

Diabetes and Exercise (Part1)

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.

Why is physical activity Important?

Regular physical activity is important for good health and overall wellbeing. Exercise can help you:

- Keep your body at an ideal weight
- Lower your heart rate and blood pressure
- Strengthen your muscles and bones
- Improve your mood
- Make insulin work better at lowering your blood glucose levels

During physical activity, the working muscles need glucose as fuel (energy).

Exercise can also make the body more sensitive to insulin (i.e. the same amount of insulin has a greater effect). Exercise may affect your blood glucose, during and after any sport you do.

Therefore, you may need to check your blood glucose levels before, during and after exercise to know how it affects you.

Usual physical activity (such as walking to the bus stop) can easily be managed as part of daily routine. More structured physical activity however, does require some planning. For example, 'usual activity' for a young boy might include always running about and playing outside.

However, for the teenage boy who spends Monday and Tuesday indoors but goes to football training on Wednesday evening, the change is greater and is more likely to require a change in diabetes management.

For activity that is longer than 30 minutes, or of high intensity, adjustments to food and/or insulin are likely to be required.

Is all activity the same?

Different types of exercise may affect your blood glucose levels in different ways.

Aerobic activities include cycling, running, and swimming. These types of activities usually lower the blood glucose levels.

Anaerobic activities are sharp, short and fast like sprinting, weight lifting, long jump. These types of activity may initially cause an increase in blood glucose levels (due to the other hormones e.g. adrenaline), and if sustained may lead to delayed hypoglycaemia (see section below on delayed hypos for more details).

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How can I prevent hypos with physical activity?

Responses to exercise are individual, depending on many factors including timing of exercise, intensity, level of fitness, pre exercise Blood Glucose Levels (BGL), type of insulin, food type and quantities and after your exercise. Therefore, when exercising, it is recommended that you should test your blood glucose levels more often (i.e. before exercise, during, after exercise and between 2 & 3am after vigorous/hard or long bouts of exercise) to know how exercise affects you.

You can lower your risk of a hypo by:

- Reducing your basal or long acting insulin
- Reducing your meal time insulin
- Eating carbohydrate during and after the activity

As a starting point; Moderate intensity exercise, (e.g. swimming, tennis, jogging) requires an extra 'exercise' exchange (15grams) of carbohydrate for every 45 minutes of activity. This may need to be adjusted depending on the intensity of the exercise and the age of the child. Toddlers will only need half to one exchange for every 30-45minutes of exercise.

There are two ways to do this, depending on when in the day the exercise/physical activity occurs. For example:

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.

Good Nutrition for Exercise

Choosing the right meal and snack options before, during and after activity is very important. Low glycaemic index snacks can provide sustained energy during an activity. It is also important to refuel your body within about an hour of finishing exercise. This can help in lowering the risk of hypoglycaemia post event. Choosing a low fat snack at bedtime can help in limiting nocturnal hypoglycaemia caused by daytime exercise.

Some ideas for great exercise meals/snacks include:

Fresh fruit	Pasta	Milk
Raisin Toast	Fruit Muffins	Multigrain Bread
Cereal eg porridge	Crumpets	Muesli Bar
Yoghurt		