-time lows.
- Reduce meal insulin doses by 50% and background (basal) insulin by 20%. Check blood glucose levels every 1-2hours after activity and at midnight and 3am.
- If CGM or flash glucose is available, look at the trend arrows and act if glucose levels are falling.

Remember if activity is planned and lasts longer than 30 minutes, you can change insulin doses and use carbohydrate to manage blood glucose levels. If activity is unplanned, you will need to use carbohydrate to prevent lows.
Top tips for safe activity

- Always wear/carry Diabetes ID
- Always have a blood glucose meter and hypo treatment with you
- Check blood glucose levels often
- If blood glucose is below 5mmol/L or below 8mmol/L and falling have an exercise snack.
- Drink plenty of fluids
- If activity lasts longer than 60 minutes use a sports drink for carbs and fluids
- Always eat something containing both carbohydrate and protein after exercise. This may be your next meal or a bedtime snack
- Always check blood glucose levels before going to bed.

Contact Details

You can contact the Childrens Diabetes Dietitians on uclh.cddietitians@nhs.net or 020 3447 2424.

You can find expert advice and information about children and young people’s type 1 diabetes can be found at www.uclh.nhs.uk/t1

If you need a large print, audio or translated copy of this document, please contact us on 020 344 79364. We will try our best to meet your needs.