

### **Diabetes and Exercise (Part 2)**

Exercise will affect each person in a different way, so these guidelines will give you a starting point to help in best managing your diabetes.

#### **Remember**

For exercise that occurs straight after/close to a meal where insulin has been given, (e.g. a Saturday morning game of soccer after breakfast), the option could be to count the number of exchanges that you are going to have for breakfast and then bolus for one less. i.e., Sally is going to eat 4 exchanges for breakfast, but going to play soccer in half an hour, so only boluses for 3 of the exchanges eaten. The extra "exercise exchange" is what her muscles are going to burn up when playing soccer.

For exercise that doesn't occur after a meal with insulin, e.g. at afternoon tea time, this is when extra food will need to be consumed. 15grams of carbohydrate (one exchange) for every 45minutes of activity is suggested as a starting point.

#### **When is a Hypo more likely to happen?**

A hypo is more likely to happen 30 minutes to 2 hrs after insulin has been taken. However, with all exercise longer than 1 hr, there is an increased risk of a hypo for up to 24hrs. This is known as a delayed hypo and occurs because your muscles are recovering (replacing the glucose stores) from the activity you have done, so there will be less glucose in the blood, causing a low.

#### **What about Insulin Pumps and Physical Activity?**

For certain types of sports (such as contact sports or swimming) you will need to disconnect for the activity. You should always reconnect to the pump within 2hrs to prevent a build-up of glucose and ketones.

The same exercise guidelines apply for pumps as for injections. (i.e., an extra 'exercise' exchange is suggested for every 45 minutes of moderate activity). If using a pump, a lower temporary basal (background) rate can also help prevent hypoglycaemia. This can be very useful for aerobic activity. Speak with your diabetes educator or doctor about how to do this.

#### **Why is my blood glucose high after exercise?**

High blood glucose can happen during or just after exercise because of the variety of other hormones (such as adrenaline) that rise during exercise. These hormones cause the liver to release glucose into the blood stream. It is important to remember not to correct a high immediately after exercise. If this is a problem for you, talk to your diabetes educator or doctor about adjusting your insulin.

#### **What is a delayed hypo and why do they happen?**

A delayed hypo is one that occurs many hours after the exercise. This can be as long as 24

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hours the activity. After exercise your muscles are recovering and are replacing glucose stores. This leaves less glucose circulating in the blood, causing low blood glucose. Delayed hypos are more common following physical activity over many hours (e.g. school athletics or swimming carnivals, camps etc).

### How can I prevent night time hypoglycaemia?

- Take a smaller dose of your evening long acting insulin. Try a reduction of 10-20% as a starting point. If you use a pump, use a temporary basal rate, 50% less than your normal rate for a period of 4 hours.
- Eat an extra exchange of carbohydrate before bed. Try to choose a low-GI food, such as a glass of milk. Check your BGLs overnight (e.g. between 2 and 3am), and treat hypos if low.
- Keep a record of your BGLs, any changes to the insulin doses, and any extra food eaten, so you can learn how best to adjust insulin/food to prevent overnight lows.

### When shouldn't I do Physical Activity?

#### You should not participate in physical activity if;

- You are sick or unwell
- Have high BGL's over 15mmol – This needs to be corrected first
- You have ketones in your urine or blood

#### Other important things to note:

- Remember insulin is absorbed more rapidly from sites that are being exercised vigorously. Try to stay away from injecting insulin into your thigh before exercising. The abdomen is the preferred site of injection.
- Extreme sports are **not recommended** for people with diabetes or have to be treated with extreme caution. These include solo sports, rock-climbing, or unsupervised water or air sports where treating a hypo would be difficult. Talk to your educators about this.
- It is also important to remember that even when doing prolonged exercise, insulin is still required! Adjustments to insulin and/or food need to be considered.

#### Remember,

There are many examples of elite performance athletes with Type 1 diabetes, such as Brett Stewart, Gary Hall Jnr and Jack Perkins - Australian V8 driver.

**So don't let diabetes stop you from playing or participating in the sports you want!**