Patient Information

University Hospitals Coventry and Warwickshire NHS Trust

Department of Nutrition and Dietetics

Paediatric diabetes - Exercise

This leaflet is for children with diabetes and their carers.

Having diabetes should not prevent children or young people from playing sports or participating in physical activity.

Regular exercise can help with:

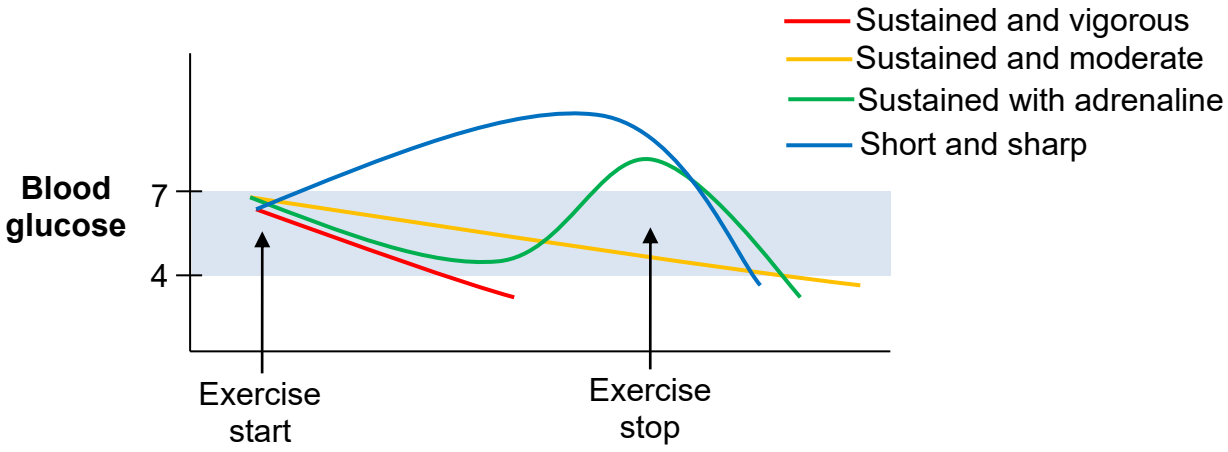
- Higher insulin sensitivity and better blood glucose control
- Weight control
- Lower blood pressure, better circulation and long-term cardiovascular disease risk
- Improving mood and mental health
- Motor skills development, team working, socialisation skills and more

What happens to blood glucose levels during exercise?

- Glucose is the body's preferred fuel for exercise.
- If exercise is sustained, like when running or swimming continuously for 30 minutes or more, **glucose levels may drop** with exercise.
- If exercise is light, and/or of short duration **blood glucose levels may remain steady.** Examples of light exercise include a leisurely stroll or a light PE session.
- If exercise is short and sharp and/or if your body releases adrenaline (such as during a competition), your body may release its own stores of glucose and your **blood glucose levels may become high**. Examples

of short and sharp exercise include taekwondo, karate, weightlifting.

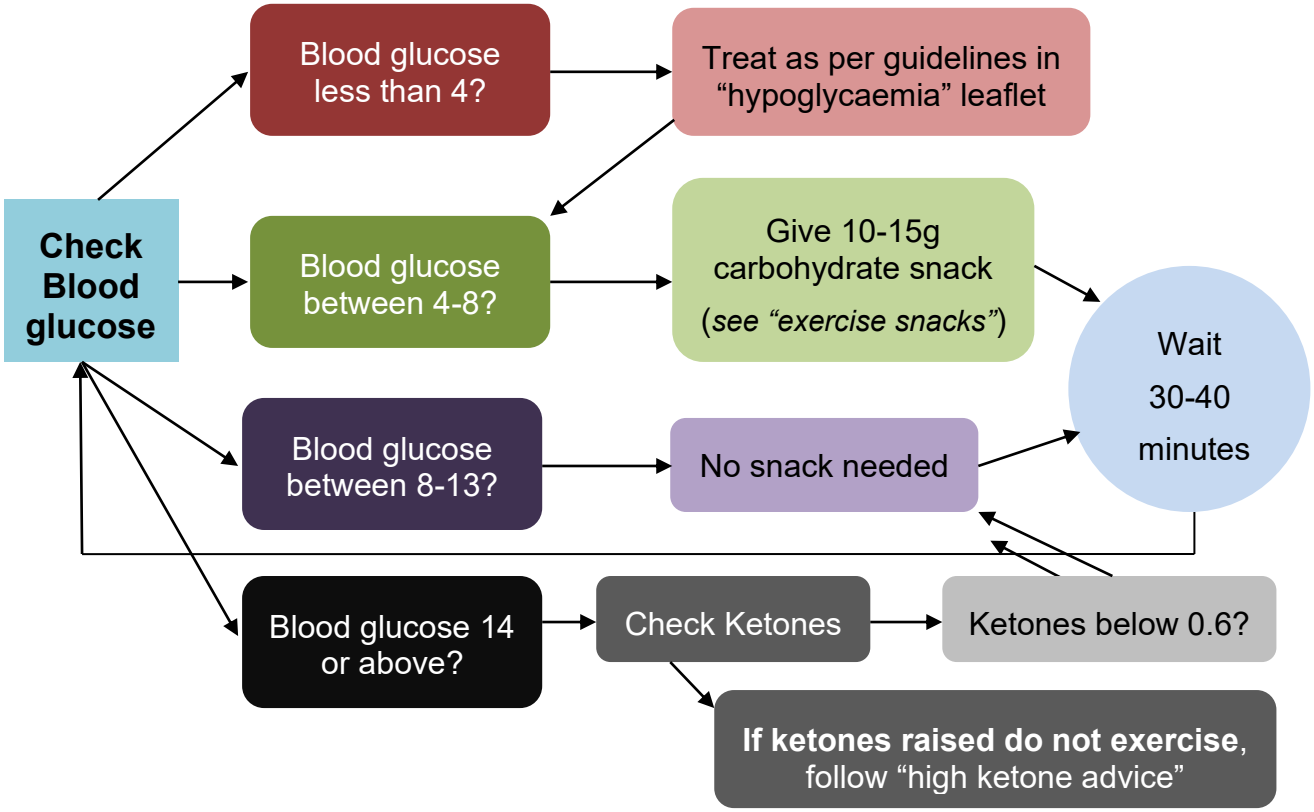
- Everyone is different, and every exercise is different. **Take the time to test before, during and after exercise** so you understand how your body will respond.



What happens to blood glucose levels after exercise?

- Exercise makes the body more sensitive to insulin, an effect which may last up to 24 hours and make the body more susceptible to hypoglycaemia (blood glucose levels below 4).
- Your body uses this time to re-build its internal stores of glucose (for available energy in future exercise) and protein (for muscle strengthening).

What to do before and during exercise: flowchart



What to do after exercise:

- Make sure to **check your blood glucose levels after exercise**
- **Have a post exercise meal or snack** which includes slow-releasing carbohydrate and protein (see "exercise snacks")
- You may be more sensitive to insulin for the next 24 hours following exercise, particularly if this was very strenuous or out of the ordinary.

  If this is the case, **consider reducing the mealtime insulin amount by 10-20% for meals following exercise**, especially if this will be your last meal before bed, or if you have noticed a pattern of hypos on the hours/ day after that type of activity.

Speak to a member of your diabetes team if you would like further advice.

Exercise snacks

When choosing a snack for exercise, it is important to **think about how soon you will be exercising**.

- Complex, slow-releasing carbohydrates with protein will generally provide a more stable and sustained source of glucose for your body making it easier to avoid ups and downs.

  However, your body will require at least 20-30 minutes to digest and access this source of glucose.

- If you are exercising in less than 20 minutes or for snacks taken during exercise, it is safest to choose a sugary, quick-acting carbohydrate source without protein.

  However, this may make your blood glucose levels higher than you would like and glucose levels may not last as long and fall faster.

Below are some exercise snack ideas for each of these two options:

Slow-releasing snacks (more than 20 minutes prior to exercise):

- 1 small banana and 1 slice cheese
- 1 medium apple and a handful of nuts
- 1 slice brown bread with peanut butter or cheese
- 2-3 plain crackers with cheese or tuna
- ½ tuna or egg mayonnaise sandwich
- 1 weetabix with 200ml milk

Fast-acting snacks (less than 20 minutes prior to exercise):

- 250ml (1/2 bottle) Lucozade (provide 15g carbohydrate)
- 15-25g raisins or other dried fruit (provide 10-15g carbohydrate)
- 100-150ml fruit juice (provide 10-15g carbohydrate)
- 3-4 dextrose tablets
- 1 mini packet of haribo's (12g carbohydrate)

Tips to think about after as you become more confident

- Sugary snacks are bad for teeth, promote excessive weight gain and may create a lot of ups and downs on your child's blood glucose levels
- If your child has a meal less than 1.5 hours before exercise, consider reducing this mealtime insulin (by 10-20%) instead of relying on sugary snacks.
- If your child is going high after exercise, you may need to reduce the amount of snacks they have for exercise **or** opt for a slow-releasing snack given a bit earlier.
- If your child is having a pattern of hypos after exercise you may need to increase the amount of snacks and/or lower the pre-exercise meal insulin further.
- Speak to your diabetes dietitian or nurse for further advice.

Your child's exercise management plan

Day	Activity Type	Start time	Duration	Time of last meal	Management			
						before	during	after
Monday					Check BG			
					Snack(s)			
					Reduce meal insulin by			
Tuesday					Check BG			
					Snack(s)			
					Reduce meal insulin by			
Wednesday					Check BG			
					Snack(s)			
					Reduce meal insulin by			
Thursday					Check BG			
					Snack(s)			
					Reduce meal insulin by			
Friday					Check BG			
					Snack(s)			
					Reduce meal insulin by			
Saturday					Check BG			
					Snack(s)			
					Reduce meal insulin by			
Sunday					Check BG			
					Snack(s)			
					Reduce meal insulin by			

If you have any questions, please contact your diabetes dietitians on 024 7696 6161.

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Document History	
Department:	Dietetics
Contact:	26161
Updated:	November 2024
Review:	November 2027
Version:	7.1
Reference:	HIC/LFT/676/08