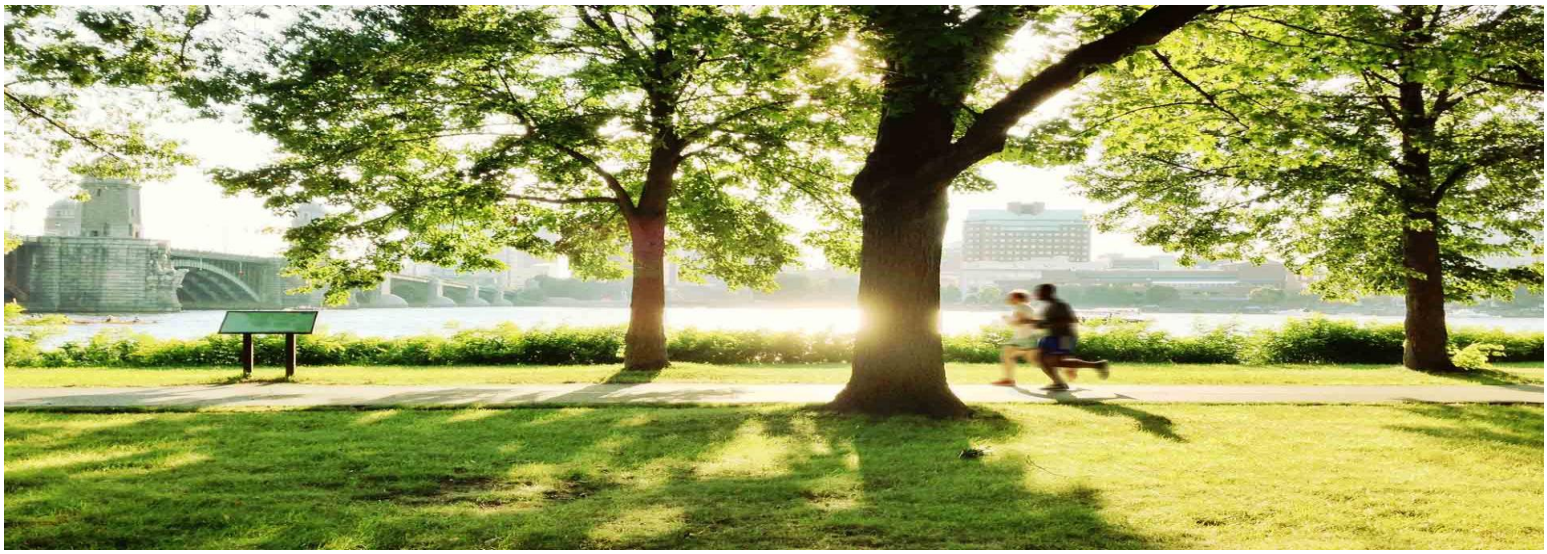
Managing your blood glucose during exercise

A guide for people with insulin treated diabetes



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This leaflet is designed to provide information for adults on basal-bolus/multiple daily injection (MDI) insulin to help manage blood glucose when exercising.

Benefits of exercising
Being active is an important part of a healthy lifestyle. Increasing physical activity can improve:

- Sleep
- Mental health & reduce stress
- Bone health
- General well being

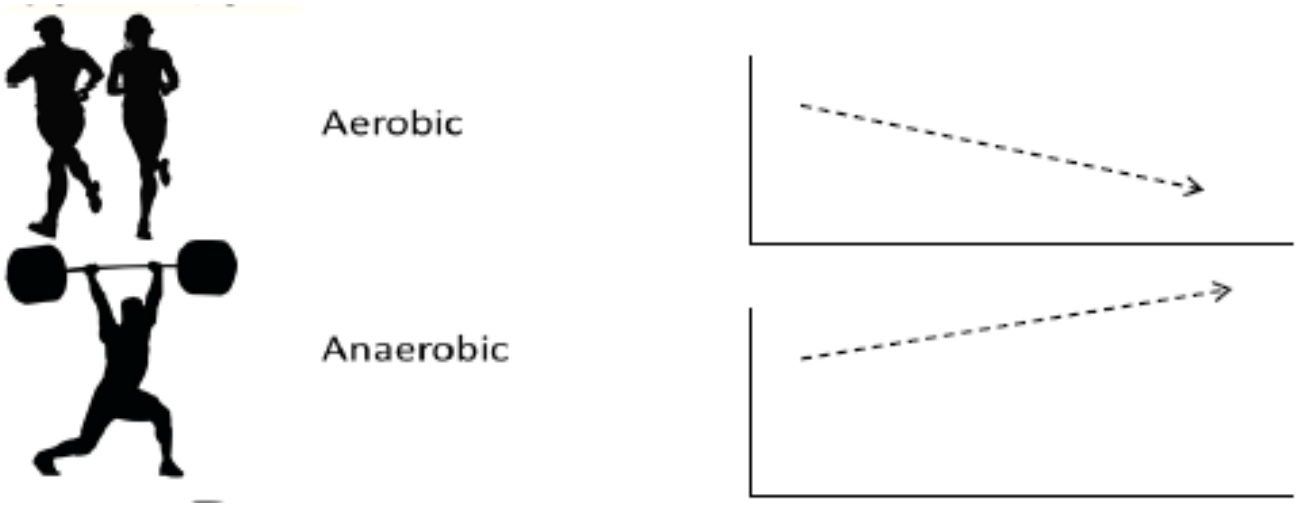
How much exercise should I do?

All adults should aim to be active daily. The UK Guidelines for physical activity recommend; 150 minutes (2.5 hours) of moderate intensity activity or 75 minutes of vigorous intensity activity spread across the week.

Different types of exercise and effect on blood sugar

Aerobic exercises such as cycling or jogging will lower your blood glucose, as your muscles use glucose to give you energy.

Anaerobic exercises such as resistance training, weightlifting or sprinting, are likely to initially cause an increase in blood glucose as your body releases stored glucose, however your blood glucose is likely to drop later on.



What counts as exercise?
Exercise isn't always a gym session or going for a run. Gardening and housework can also lower your blood glucose and therefore you should monitor your blood glucose level before and after these activities.

Higher blood glucose target before exercise
Aim to start exercising with a slightly higher blood glucose level. Ideally between **7-12mmol**.

Guidelines to adjusting your food (bolus) insulin doses
*if activity within 2 hours of bolus insulin injection

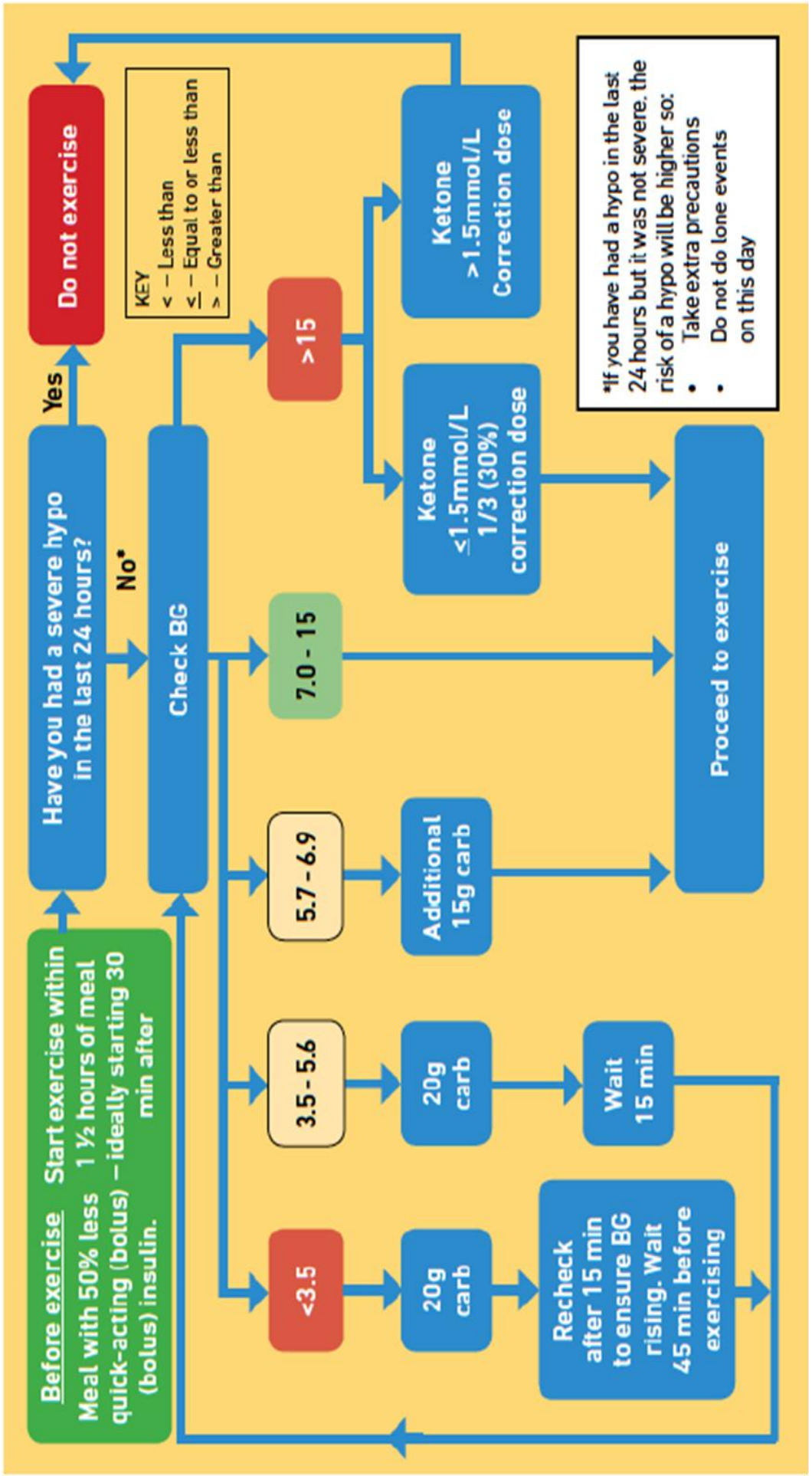
		Reduction to fast-acting/food insulin BEFORE activity *			Reduction to fast-acting/food insulin AFTER activity		
Activity level	Examples	15-30 mins	31-60 mins	More than 60 mins	15-30 mins	31-60 mins	More than 60 mins
Light	Slow walking Gardening Dancing	10%	25%	30%	None	10%	20%
Moderate	Brisk Walking Hiking Cycling	20%	30%	50%	10%	20%	40%
Vigorous	Running Playing football Aerobics	30%	50%	65%	15%	30%	50%

Guidelines to adjusting your background (basal) insulin doses

If you know that you are going to have a very active day, more than your usual routine, you could try reducing your morning background insulin dose by 20%. This will help prevent any hypo's overnight or low glucose levels on waking.

If you take background **insulin twice daily**, then as a starting point, after an exercise session or an active day try reducing your evening background dose by 20%.

Handy flowchart on guidelines for managing blood glucose and exercise:



Re-fuelling your liver
If you are exercising for more than one hour, aim to take 30g of carbohydrate per hour. Dividing the 30g over the hour helps keep blood glucose levels stable e.g. Take 10g carbs every 20 minutes.

Examples of carbohydrates:

Carbohydrate source	10 grams	15 grams	30 grams
Large jelly babies	2	3	6
Jelly beans	6	9	18
Cola	100mls	150mls	300mls
Lucozade sport Body fuel	167ml	250ml	500mls
Poweraid Isotonic	133mls	200mls	400mls

Re-fuelling post exercise
Aim to refuel the body within 1 hour after exercising then again 6-8 hours later for optimal recovery and muscle repair.

Protein and carbohydrate together after exercise help to improve glycogen storage after exercise. Aim for a ratio of around 4 carbs: 1 protein.

Examples of post exercise meals/snacks:

- Greek yoghurt and berries
- Milk and banana
- Pita bread/rice crackers with hummus
- Wholemeal toast with peanut butter
- Tuna sandwich
- Poached egg on toast

Useful websites:

Run Sweet: http://www.runsweet.com/

ExCarbs: https://excarbs.com