

# Keeping well with Diabetes

Presented by:  
Dietitian

**Diabetes**  
**SMART**

ThinkSmart ActSmart LiveSmart



**Wirral Community**  
NHS Foundation Trust

Diabetes Smart is a Healthy Wirral initiative

# Group ground rules

## We agree to:

- treat each other with respect
- let everyone's viewpoint be heard
- maintain confidentiality
- keep to the topic being discussed
- join in discussions
- share information and resources with others
- turn mobile phones to silent/turned off

# Introductions and Questions

- Share your main question

# Health risks with Diabetes

- High blood glucose, high blood pressure and high blood fat levels damage the blood vessels, nerves and circulatory system.
- High blood glucose levels and Diabetes can affect all organs and systems in the body and increase the risk of health problems
- Cardiovascular Disease
- Kidney (Renal) Disease
- Eye Disease (Retinopathy)
- Foot disease (including neuropathy)
- Autonomic Neuropathy
- Dental Problems

# Health Risks with Diabetes

## Cardiovascular Disease

- Heart disease, heart attack, stroke, peripheral vascular disease, problems with circulation

1 Compared to people without diabetes, people with diabetes are



**nearly 2.5 times**  
more likely to have  
a heart attack



**more than 2.5 times**  
more likely to  
experience heart failure



**2 times**  
more likely to  
have a stroke.

2 Compared to people without diabetes, people with  
**Type 1 diabetes** are



**More than 4 times**  
as likely to have a  
heart attack



**4.5 times**  
more likely to  
experience heart failure



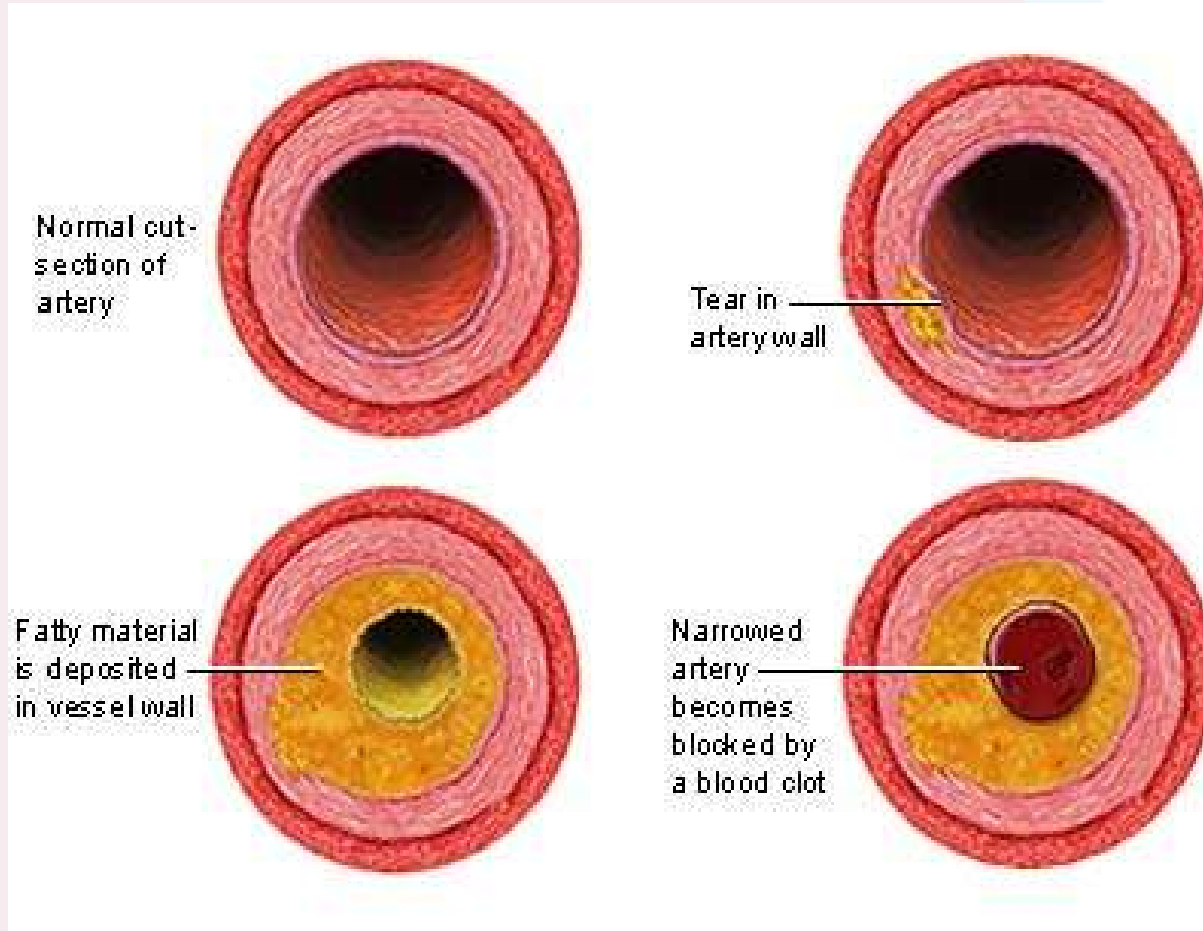
**3.5 times**  
more likely to  
have a stroke.

Data and infographics supplied by Diabetes UK

### Risk Factors Include

- Non-modifiable risk factors: age, sex, genetics
- High blood pressure
- High blood glucose levels
- Raised cholesterol
- Excess weight
- Smoking
- Unhealthy diet

# Cardiovascular Disease - Atherosclerosis



## Damage

↑ Blood pressure,  
↑ cholesterol, irritant:  
smoking, high blood glucose

Fatty deposit

Harden (oxidisation)

Narrowing of arteries  
or rupture

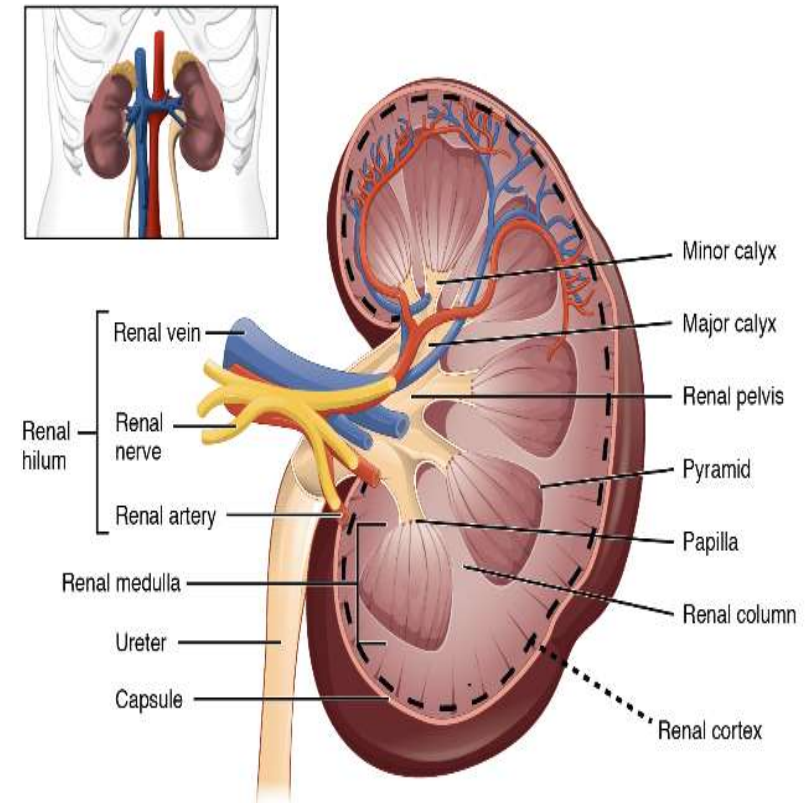
Complications

Heart event, angina, stroke

# Health Risks with Diabetes

## Kidney Disease

- Kidney acts as a filter
- Kidney disease (nephropathy) is when the kidneys start to fail
- Kidney disease is caused by damage to small blood vessels in the kidneys
- High blood glucose and high blood pressure increases the risk of damage



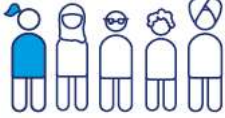


<https://open.oregonstate.edu/aandp/chapter/25-1-internal-and-external-anatomy-of-the-kidney/>

# Health Risks with Diabetes

## Kidney Disease

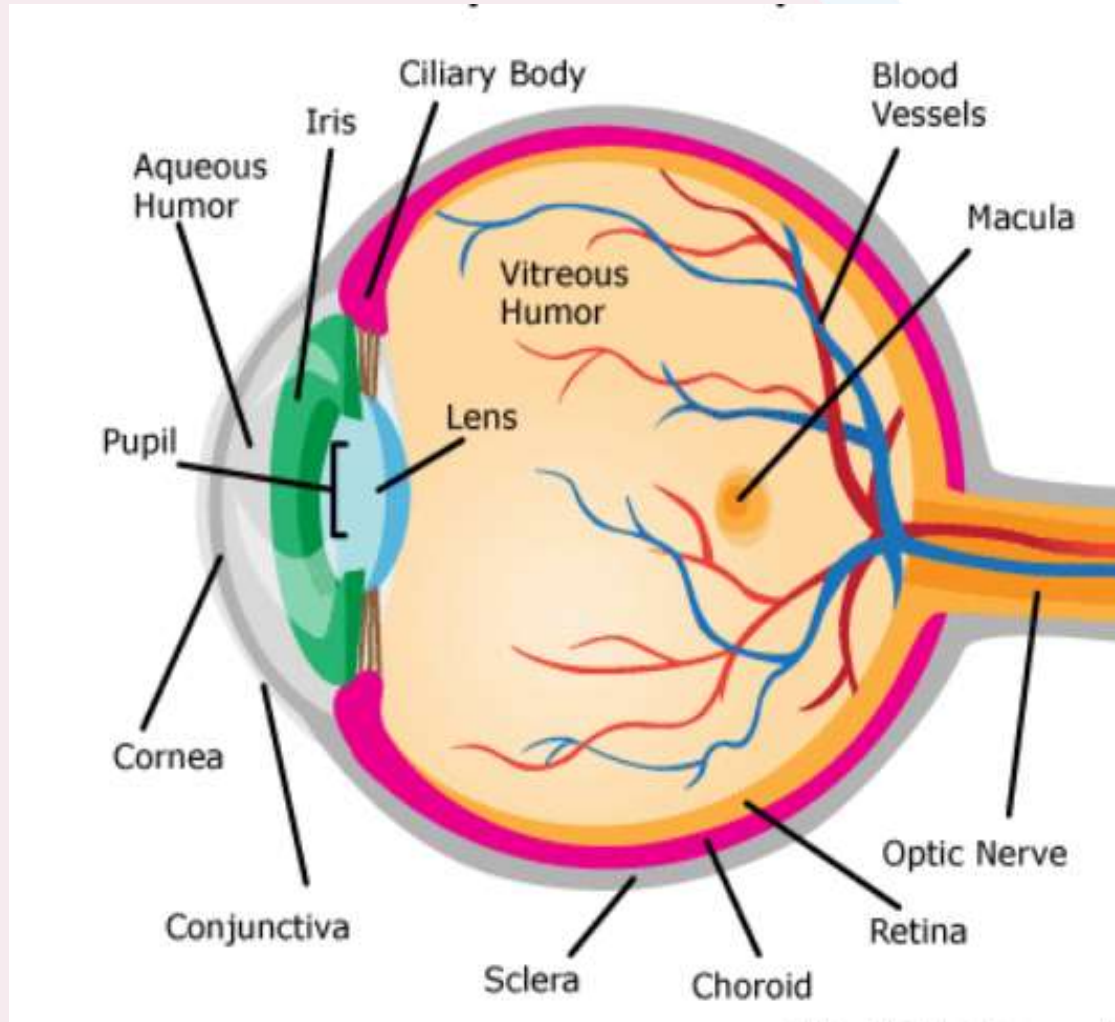
- Kidney disease can lead to kidney failure
- Increased risk with diabetes and high blood pressure.
- In the early stages kidney disease does not usually have symptoms
- Early stages of kidney disease can be detected with urine test (ACR) and blood test – eGFR
- As kidney disease progresses, the kidneys become less and less efficient and the person can become very ill.
- For end stage kidney disease dialysis or kidney transplant may be needed.
- Good blood glucose and blood pressure control protect the kidneys

-  **At least 10,350** people in the UK have end stage kidney failure because of their diabetes.
-  **More than one in three** people who need kidney dialysis or a transplant have diabetes.
-  **Almost one in five** people with diabetes will need treatment for kidney disease during their lifetime.
- We think there are more than 22,650 people** in the UK who need dialysis or a kidney transplant because of their diabetes.
- People with diabetes are **five times more likely** to need either kidney dialysis or a kidney transplant.

Data and infographics supplied by Diabetes UK



# Health Risks with Diabetes Eye Disease



<https://kidshealth.org/en/kids/eyes.html>

# Health Risks with Diabetes Eye Disease

- Eye disease which could lead to blindness
- High levels of glucose can lead to damage in your eyes.
- Smoking increases risk
- As damage progresses sight is affected and it can result in blindness.

1  **More than 1,700** people have their sight seriously affected by their diabetes every year in the UK.

That's more than 30 people every week.

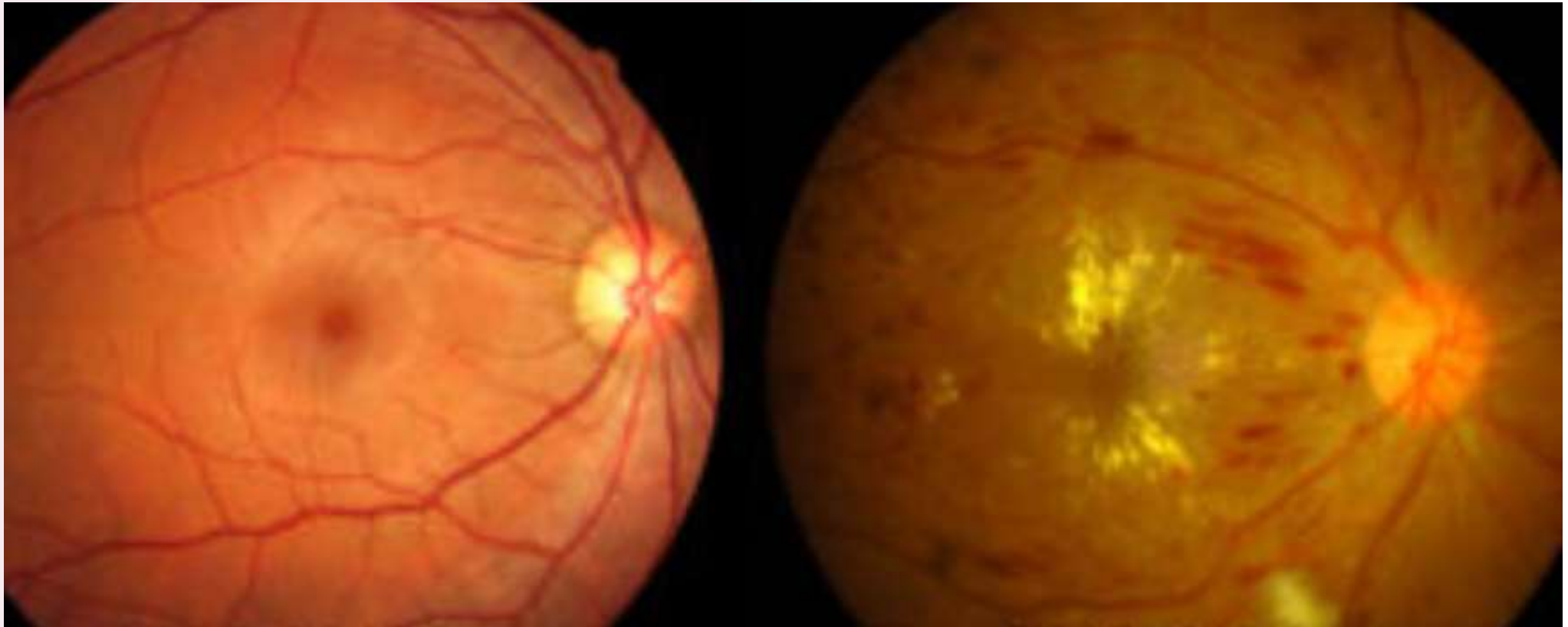
2  Diabetes is responsible for **5% of all sight loss** in the UK.

Data and infographics supplied by Diabetes UK

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## Healthy eye

Diabetes UK video clip

<https://www.diabetes.org.uk/Guide-to-diabetes/Complications/Retinopathy>

## Diabetic retinopathy

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## Normal vision

Diabetes UK <https://www.diabetes.org.uk/Guide-to-diabetes/Complications/Retinopathy/How-retinopathy-affects-your-vision/>

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## Dark patches increase as retinopathy spreads

Diabetes UK <https://www.diabetes.org.uk/Guide-to-diabetes/Complications/Retinopathy/How-retinopathy-affects-your-vision/>

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## Blurring and loss of the centre of vision in maculopathy

Diabetes UK <https://www.diabetes.org.uk/Guide-to-diabetes/Complications/Retinopathy/How-retinopathy-affects-your-vision/>

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# Health Risks with Diabetes

## Eye disease – detection and treatment


- Yearly retinal screening to identify any early signs of problems
- Laser therapy is a common treatment
- Good blood glucose and blood pressure management can successfully maintain vision
- It is important to stop smoking

# Health Risks with Diabetes Foot Disease

- Problems with the feet, which could result in amputation
- Raised blood glucose can cause problems with sensation and circulation.

1 Diabetes leads to more than **8,500** leg, toe, or foot amputations every year.

That's more than **160** a week.

2  Someone with diabetes is **20 times more likely** to experience an amputation than someone without diabetes.

Data and infographics supplied by Diabetes UK



# Health Risks with Diabetes Foot Disease

- Nerve damage is known as neuropathy
- Symptoms can include:
  - Tingling and numbness
  - Loss of ability to feel pain
  - Loss of ability to detect changes in temperature
  - Loss of coordination – when you lose your joint position sense
  - Burning or shooting pains – these may be worse at night time
- Without a good blood supply, you may have problems with cuts and sores, as your feet will be less able to heal well.
- High blood pressure, unhealthy diet and smoking increase the risk of poor circulation

# Health Risks with Diabetes Foot Disease

- If left untreated can result in foot ulcers and infections and, at worst, may lead to amputations.
- May also suffer from cramp and pain in legs and/or feet as a result of poor circulation.
- Most foot problems are preventable with good, regular foot care



Data and infographics supplied by Diabetes UK

# Health Risks with Diabetes

## Foot Care

- Attend your regular foot check and know the result
- Avoid walking bare foot and direct contact with heated surfaces
- Don't use corn removing plasters or blades
- Make sure socks and shoes fit and do not rub
- Manage diabetes
- Stop smoking
- Check feet every day

Data and infographics supplied by Diabetes UK

# Health Risks with Diabetes

## Foot Danger Signs



- Foot red, warm or swollen
- A break in the skin or any discharge (or oozing) onto your socks or stockings
- Feel unwell
- Remember you may not experience pain even with a visible wound.
- Contact your GP or Foot Protection Service immediately.
- If they are not available and there is no sign of healing after one day, go to your nearest out-of-hours healthcare service or your A&E department.

View [ACT Now Animation - YouTube](#)

# ACT NOW

## ACT NOW!





 <b>A - ACCIDENT?</b>	 <b>C - CHANGE?</b>	 <b>T - TEMPERATURE?</b>
 <b>N - NEW PAIN?</b>	 <b>O - OOZING?</b>	 <b>W - WOUND?</b>







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## ACT NOW!



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# Health Risks with Diabetes

## Autonomic Neuropathy

- Nerve damage as a result of high blood glucose levels damaging the small blood vessels which supply the nerves.
- Autonomic neuropathy affects nerves that control functions without you consciously directing them, such as stomach emptying, bowel control, heart beating, sexual organ function.
- There are many treatments available to relieve the symptoms caused by neuropathy.
- Good management of blood glucose levels can improve the symptoms of neuropathy and can reduce the progression of the nerve damage.

# Health Risks with Diabetes

## Other Health complications

- Mental Health
- Dental Health
- COVID 19/flu/pneumococcal vaccination

# Hyperglycaemia

## Blood Testing

Time	What the test indicates	Target blood glucose (mmol/l) for adults	
		Type 1 diabetes	Type 2 diabetes
On waking	How well the body controls glucose	5–7	
Before meals	How well the body/insulin regimen has controlled glucose since the last meal	4-7	4-7
1.5 -2 hours after meals	How well your body/insulin regimen has dealt with the glucose from the meal	5-9	<8.5
Bed time		Agreed with each individual	



# Symptoms of hyperglycaemia

- Passing more urine than normal, especially at night
- Urine infections
- Thirst and dry mouth
- Headaches
- Blurred vision
- Tiredness and lethargy
- Warm and sweaty
- Delayed healing of cuts and injuries

# Possible causes of high blood glucose levels

- Missed a dose of diabetes medication/insulin
- Eaten more carbohydrate than body and/or medication can cope with
- Less activity than usual
- Stress
- Over-treating a hypo
- Illness
- Some medications including steroids and some anti-depressants

# Reducing likelihood of high blood glucose levels

- Be aware of carbohydrate portions
- When ill, monitor blood glucose levels more closely, continue taking diabetes medication even if not eating, and contact diabetes healthcare team if need more information.
- Be regularly active
- Remember to take insulin and diabetes medication, and always take them correctly.
- May need more medication – discuss this with diabetes healthcare team.

## Sick day rules

- Continue to take insulin or diabetes tablets (except SGLT2 inhibitors)
- Test blood glucose levels more regularly
- Check urine/blood for ketones if blood glucose is 15mmol/l or more (mainly in type 1 diabetes)
- Drink plenty of unsweetened drinks to avoid dehydration
- Eat little and often
- If necessary, replace meals with snacks or drinks containing carbohydrates
- Contact health care team if in any way unsure about what to do, especially if vomiting, or unable to keep fluids down.

# Health Risks with Diabetes

## Infection complications (including COVID-19)

- If you have Diabetes you are no more likely than anyone else to catch coronavirus.
- We can all protect ourselves and each other by following public health guidance and being vaccinated
- Diabetes makes people more vulnerable to developing a severe illness if they do get coronavirus, flu or pneumonia
- To reduce your risk of more severe illness if you do get COVID 19 losing any excess weight and improving blood glucose levels are both important
- If you do get an infection follow the sick day rules discussed and seek medical advice if you are unsure how to manage your diabetes while unwell



# Hypos (low blood glucose levels)

- Blood glucose levels below 4 mmol/l (with or without symptoms)
- Effects can last for up to 24 hours
- Should not be a risk for diet control/metformin treatment

# Symptoms of hypos (low blood glucose levels)

- feeling shaky
- Sweating
- Hunger
- Tiredness
- blurred vision
- lack of concentration
- Headaches
- feeling tearful, stroppy or moody
- going pale

# Possible causes of hypos (low blood glucose levels)

- unplanned physical activity
- not enough carbs
- delayed or missed meal or snack
- too much insulin/ diabetes medication
- Heat
- injecting insulin in an area being used for exercise
- not rotating insulin injection site and developing 'lipos'
- drinking large quantities of alcohol or alcohol without food



# Hypo treatment (rule of 15s)

**15–20g of fast-acting carbohydrate. Suitable treatments include:**

- Glucose tablets x 4 to 5
- Sweets, such as jelly babies x 4
- Pure fruit juice x ~ 200ml
- Glucose gel x 1-2 tubes
- A sugary (non-diet) drink (may need  $\geq 200$ ml) – check labels

**Retest blood glucose levels after 15–20 minutes and re-treat if blood glucose levels are still less than 4mmol/l.**

**snack of 15–20g of slower-acting carbohydrate e.g.**

- a sandwich
- piece of fruit
- cereal
- some biscuits and milk

# Preventing hypos

- take tablets and/or insulin injections correctly
- reduce insulin dose for planned activity
- avoid injecting insulin in the areas of the body about to be used in exercise
- don't miss a meal.
- eat enough carbohydrate: take extra carbohydrate if more active than usual
- carry hypo treatment
- do not drink alcohol on an empty stomach or drink too much alcohol.

# Health results

- Tests to monitor your health with diabetes
- Know your numbers
  
- HbA1c
- Self-monitoring blood glucose
- Blood pressure
- Lipids (cholesterol)
- Kidney function

# Health results

**HbA<sub>1c</sub>** (% or mmol/mol) average blood glucose **48-58 mmol/mol**

**Blood glucose** (mmol/l) pre meal **4-7 mmol/l**  
2 hours after a meal **less than 8.5** (type 2)  
**less than 9** (type 1)

# Health results

<b>Blood pressure</b> (mmHg)	type 2 diabetes	<b>140/80 mmHg or below</b>
	type 1 diabetes	<b>135/85 mmHg or below</b>

(130/80 mmHg or below with kidney problems or high risk of cardiovascular disease)

# Health results

<b>Total cholesterol</b> (mmol/l)	<b>less than 4.0</b>
<b>Non HDL</b> (mmol/l)	<b>less than 4.0</b>
<b>HDL</b> (mmol/l) good cholesterol	<b>Men 1.0 or above Women 1.2 or above</b>
<b>LDL</b> (mmol/l)	<b>less than 2.0</b>
<b>Total cholesterol: HDL ratio</b>	<b>less than 4.5</b>
<b>Triglycerides</b> (mmol/l)	<b>less than 1.7</b>

# Keeping well with Diabetes

- Good control of blood glucose, blood pressure and cholesterol levels (know your numbers)
- Healthy balanced diet
- Physical activity
- Healthy weight
- Stop smoking
- If taking alcohol, drink only in moderation
- Take prescribed medication
- Attend appointments
- Ask for help if you are ill and follow the 'sick day rules'.

# What Care to Expect with Diabetes

- Immunisations (flu and pneumococcal pneumonia)
- Annual free eye examination
- Exemption from paying prescription charges if on medication for diabetes (exemption card required)
- Yearly checks – eyes, feet, annual review

## Annual Review

- Blood tests
- Weight/waist
- Blood pressure
- Eye check
- Foot check
- Review diet and lifestyle
- Assess hypoglycaemia awareness
- Discuss erectile dysfunction
- Discuss mental health
- Review medications



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# Questions

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# SMART Goals

**Specific**

What will you do?

**Measurable**

How much...how often?

**Achievable**

How confident are you that you **can** do it? (at least 7/10)

**Realistic**

How confident are you that you **will** do it? (at least 7/10)

**Time Bound**

When will you do it?

**Evaluate**

How did it go?

**Review**

What will you do next?

# Questions to help you set your Goals

- What is your Goal?
- How important is your Goal to you?
- What makes it important?
- What do you need to achieve it?
- Which bits will you do this week?
- How much? How often? When?
- If you visualise yourself doing this bit of your Goal this week, how confident do you feel, on a scale of 0-10?

## Further support

### You can access the following topic session:

- Healthy Lifestyle
- Food labelling
- Physical Activity
- Carbohydrate Awareness
- Review sessions

Book on by ringing 0151 604 7271 or email  
[dietetics.wirralct@nhs.net](mailto:dietetics.wirralct@nhs.net)

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**Thank you for joining us today!**

**Please take a moment to complete a  
short evaluation**

