

Physical Activity and Type 1 Diabetes in Children and Young People

How can I help reduce healthcare associated infections?

Infection control is important to the well-being of our patients and for that reason we have infection control procedures in place. Keeping your hands clean is an effective way of preventing the spread of infections. We ask that you, and anyone visiting you, use the hand sanitiser available at the entrance to every ward before coming in to or after leaving the ward. In some situations hands may need to be washed at the sink using soap and water rather than using the hand sanitiser. Staff will let you know if this is the case.

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Issue date: Sept 2020

Review date: Sept 2023

Leaflet code: PDT-008

Version: 1.0

Patient information leaflet
For Parents & Carers of a child with Diabetes

Safe & compassionate care,

every time

This guide will help you understand how to keep blood glucose levels stable during exercise.

Exercise is good for your child and should be encouraged as much as possible. There is no exercise a child or young person with diabetes cannot do.

The recommended minimum amount of activity for children is one hour a day at least 5 days a week.

Being active helps your child to:

- Feel good
- Have improved circulation
- Have a healthy heart
- Have lowered blood fats
- Socialise with friends
- Be at (and maintain) a healthy weight
- Improve insulin sensitivity and effectiveness

What happens to your blood glucose during activity?

During activity more energy is used than usual. Often extra carbohydrate is needed to prevent low blood glucose. However, in the case of high blood glucose this can indicate insufficient insulin in your child's bloodstream. Insulin is needed to move glucose from the bloodstream as fuel for the muscles. A lack of insulin causes inadequate glucose reaching the muscles, which the body interprets as a shortage of glucose and so releases yet more into the bloodstream.

If your child's blood glucose is *more than 15mmol/l* and they feel unwell, it is *best they don't exercise*.

Additional points- Caution

- Exercising in warm weather can make insulin more effective which therefore increases the risk of hypos.
- Working muscles can make insulin work faster. If your child is going to exercise shortly after injecting, use an injection site that is as far as possible from the muscles they will be using for that exercise. E.g. When running or swimming inject into their tummy and avoid injecting into their leg or arm.
- The excitement of participating in events like dance shows or sports day affects everyone differently. You may find your child's blood glucose levels rise or fall in these situations, so **remember** to check their blood glucose level to monitor the effect of these events.
- It is important that your child drinks plenty of water to stop them becoming dehydrated during physical activity.

Being safe

- As extra activity may sometimes cause hypos **remember** to;
- Ensure that your child and their coach/teacher always have fast-acting carbohydrate with them e.g. Dextro Energy tablets, Glucotabs, Lucozade, Glucogel
 - Tell the person supervising your child's activity that they have diabetes and make sure that person can identify and treat hypos
 - Encourage and support your child and supervising adults to always respond to hypos straight away – do not wait until the end of the activity
 - Try and have your child wear medical alert identification if possible.

Safe blood glucose levels pre-exercise

It is not always practical to check the blood sugar **before exercise** in younger children but if it is possible use the following guidance:

Check the blood sugar level & if it is:

- **less than 4mmol/l:** they are unsafe to exercise until they have fully recovered from the hypo. Use their usual hypo treatment.
- **between 4.1 and 8 mmol/l:** they will need some extra carbohydrate
- **between 8.1 and 10 mmol/l:** they may need extra carbohydrate if they are planning to exercise for over 1 hour (or if they have had their last meal within 2 hours of exercise)
- **over 10 mmol/l:** they do not need extra carbohydrate
- **over 15mmol/l:** they need to treat with extra insulin and sugar-free fluids. **Ensure their blood sugar is coming down and that they do NOT have ketones before they exercise.**

How much extra carbohydrate will my child need?

The amount and type of extra carbohydrate your child will need depends on the type of exercise, its intensity and how long it lasts. Children's activity can be planned exercise such as a gym class or swimming lessons or unplanned exercise such as playing at the park on the way home from school. Before planned activities, some extra carbohydrate can be taken with their meal or snack, e.g. an extra potato or slice of bread, glass of milk, a piece of fruit, a pancake, cereal bar or a biscuit. If it's been over two hours since their last meal or snack, then an additional low-fat snack or drink containing carbohydrate could be taken.

During particularly strenuous or long lasting activities such as football training, a dance class or a round of golf, extra carbohydrate will probably be needed. This can be taken as an isotonic drink, a snack or a combination of both. The amount needed will vary, but 10g carbohydrate for every 30 minutes exercising is a good guide.

Duration of the exercise

Short lasting exercise (less than 30 minutes)

Should not need a snack before exercise.

Long lasting exercise (30 minutes to 1hr)

May need a snack before exercise, up to 10g carbohydrate for every 30 minutes of exercise

- 10g carbohydrate snack if exercising 30 minutes to 1hr
- 20g carbohydrate snack if exercising 1hr to 1hr 30mins
- 30g carbohydrate snack if exercising 1hr 30mins to 2hr etc.

10g carbohydrate snacks

Drinks

60ml Lucozade Energy
150ml full sugar Sprite / Fanta
100ml pure fruit juice
150ml Isotonic sports drink

Fruit / biscuits

1 small box raisins
3 dried apricots
1 fruit bar (eg school bar)
1 Jaffa cake

Sweets

4 fruit pastilles
10 dolly mixtures
4 chews
10 skittles

After exercise

Blood glucose levels can fall for up to 18 hours or more after exercise. This is because the body is still transferring glucose into the muscles to replace what was used during the exercise. We suggest having an extra low-fat or suitable drink containing carbohydrate straight after exercise, particularly if it is strenuous exercise or lasts longer than 30 minutes.

In addition to this, it is sometimes suggested to have a larger than normal bedtime snack to prevent a night time hypo.

Remember checking blood glucose levels is the only way of knowing if your child has had too much or too little carbohydrate.

Intensity of the exercise

Gentle exercise

e.g. PE class, walking, slow dancing, playing outside
Should not need a snack before exercise providing your child has had a good amount of carbohydrate with the meal before the exercise.

Moderate / vigorous exercise

e.g. swimming, football training, fast dancing
Will need 10g carbohydrate for every $\frac{1}{2}$ hour exercising.

For unplanned exercise an extra snack or drink can be taken during play. Always ensure your child carries extra carbohydrate-containing snacks or drinks just in case!

Sometimes with planned exercise it is a good idea to reduce the insulin dose. However, this depends on the insulin regimen. Ask your diabetes team for further advice.

It is very useful to test your child's blood glucose level before, during and after their activity to understand how it affects them.