

Adjustments for physical activity (pump)

Information for patients with Type 1 Diabetes

How does physical activity affect my blood sugar?

- Aerobic activity (for example, walking, running or bicycling) usually lowers blood sugar and can even cause hypoglycemia (low blood sugar). Hypoglycemia can happen during, right after, or up to 36 hours after physical activity.
- Other types of physical activity can increase your blood sugar. These include short, high intensity activities, such as, sprinting, hockey, weight lifting and football.

How can I prevent hypoglycemia caused by physical activity?

Below are some options to consider. This process is trial and error. Try one change at a time and keep a record to find what works for you.

1. Eat extra carbohydrate.

The amount of carbohydrate you need depends on when you took your last dose of mealtime insulin.

If it has only been 1 to 2 hours since you took your mealtime insulin:

- You will have a lot of insulin in your body and you will need more carbohydrate to prevent hypoglycemia.
- Have 1 gram of carbohydrate for every kilogram of body weight (0.5 grams per pound of body weight) for every 1 hour of activity.

For example: If you weigh ____ kilograms, you will need ____ grams of carbohydrate for every 1 hour of activity.

If it has been more than 2 hours since you took your mealtime insulin:

- You will have less insulin in your body and you will need less carbohydrate to prevent hypoglycemia.
- Have 0.5 grams of carbohydrate for every kilogram of body weight (0.25 grams per pound body weight) for every 1 hour of activity.

For example: If you weigh ____ kilograms, you will need ____ grams of carbohydrate for every 1 hour of activity.

2. Reduce your mealtime insulin.

If you know you are going to be active less than 2 hours after your meal, you can reduce your mealtime insulin instead of eating extra carbohydrate.

- Try reducing your mealtime insulin by 20 to 50 percent.

For example: If your mealtime dose of insulin is 6 units of insulin, try taking 3 to 5 units of insulin if you know you are going to be active in the next 1 to 2 hours.

3. Reduce your basal rate

If you are active more than 2 hours after your meal, you can set a temporary basal rate that is lower than your usual basal rate to prevent hypoglycemia.

- Try reducing your basal rate by 30 percent starting 90 minutes before your activity until 90 minutes after your activity.
- If you are active in the late afternoon or evening, try reducing your basal rate by 20 percent from bedtime until 3:00 a.m. to prevent going low overnight.

What should I do if my blood sugar is high after activity?

When you do activities like lifting weights or doing sprints, your blood sugar may be high after your activity. If this happens to you, you can take a small correction dose to lower your blood sugar.

After activity you may be more sensitive to your insulin. Reduce your usual correction dose to make sure your blood sugar does not go too low.

Should I exercise if my blood sugar is above 16 mmol/L before activity?

Check your blood or urine for ketones to decide if it is safe for you to do your activity.

- If you do not have ketones in your blood or urine and you feel well, you can do your activity. Take a small correction dose of insulin and drink extra fluids to prevent dehydration.
- If you have ketones in your blood or urine, you should not do any activity. Make sure you take correction insulin to get your blood sugar down. If you cannot get your blood sugar down or you start to feel ill, you may need to go to the emergency room.

How often should I check my blood sugar during activity?

Check your blood sugar before, during and after activity to prevent low blood sugars and see how your blood sugar responds to activity. Try keeping a logbook (see the example below).

Activity	How long?	Adjustment?	Blood Sugar				
			Before	During	2 hours after	4 hours after	Low overnight?
Ex. Running	1 hours	None	8.5 mmol/L	7.3 mmol/L	5.6 mmol/L	4.6 mmol/L	Yes

General tips

- Carry personal identification and wear diabetes identification (for example, MedicAlert®).
- Wear proper footwear and check your feet after physical activity.
- Drink lots of fluids to prevent dehydration.
- Bring treatment for hypoglycemia (for example, juice or sugar tablets) and a carbohydrate snack.
- Avoid injecting insulin into an exercising muscle (for example, your legs or arms).
- Avoid doing activity in extremely hot or cold conditions.

St. Michael's cares about your health. For reliable health information, visit our Patient and Family Learning Centre, Room 6-004, 6th floor, Cardinal Carter Wing, or find us online at www.stmichaelshospital.com/learn

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