

# Starting on Insulin in Type 2 Diabetes

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Session 1

FV Diabetes Team

01324 566929

Please;

Feel free to ask questions  
as we go along or at the  
end

This is a confidential  
space, do not talk about  
what others may share

Toilets

Fire alarm

# Group Etiquette

# What we will cover

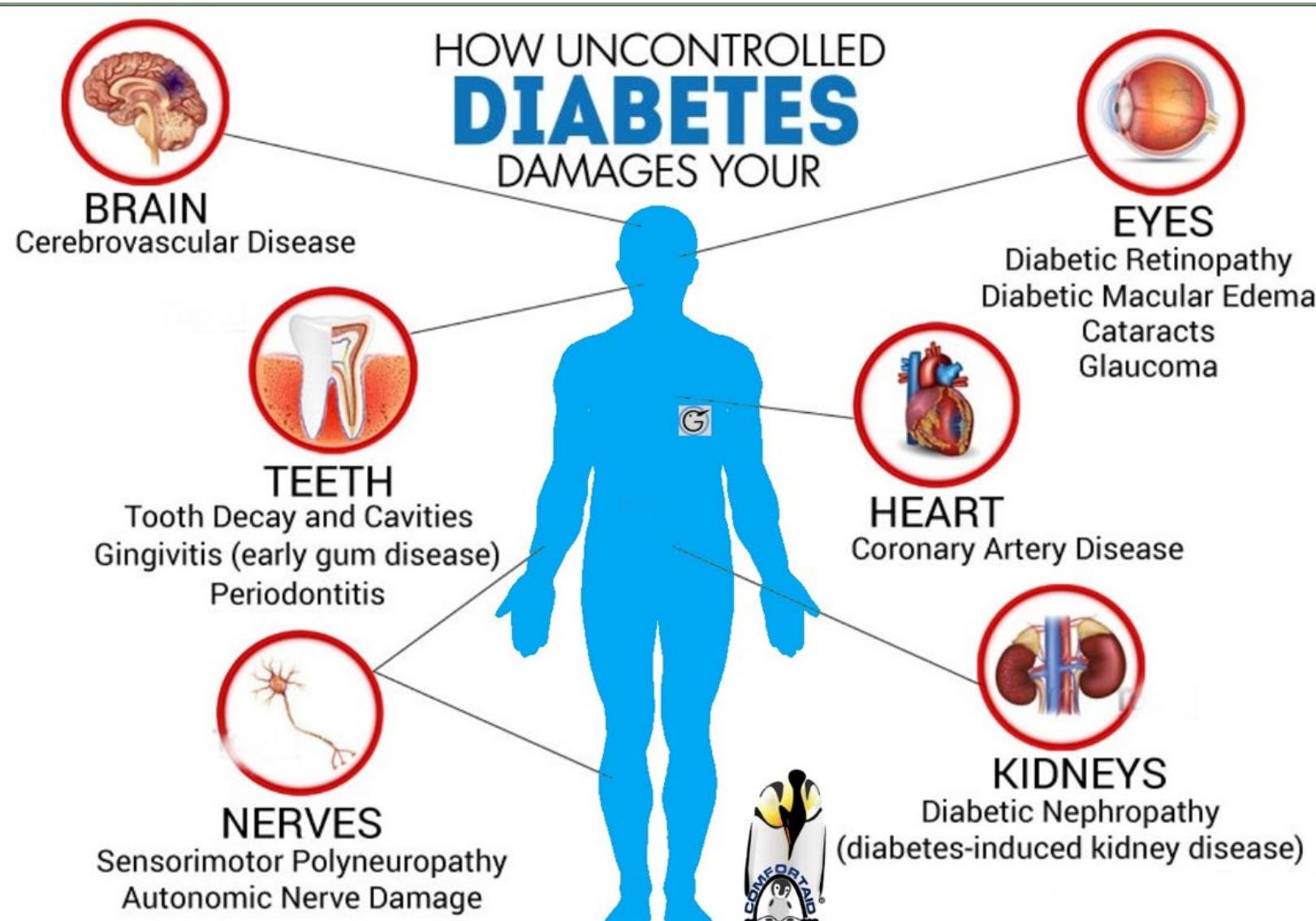
- Starting on daily insulin and why it is important
- How does insulin work?
- Injecting and Insulin storage
- Blood glucose targets and testing
- Insulin dose
- Low blood glucose readings
- Food, alcohol and physical activity
- What affects blood glucose levels?
- Driving



# Starting on daily insulin

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- Why do I need insulin?
- Do I continue to take my current diabetes tablets?
- Does this mean I now have Type 1 Diabetes?
- Any initial concerns?

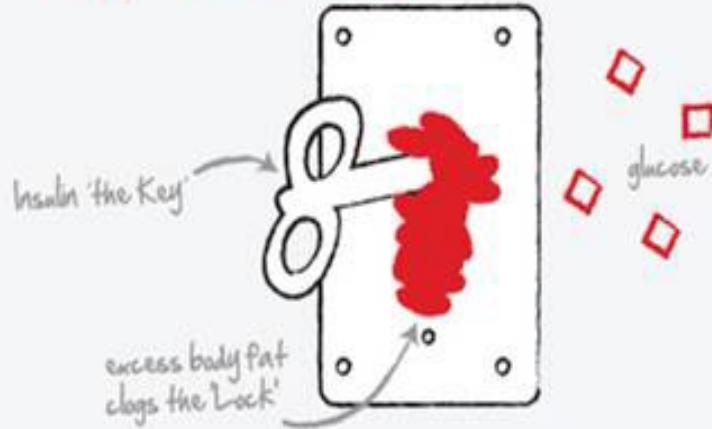


# Why is it important

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# How does insulin work?

THE 'DOORWAY' TO THE CELLS



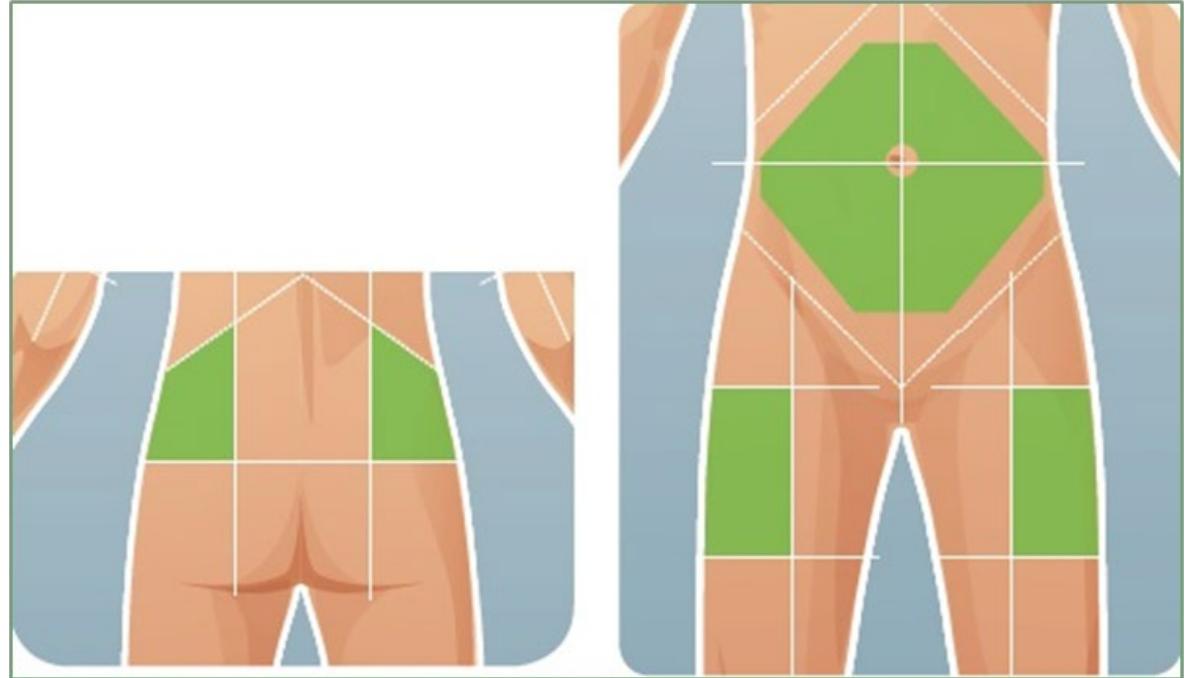
- Insulin moves glucose from the blood stream to cells for energy
- Any glucose that is not used for energy is stored as fat

# Injecting

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- Inject into a different place each time
- Only inject into healthy skin

See the Forth Valley diabetes website Humulin I injection guide



Where do I inject?

- Abdomen
- Outer thighs
- Buttocks

Keep 1cm away from;

- Hips
- Pubic bone
- Ribs
- Belly button

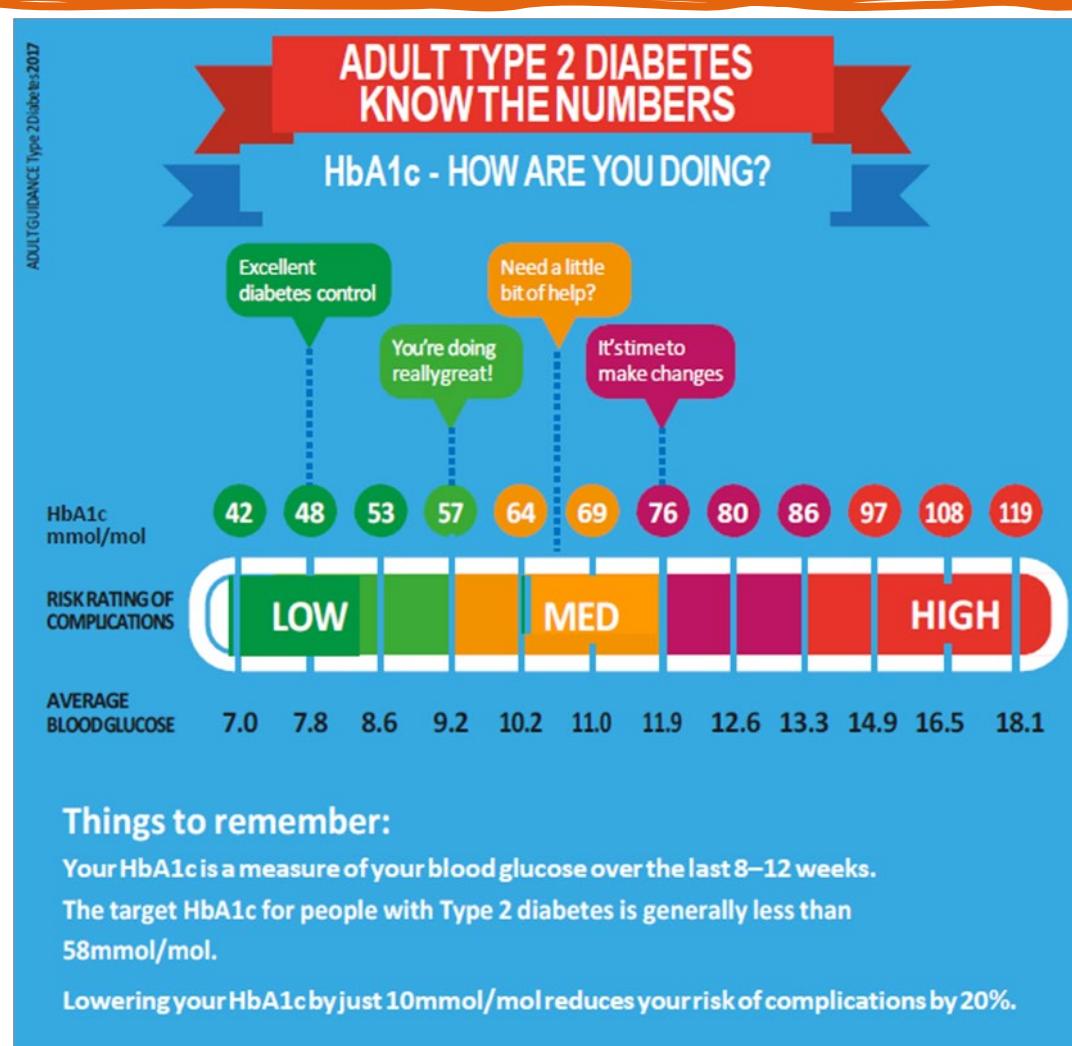
# Injections, storage & Disposal

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- Spare insulin should be kept in the fridge until ready to use
- Pens in use can be kept at room temperature for up to 28 days
- Do **not** store your pen with a needle attached
- Use a new needle for each injection & rotate injection sites
- Dispose of any used needles in a sharps bin which once full you can get replaced at most GPs



# Blood glucose targets



# Blood glucose testing

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**If you start insulin at bedtime** - test once daily before breakfast and twice weekly at other times



**If you start insulin at breakfast time** - test once daily before evening meal and twice weekly at other times

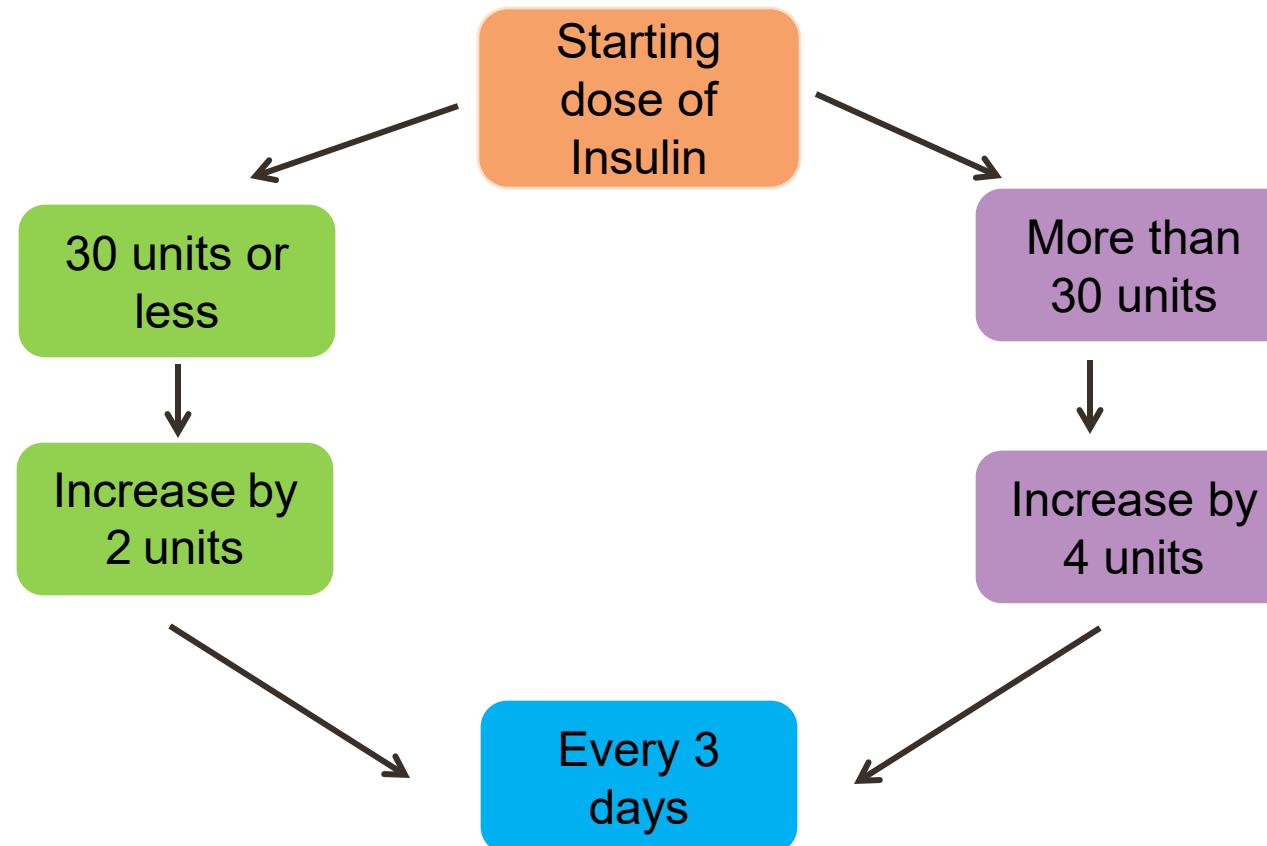


Always test before driving or if you feel hypo (will be discussed more at end of session)!

# Dose adjustment

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- Start with 10 units of insulin and follow this guide, adjusting every 3 DAYS



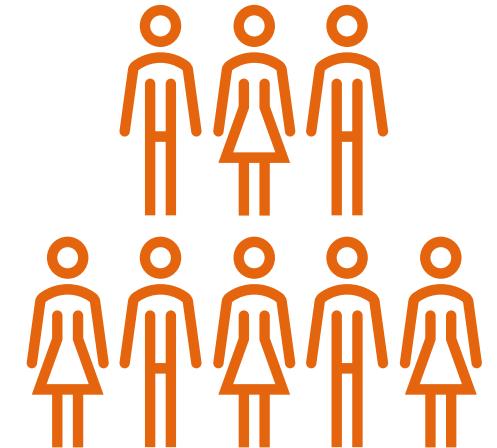
# Insulin Volumes

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Insulin amounts are individual and cannot be compared from person to person

It is normal for a person to require 0.5 – 2units per kilo they weigh

DO NOT PANIC if you get to 30 units and think that is a lot of insulin. Some people require hundreds of units



# Hypoglycaemia

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A hypo (hypoglycaemia) is a blood glucose **less than 4mmol/L**.

## You may feel;

- Shaky or dizzy
- Anxious or bad tempered
- Sweaty
- Palpitations at your heart
- Hungry
- Tingling lips or fingers

## Others may notice;

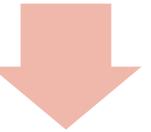
- Mood change
- Irritability or aggression
- Irrational behavior
- Confusion
- Lack of concentration
- Lack of coordination
- Colour change e.g. going pale



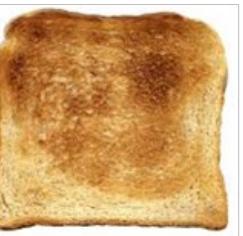
**Step 1: Eat 15g of fast-acting carbohydrates.** This will rise your blood glucose quickly and reduce the risk of your blood glucose dropping further



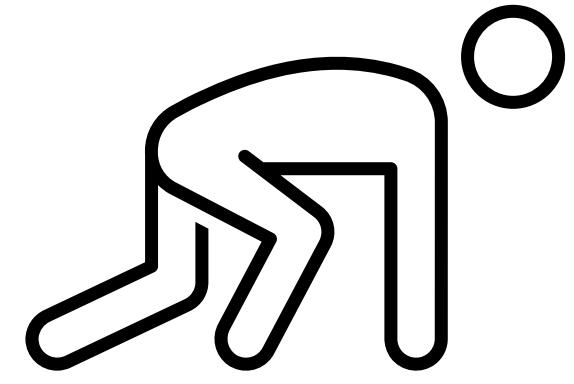
**Step 2: Wait 15 minutes & re-test your blood glucose** if still below 4mmol/L repeat **Step 1 & 2**  
If above 4mmol/L move onto Step 3



**Step 3: If above 4mmol/L; Eat 15g of slow-acting “starchy” carbohydrates**



Stand up!



This Food Fact Sheet is for people with type 2 diabetes only. We have a fact sheet on type 1 diabetes.

# Type 2 diabetes

Diabetes is a condition where the amount of glucose in your blood is too high. In type 2 diabetes this happens because your pancreas doesn't produce enough of the hormone insulin (that helps glucose enter body cells to be used) and/or the insulin that is produced does not work correctly (insulin resistance).

## Importance of good blood glucose control

If you have type 2 diabetes, seeking nutrition and lifestyle support is one of a number of things you could do to help you manage your blood glucose and reduce your risk of developing complications.

Structured diabetes education should be made available to you and you should be able to see a registered dietitian.

## Weight management and type 2 diabetes remission

For some people with type 2 diabetes remission may be possible.

If you are living with overweight or obesity, and it is safe to do so, achieving a weight loss of approximately 15kg (33lbs), as soon as possible after diagnosis, has been shown to put type 2 diabetes into remission. This does not mean you are 'cured' but it may mean that you will need fewer or no medications for diabetes. Weight loss has also been shown to reduce the risks of cardiovascular heart disease.

Speak with your registered dietitian and healthcare team to discuss the options and find out if this may be suitable for you.

## Glucose management

Over the years there have been many suggestions of different dietary patterns that work the best including:

- Diet focusing on the proportion of carbohydrate to fat to protein
- Low carbohydrate diet

- Mediterranean diet
- High-fibre diet
- Low GI diet
- Carbohydrate counting

Overall, it is suggested that following a Mediterranean-style diet or equivalent healthy eating pattern has the most evidence in terms of managing glucose levels and overall heart health. A Mediterranean diet would focus on:

- Reducing salt intake (less than 6g) a day
- Eating two portions of oily fish per week
- Eating more wholegrains, fruit and vegetables, fish, nuts and legumes (pulses)
- Eating less red and processed meats
- Eating less refined carbohydrates and sugar-sweetened beverages
- Replacing saturated fats with unsaturated fats and limiting intake of trans fats
- You can enjoy alcohol, but limit it to less than 14 units per week.

It may be that for personal preference, social, cultural, accessibility or economic reasons this type of diet may not be suitable for you so please speak with your registered dietitian to help you create an individualised diet.

## Foods labelled suitable for people with diabetes

Foods labelled 'suitable for people with diabetes' have no special benefit for people with type 1 or type 2 diabetes. Non-nutritive artificial sweeteners are safe and may be recommended as part of your usual healthy, balanced dietary pattern.



# Diet and lifestyle

Diet and lifestyle play a large role in diabetes management

Having good blood glucose control helps reduce the risk of complications

If you are living with overweight or obesity losing weight is the most important thing you can do

# Dietary Patterns

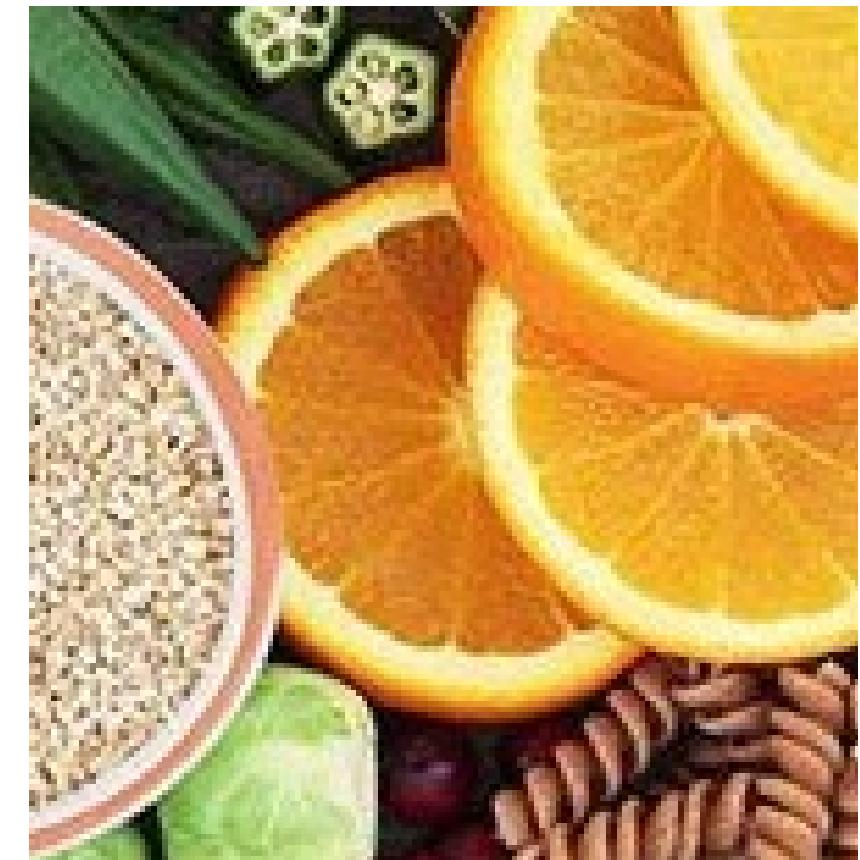
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Dietary patterns:

- Lower carbohydrate
- Mediterranean style – most evidence for managing blood glucose and overall heart health
- High fiber/low GI

Everyone is different. No one dietary style will work for everyone

Foods labelled suitable for people with diabetes have no special benefit



# Lower carbohydrate diets

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- Between 50-130g carbs a day
- Effective for weight, glycaemic control and cardiovascular risk in the short term
- Benefits likely due to accompanied reduction on calorie intake and quality of carbohydrates
- More research needed for long-term adherence (>12 months) and benefit
- Caution – Hypoglycaemia

(Diabetes UK 2018)



# High fiber/Low GI

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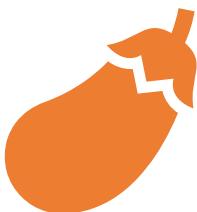
- Recommended to eat 30g of fiber/day
- Fiber is good for our gut health and cardiovascular health
- Glycaemia index – how quickly a food raises blood glucose levels
- Choosing low GI foods can help manage blood glucose in type 2 diabetes
- Foods such as – vegetables, fruit, wholegrains, oats, pulses and nuts

(Diabetes UK)



# Mediterranean style diet

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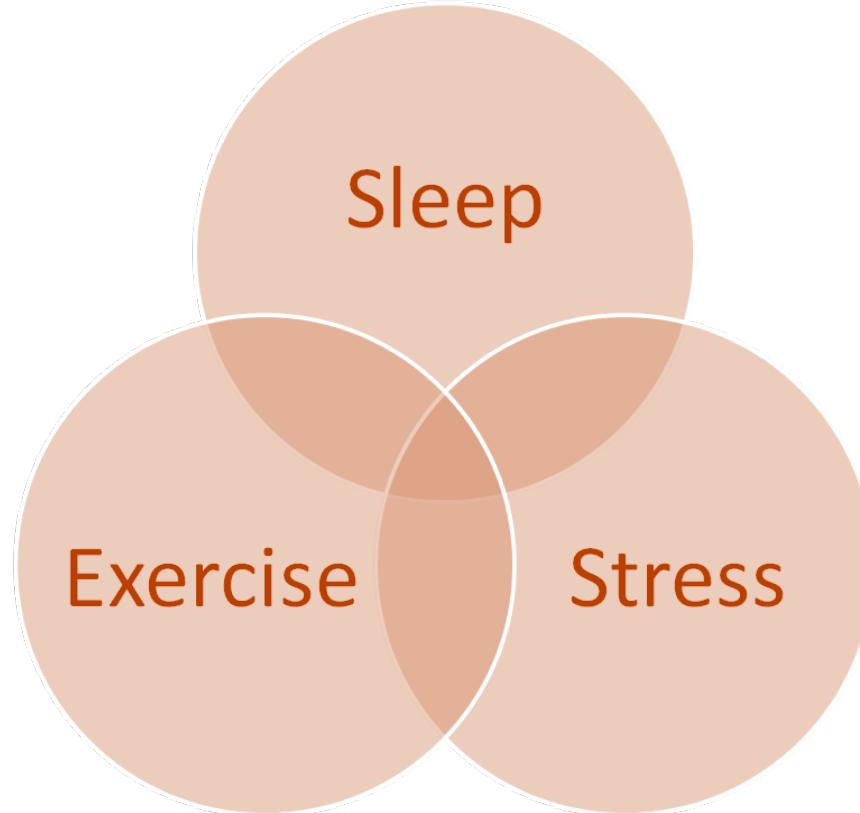


## Focus of the diet:

- Reducing salt intake (less than 6g) a day
- Eating two portions of oily fish per week
- Eating more wholegrain, fruit and vegetables, nuts and legumes (pulses)
- Eating less red and processed meats
- Replacing saturated fats with unsaturated fats and limiting trans fats
- Eating less refined carbohydrates and sugar-sweetened beverages
- Limiting Alcohol to within recommended limits of 14units/week and aiming for 2 alcohol free days a week

# Not Just Diet...

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# Holistic approach

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- Sleep, stress and exercise have a massive effect on blood glucose levels and weight
- Stressed + tired = more difficult to make healthy choices
- High stress response for a long time affects BGL
- Sleep is now being researched more to understand the link to T2 diabetes
- Try some simple techniques to get a good quality nights sleep:
  - not using devices for 1 hr before bed
  - being active during the day
  - relaxing before bed
  - avoid caffeine, alcohol

*(Waking Up to the Importance of Sleep in Type 2 Diabetes Management: A narrative Review' Henson et al, Diabetes Care 2024;47(3):331-343)*

# Exercise

- Control blood glucose by helping your insulin to work more effectively
- Reduce cholesterol and protect against heart-related problems e.g. stroke
- Lower risk of early death by 30%
- Support weight loss
- Support your mental wellbeing

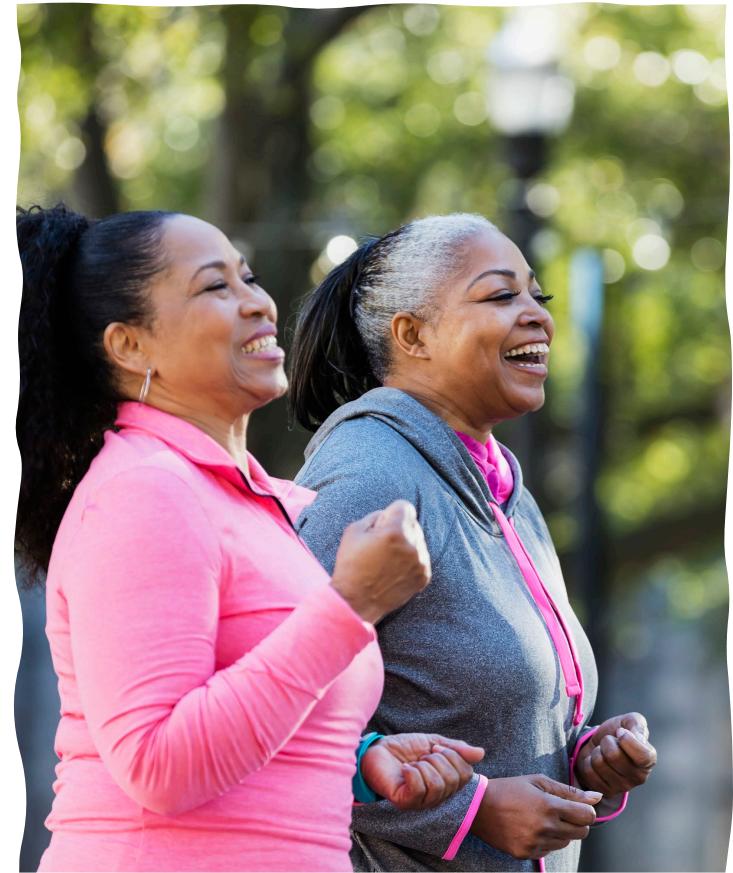
Why not try:

- Couch to 5k – free app to download and podcasts for each run
- NHS YouTube videos for simple exercise ideas (include seated)



Recommendations:  
150 minutes of  
moderate intensity  
activity a week  
or  
75 minutes of  
vigorous intensity  
activity a week

If suitable, aim for 5-15% weight loss to  
see significant  
benefits



# Free exercise groups

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## The Green Gym



- Around 3 – 4 hours long
- Supported by trained leaders
- Inclusive with activities ranging from light to vigorous gardening or conservation work
- A great place to meet local, like-minded people during the social tea break
- A chance to learn new skills

## Walking groups

- Wee county walkers
- Step Forth
- Braveheart
- Active stirling



# What foods affect your blood glucose levels?

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Activity

Look at the foods and sort into two piles

Increase glucose

NO effect



# What foods affect blood glucose levels?

All carbohydrates are broken down to provide glucose and will increase your

blood glucose level

Simple Sugars  
(Quicker BG rise)

Fructose



Starchy foods  
(Slower BG rise)



Low/No Carbohydrate (no effect on BG)



# Eatwell Guide

Check the label on packaged foods

Each serving (150g) contains

Energy 1046kJ 250kcal	Fat 3.0g	Saturated 1.3g	Sugars 34g	Salt 0.9g
13%	4%	7%	38%	15%

of an adult's reference intake

Typical values (as sold) per 100g: 697kJ/ 167kcal

Choose foods lower in fat, salt and sugars

Use the Eatwell Guide to help you get a balance of healthier and more sustainable food. It shows how much of what you eat overall should come from each food group.



of an adult's reference intake

Typical values (as sold) per 100g: 697kJ/ 167kcal

Choose foods lower in fat, salt and sugars



Water, lower fat milk, sugar-free drinks including tea and coffee all count.

Limit fruit juice and/or smoothies to a total of 150ml a day.



Choose unsaturated oils and use in small amounts

Per day 2000kcal 2500kcal = ALL FOOD + ALL DRINKS



# Portion sizes

Type of food	Portion size	What does this look like?
Bread	34-36g	One medium slice
Pasta	150g cooked (75g uncooked)	Two to three tablespoons
Rice	150g cooked (50g uncooked)	Two to three tablespoons
Potatoes	175g	Three egg sized
Puffed or flaked breakfast cereal	30g	Three tablespoons / two biscuits
Porridge oats or shredded cereal	40g	Three tablespoons

It is important to be aware of portion sizes, as eating too much or not enough of any type of food can increase your risk of health problems

## Carbohydrates

- Try adding more vegetables to your plate and reducing your carb portion e.g. sweet potato wedges or celeriac added to mashed potato
- Aim for 4-6 portions on average



**Fruit and vegetables:**  
Try to have fruit with/after a meal to lower its affect on your BG levels

- Important to have 2-3 portions of fruit
- 3+ portions of veg daily

**Dairy:**  
Important to have 2-3 portions daily

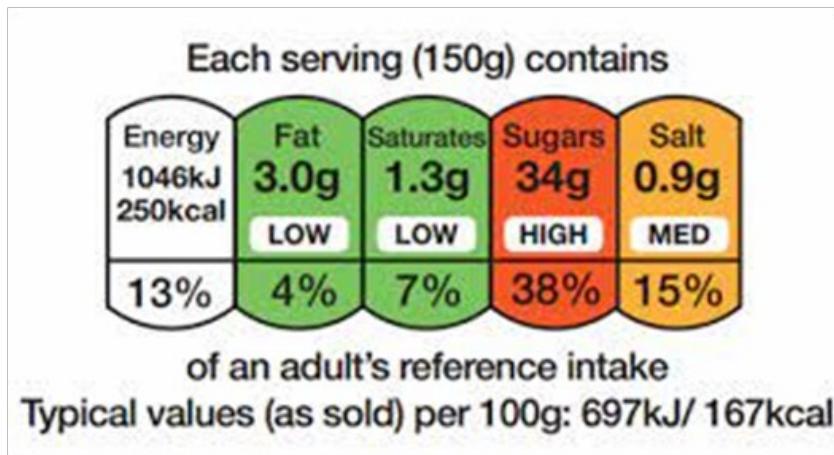
- Opt for lower fat varieties
- Look for lower sugar yoghurts e.g. natural, Skyr or Greek style



Type of food	Portion size	What does this look like?
Apple/pear/banana/orange	80g	One medium fruit (clenched fist)
Grapes	80g	10-12 grapes / a handful
Berries	80g	15-20 berries or a cupped handful
Plums/ apricots/kiwi/satsuma	80g	Two fruits
Dried fruit e.g. sultanas	30g	One tablespoon

Type of food	Portion size	What does this look like?
Milk	200mls	One glass (1/3 pint)
Calcium fortified plant based drink	200mls	One glass (1/3 pint)
Yoghurt	125g – 150g	One standard pot/three tablespoons
Cheese (hard)	30g	Small matchbox size piece

# Food labels



## Traffic light System

**Green** = low and a healthier choice

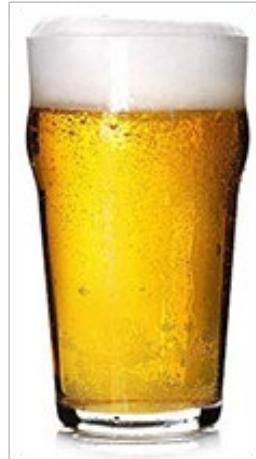
**Amber** = medium and ok to have sometimes

**Red** = high, only eat occasionally and in small amounts

- Numbers for sugars only tells you the amount of simple sugars, not the starchy type

# Alcohol

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## Alcohol can affect blood glucose in different ways

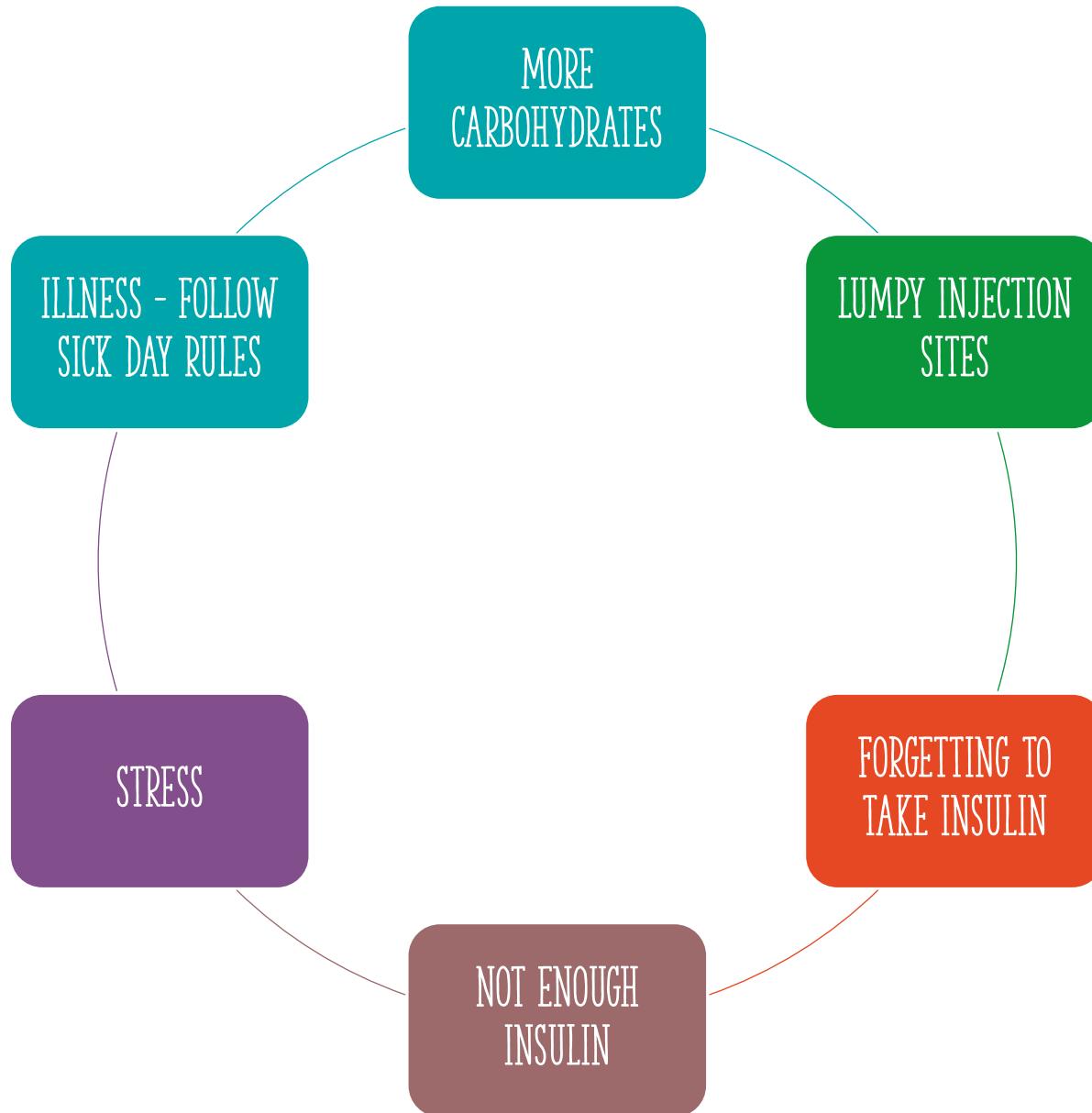
- Alcohol can cause blood glucose to rise initially then hypo later
- Check blood glucose levels more regularly

### Things to consider:

- The national guidance for alcohol consumption – 14 units a week
- Calorie content of alcoholic drinks
- Eat a carbohydrate snack before/during and before bed!
- Think about hypo symptoms and discuss with friends/family & carry ID

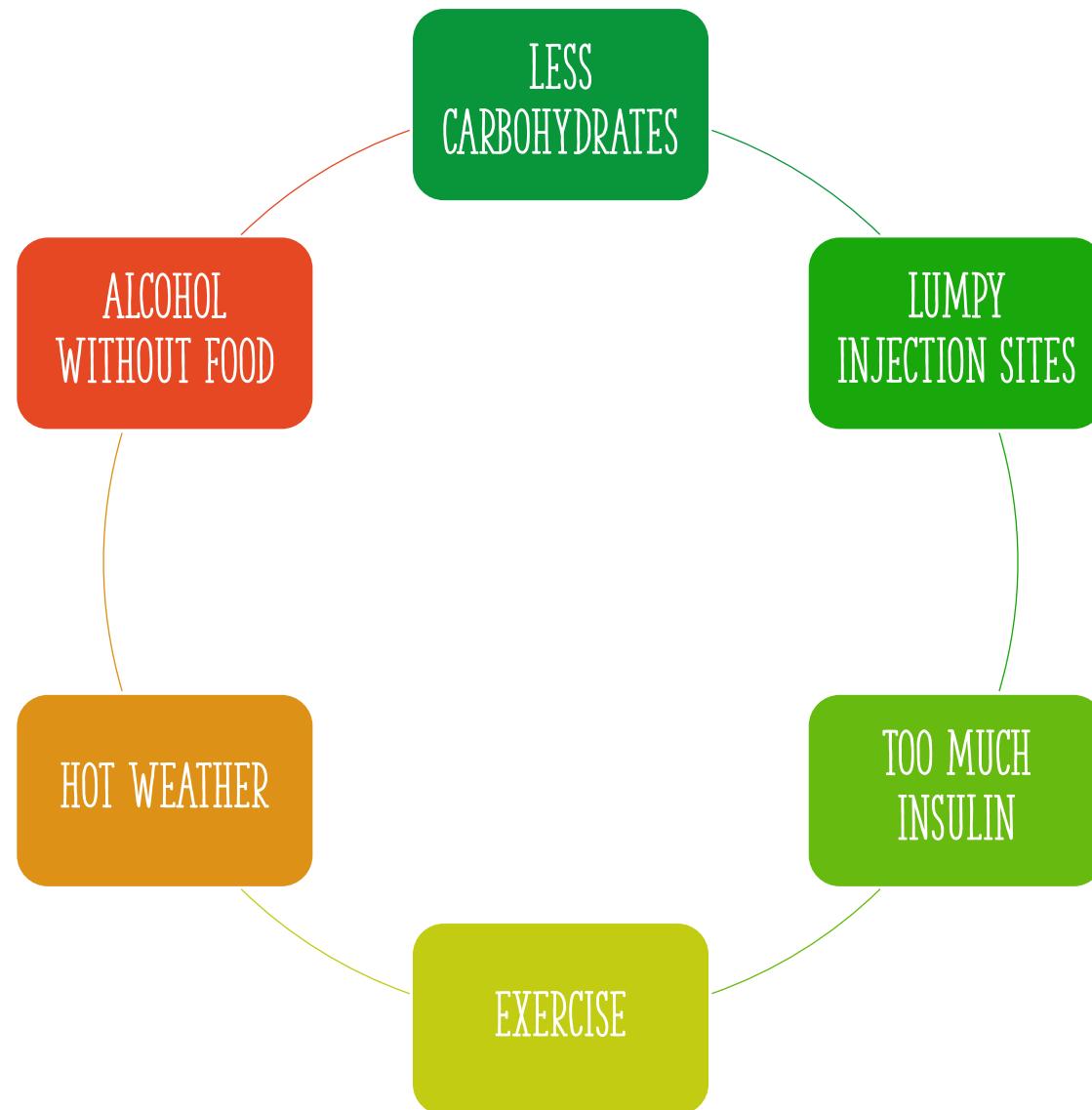


What makes my  
glucose levels higher?



What makes my blood  
glucose lower?

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It is a legal requirement that you inform the DVLA & your car insurance that you have started insulin:

[www.gov.uk/dvla](http://www.gov.uk/dvla)

Tel 0300 790 6806

# Driving

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- You must follow the driving guidelines & test your blood glucose less than 2 hours prior to driving
- Your blood glucose must be above 5mmol to drive
- If you feel unwell or have hypo symptoms then you should check your blood glucose
- If below 4mmol then you need to treat this and wait 45 minutes before driving

# What next?

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We will send a prescription request to your GP (allow 48-72hours)



Next education session in 1 month



If you have any questions check the Forth Valley Diabetes website: [nhsforthvalley.com/diabetes](http://nhsforthvalley.com/diabetes)



If you can't find the answer phone the Diabetes team on 01324 566929