

## Activity/Exercise

### Exercise Overview

National Guidelines encourage all children to participate in 60 minutes of vigorous activity every day and limit screen time to less than 2 hours.

**Type 1 Diabetes** should not stop children participating in activity as there are many benefits of activity/exercise which include:

- Assisting in keeping BGLs in target range.
- Reduced insulin requirements.
- Improve HbA1C.
- Increased cardiovascular fitness.
- Reduced cholesterol.
- Activity can also improve overall well-being, lift mood and increase energy levels.
- **REMEMBER** there are many elite athletes who live with Type 1 Diabetes!

### What are the effects of activity/exercise on my glucose levels?

- Activity/Exercise will usually lower blood glucose.
- Delayed effects of activity/exercise on glucose levels can be common after strenuous/endurance activities for up to 24 hours afterwards. This occurs as your child's body replaces glucose stores in the muscles and the body becomes more sensitive to insulin during and after exercise. Additional monitoring before bed and overnight is recommended and consider low GI/sustaining carbohydrates for supper.
- Sometimes BGLs can be elevated after high intensity activities due to the adrenaline (hormone) being released.
- **REMEMBER** Activity/Exercise affects everyone a little differently. Every child/young person is different in the way their body responds to activities; therefore, testing regularly will help identify patterns of glucose levels whilst active.

### How do I plan for activity/exercise?

- **Increased blood glucose monitoring**- this should always be done prior to your activity/exercise to help guide your glycaemic control and carbohydrate intake. BGLs may also need to be taken during (if activity greater than 30-45 minutes) and after activity.
- **Eating additional carbohydrates**- additional carbohydrates may need to be consumed prior to or during your activity depending on the glucose level- **REFER TO TABLE**
- **Lowering insulin doses**- once you have established a pattern of glucose levels relating to activity, adjusting insulin doses will need to be established. If you're not confident adjusting

## Information for patients, families and carers

your insulin around activity/exercise please refer to your dose adjustment guidelines or speak with the diabetes educators.

- **Fluids-** Drinking additional fluids/water and having access to a hypo kit.
- **Injection sites:** Consider avoiding injection sites such as upper thighs/upper arms prior to sport as they can have quicker absorption during exercise. Instead use abdomen/hips/buttocks.
- **Ketones/Hypos:** Avoid strenuous exercise if unwell or you have positive ketones greater than 1.0mmol/L or if having a hypo 3.9mmol/L or below (until treated).
- **Supervision:** Ensure the supervising adult is aware that the child has diabetes and is able to assist with diabetes management during exercise (e.g. PE teacher/sport coach).
- **Swimming:** Always check the BGLs before entering the water, have a carbohydrate serve prior to swimming. Swim with a buddy or someone who knows how to assist with diabetes management.
- **Individual plans:** Everyone responds differently to exercise. It is important to monitor your child's BGLs and the effects of different activities. Then discuss and make a individualised plan with your Diabetes Nurse Educator.

### Guide to Exercise/Activity Management Plan

Blood Glucose Level prior to Activity/Exercise	Treatment Prior to Activity/Exercise	Exercise
➤ <b>3.9 mmol/L and below</b>	➤ Treat Hypoglycaemia	➤ Wait until BGL is above 4.0mmol/L before commencing activity/exercise
➤ <b>4.0-7.0mmol/L</b>	➤ Consider 10-15g of sustaining Carbohydrate	➤ Commence Exercise
➤ <b>Greater than 7.0mmol/L</b>	➤ No snack required	➤ Commence Exercise

## Dose Adjustment During Exercise/Activity

- Activities lasting more than 30-45 minutes will require an additional BGL, carbohydrate intake and **insulin adjustment**.
- Please note if you're experiencing hypoglycaemia during exercise and BGLs are above 7.0mmol/L prior to commencing, you will need to consider reducing your insulin dose prior to exercise by 20-30% i.e. if Basketball is at 10.00am, reduce your Novorapid at breakfast from 10 units to 7 units.

