Patient information

Exercising with an Insulin Pump

Diabetes and Endocrinology Department

Insulin pumps offers some distinct benefits for sports and exercise activity as they offer the chance to increase or decrease the rate of insulin you receive before, during and after exercise.

This leaflet has been developed to help you manage and look after your pump during sport and exercise activity.

You will need to discuss with your health professionals your own individual needs for your chosen sport.

Questions to consider when taking part in sport.

- How long will the session last?
- How does the sport tend to affect your glucose levels?
- How should I adjust my insulin dose?
- How can I prevent my pump getting damaged?
- Which sports should a pump not be worn for?
- Can my cannula be dislodged?
- Where can I wear my pump during sport?

How does sport affect glucose levels?

Different sports can affect people in different ways and in some cases the effects can vary from one session to another.

Some sports can raise glucose levels initially for example weightlifting or sprints, whereas other sports like long distance running or golf may lower glucose levels.

Glucose level testing before, after and where possible during the activity can help you spot trends.

Before exercise

Always check your glucose level before exercise and consider the following actions (adapted from DAFNE):

Glucose level (mmol/L)	Action	Carbohydrate type
<3.5	Do not exercise. Take 20G Carbohydrates immediately. Recheck BG after 15 minutes – do not exercise. Once recovered, ensure 60 minutes of stable BG before undertaking low – moderate intense exercise only.	Rapid-acting (hypo treatment)
≥3.5 – 5.6	Take 20G of Carbohydrate. Wait 15 minutes before exercising.	Either rapid-acting or longer-acting, or a combination if preferred
5.7-6.9	Take 15 G of Carbohydrate, recheck BG before exercising.	Either rapid-acting or longer-acting
7.0-15.0	Okay to exercise. No other action required.	None required
>15.0	If unexplained, check for ketones. If ketones are present do not exercise as exercise is contraindicated. Take correction doses of bolus insulin to clear ketones (follow your sick day rules). Consider when insulin was last taken.	

If you are taking part in a sport that lowers your glucose level you either need to take extra carbohydrate before or during exercise, or you can choose to lower or suspend insulin as outlined below.

Aerobic exercise (running, cycling, swimming) for 30 minutes or longer can results in the possibility of hypoglycaemia soon after or some hours post exercise.
We would suggest:

1. A temporary reduction of basal insulin 60-90 minutes before commencement of exercise (25%- 75% reduction in the basal rates initially). Some people might need a total suspension during this period (do not suspend or disconnect the pump for more than an hour!).
2. If exercise is within 90-120 min after food, a 50% reduction in bolus insulin is likely to be required to reduce the risk of hypoglycaemia.

Anaerobic exercise (high intensity- HIIT, sprinting, weights) is associated with a counter regulatory response which can result in a rise in blood glucose levels. If this persistently occurs as a pattern whenever you engage in these forms of exercise, which results in a persistent high glucose level after your exercise, we would suggest a temporary increase in the basal insulin of 10-20% (please only do this after speaking to a healthcare professional if you are unsure).

If you are unsure how to adjust your insulin rates please speak to a member of your health professional team. You may benefit from talking to the specialist dietitian regarding appropriate carbohydrate.

Basal rate adjustment after exercise

Following a period of exercise, your muscles will take in glucose from your blood to replace the glycogen used during exercise. This often means that people have a higher tendency to experience hypos up to 48 hours post exercise.

With an insulin pump is you can switch to a lower basal rate to reduce hypoglycaemia. With experience you can tailor changes to your basal rate following different exercises and durations. You may also need additional carbohydrate intake.

If you experience hypoglycaemia after exercise and even the next day, the risk of this can be reduced by using a 20% reduction in basal insulin, lasting for four-six hours from the time that you go to bed.

If you are unsure how to adjust your insulin rates please speak to a member of your health professional team.

Are there sports or exercise activity where I should not wear my pump?

This is a personal choice.

Insulin pumps are pretty durable but if the sport has a risk of suffering a strong impact it might be advisable to disconnect or use another form of insulin delivery. This may help prevent injury to yourself or others or damage to the pump.

- Contact sports like rugby, boxing, judo, skateboarding.
- Swimming if your pump is not waterproof.

Depending on the sport you are playing, keeping your pump under your sportswear may be enough to ensure the tubing and cannula do not get caught. Some sports which involve more contact with other competitors may require more planning to prevent the tubing getting caught.

- Wear shorter lengths of tubing.
- Tape tubing to body.
- Wear tight sportswear over the pump and infusion site.

If you are taking part in long periods of exercise, some people prefer to switch to insulin injections on the day of the sport.

Feedback

Your feedback is important to us and helps us influence care in the future.Following your discharge from hospital or attendance at your outpatient appointment you will receive a text asking if you would recommend our service to others. Please take the time to text back, you will not be charged for the text and can opt out at any point. Your co-operation is greatly appreciated.

Further information
If you have queries or questions please contact
The Diabetes Centre
Aintree Hospital
Lower Lane
Liverpool
L9 7AL
Telephone number: 0151 529 4876
Text Phone Number: 18001 0151 529 4876

Author: Diabetes and Endocrinology Department
Review date: May 2026

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