TRAINERMAKER

Cardiovascular heart Disease (CVD) and Diabetes

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Introduction

Cardiovascular Disease (CVD) and Diabetes are 2 conditions that we should all be aware of. Being aware of these from a young age is paramount if we are to put in place appropriate measures to decrease risk factors and positively affect long-term health outcomes.

These two conditions are ‘comorbid’, which means that they often exist together.

Cardiovascular heart Disease (CVD)

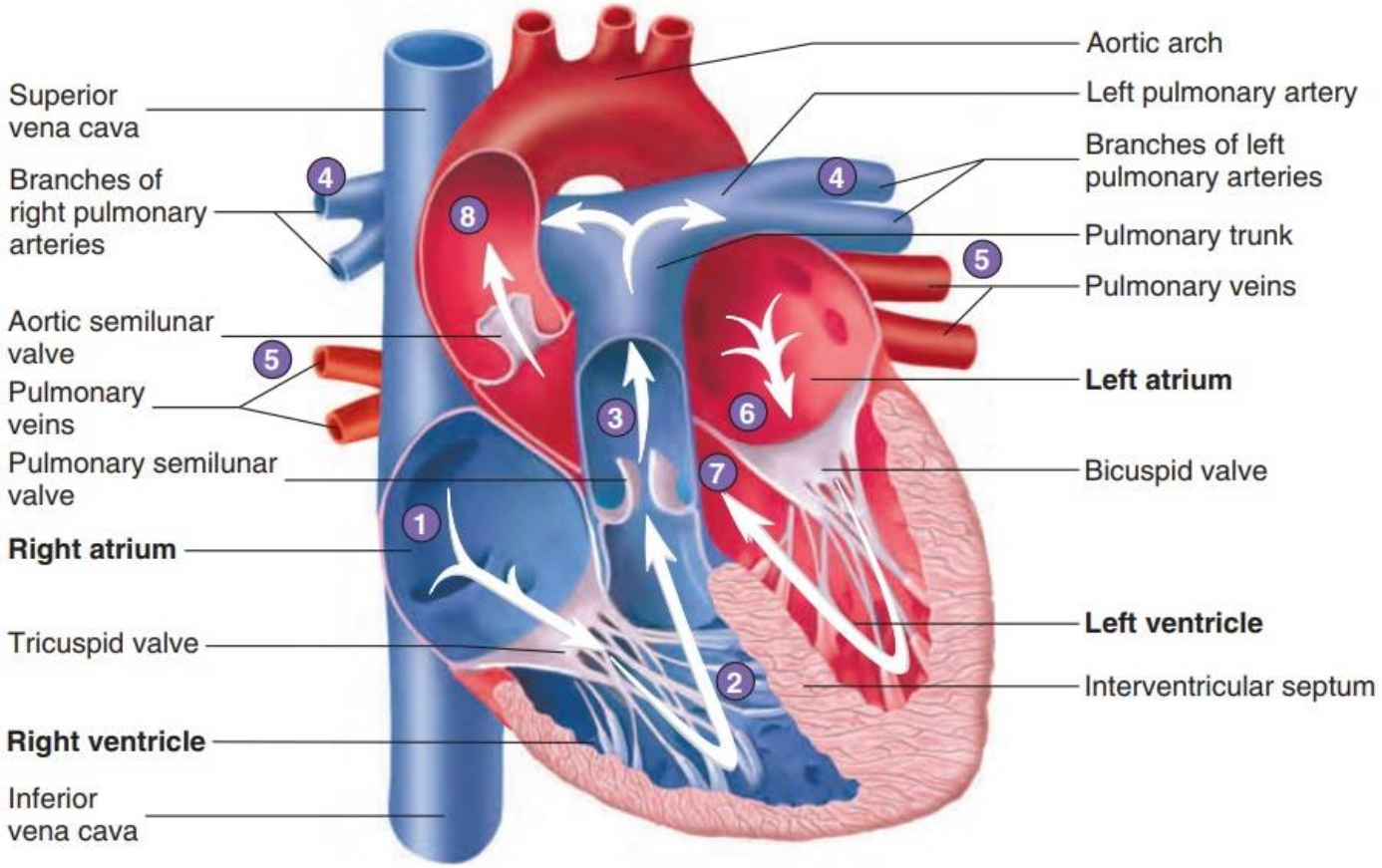
CVD is an umbrella term for many conditions that affect your heart or circulatory system

Epidemiology:

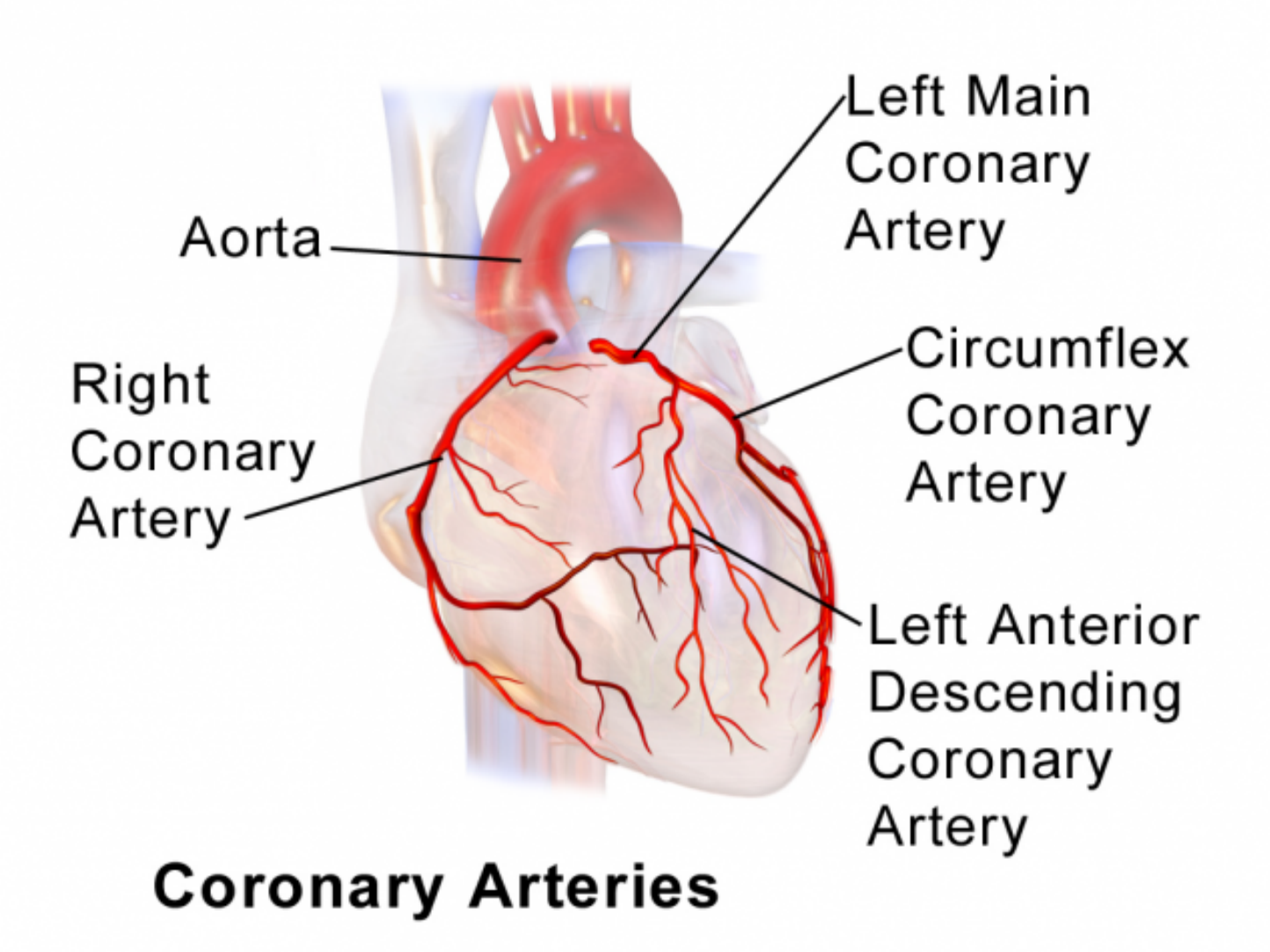
In 2020 (England):

- 3rd most prevalent cause of death, 51979 (after COVID-19, 69101 and Dementia/Alzheimers, 66060)
- 7.6 million people currently living with CVD in the UK (population 67 million)
- 450 deaths per day
- £7.4 bn annual cost to the NHS (approx. £1000 per year pp)

The Heart’s Role



How the Heart is Fed



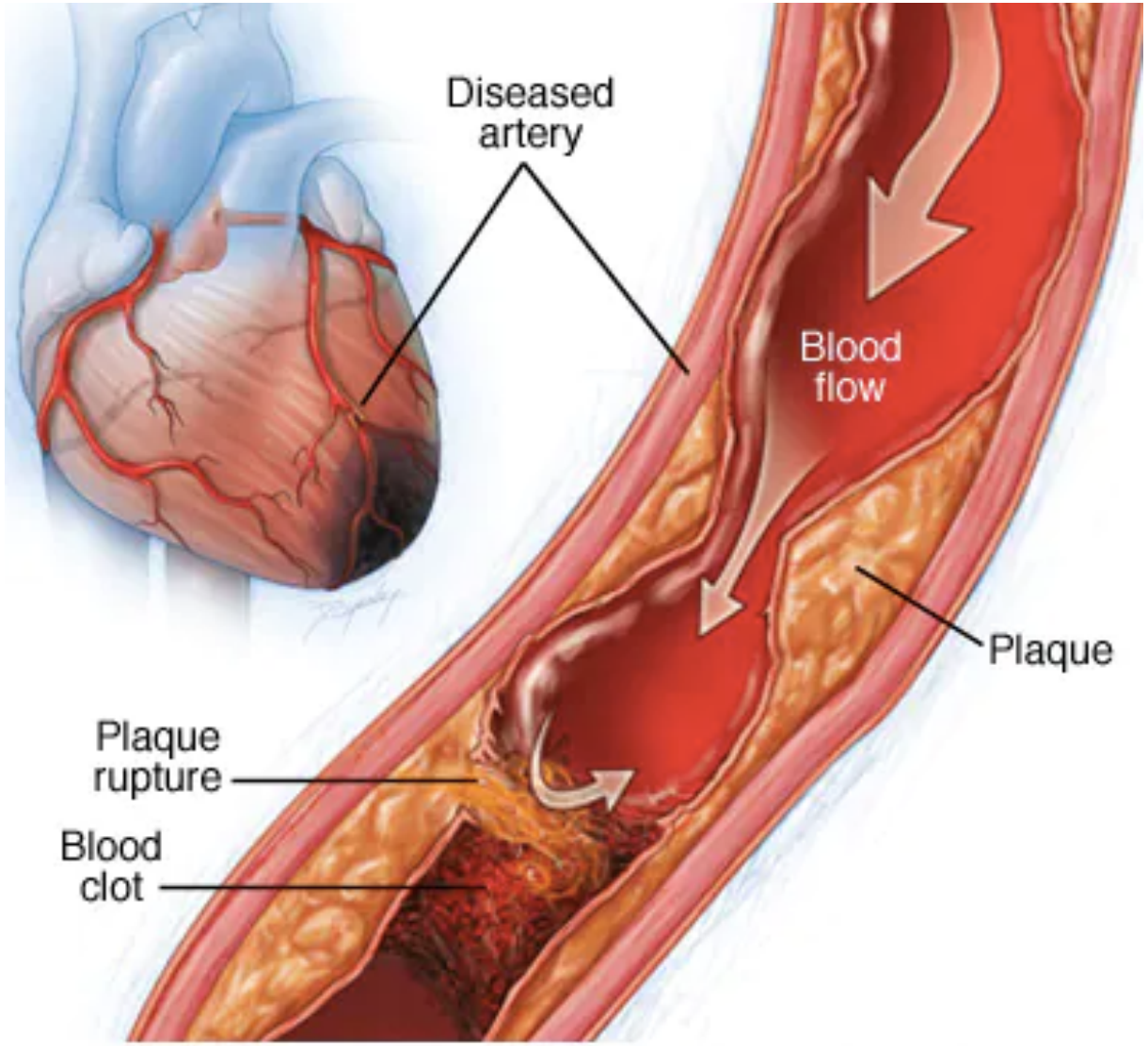
Common Types, Signs and Symptoms of CVD

- Coronary Heart Disease (CHD)
  - Angina – Pain or discomfort in the chest, neck, jaw or arms. ‘tightness’. Arteries going into spasm, or narrowing arteries from fatty material
  - Atherosclerosis – The build up of fatty material inside the arteries – it causes most heart attacks and strokes
  - Pain or discomfort in the chest, neck, jaw or arms. Described as ‘tightness’ or ‘dizziness’ especially during activity, fast/slow heartrate, numbness in limbs, weakness
- High Blood Pressure (Hypertension)
  - A consistently elevated blood pressure of 140/90 or more. (Optimal is 120/80)
  - 50% of heart attacks and strokes associated with hypertension
  - No signs or symptoms!
- Peripheral Arterial Disease (PAD)
  - When blood cannot get to your leg muscles due to atherosclerosis
  - Swelling, numbness, weakness, flushed red colour

Common Types, Signs and Symptoms of CVD cont.

- Cardiac Arrest
  - When the heart suddenly stops pumping blood around the body, starving the brain of Oxygen
  - Unconsciousness
- Heart Attack
  - Sudden loss of blood flow to a part of the heart, this can seriously damage the heart
  - Pain in the chest, unconsiousness
- Stroke
  - When blood flow is suddenly cut off to the brain, starving it of Oxygen. Usually caused by a blood clot
  - FAST
    - Facial weakness (Can they smile or has their mouth or eye dropped?)
    - Arm weakness (can they raise both arms)
    - Speech problems or difficulty understanding what you are saying?
    - Time – call 999 immediately if these symptoms are present

Diseased Heart Example



Risk Factors

- Smoking (Stop!)
- Stress (Overcome issues)
- Alcohol (Lower units/week)
- High blood pressure (Reduce salt, be active, lower BMI)
- High blood cholesterol (Eat a cardio-protective diet)
- Inactivity (Do more activity!)
- Overweight or obese (Nutrition and activity strategies)
- Diabetes (Type I / II differences – eat less sugary foods)
- Family history (Choose good parents)
- Ethnic background (Especially true for 1st generation - Be aware of cultural differences that may exacerbate risk)
- Sex – men are more likely to get CVD than women
- Age – the older you are the more likely you are to get CVD

Ethnicity

Research shows that in the UK:

- if you're South Asian, you're more likely to develop CHD than white Europeans
- if you're African or African Caribbean, you're at higher risk of developing high blood pressure and having a stroke than other ethnic groups

There isn't a clear answer to why some ethnicities may be at increased risk. Genetics likely play a part, but lifestyle choices can also affect risk

Exercise and Lifestyle Interventions - Nutrition

Nutrition – Eat a cardio-protective diet

- Low in saturated fat, simple sugars, salt and alcohol
- Higher in fruits & vegetables, unsaturated fats, water

Guideline Daily Amount Values			
Typical values	Women	Men	Children (5-10 years)
Calories	2,000 kcal	2,500 kcal	1,800 kcal
Protein	45 g	55 g	24 g
Carbohydrate	230 g	300g	220 g
Sugars	90 g	120 g	85 g
Fat	70 g	95 g	70 g
Saturates	20 g	30 g	20 g
Fibre	24 g	24 g	15 g
Salt	6 g	6 g	4 g

Exercise and Lifestyle Interventions - Exercise

Exercise – Do more!

- Government ADULT guidelines are 150 mins of moderate to vigorous activity each week (6-9/10 on a Rate of Perceived Exertion (RPE) scale)
- Government ADOLESCENT guidelines are 60 mins of moderate to vigorous activity each day

Mental health

- Aim to minimise mental health issues through good sleep and stress reduction tactics

Diabetes (Type I & II)

Diabetes is an endocrine system disorder (hormones)

Epidemiology:

- 5.5 million people will have Diabetes in the UK by 2030 if nothing changes (currently 4.9 million)
- 13.6 million people currently at an increased risk of Type II Diabetes
- 850000 people have Type II Diabetes but do not know they have it!
- 8% of people with Diabetes in the UK have Type I
- 90% of people with Diabetes in the UK have Type II
- £10bn annual cost to the NHS on Diabetes treatments (10% of budget)!

Signs and symptoms:

- Excessive urination
- Thirst
- Weight loss without meaning to

Type I Diabetes

Type 1 Diabetes is a serious condition where your blood glucose (sugar) level is too high. It is an autoimmune condition that is potentially triggered by environmental factors.

Long term effects of Type I Diabetes are damage to the:

- Heart
- Eye (including blindness)
- Feet
- Kidneys

Type 1 Diabetes occurs because your body can’t make a hormone called insulin. This happens because your body attacks the cells in your pancreas that make the insulin, meaning you can’t produce any insulin at all.

We all need insulin to live. It does an essential job. It allows the glucose in our blood to enter our cells and fuel our bodies.

When you have type 1 diabetes, your body still breaks down the carbohydrate from food and drink and turns it into glucose. But when the glucose enters your bloodstream, there’s no insulin to allow it into your body’s cells. More and more glucose then builds up in your bloodstream, leading to high blood sugar levels.

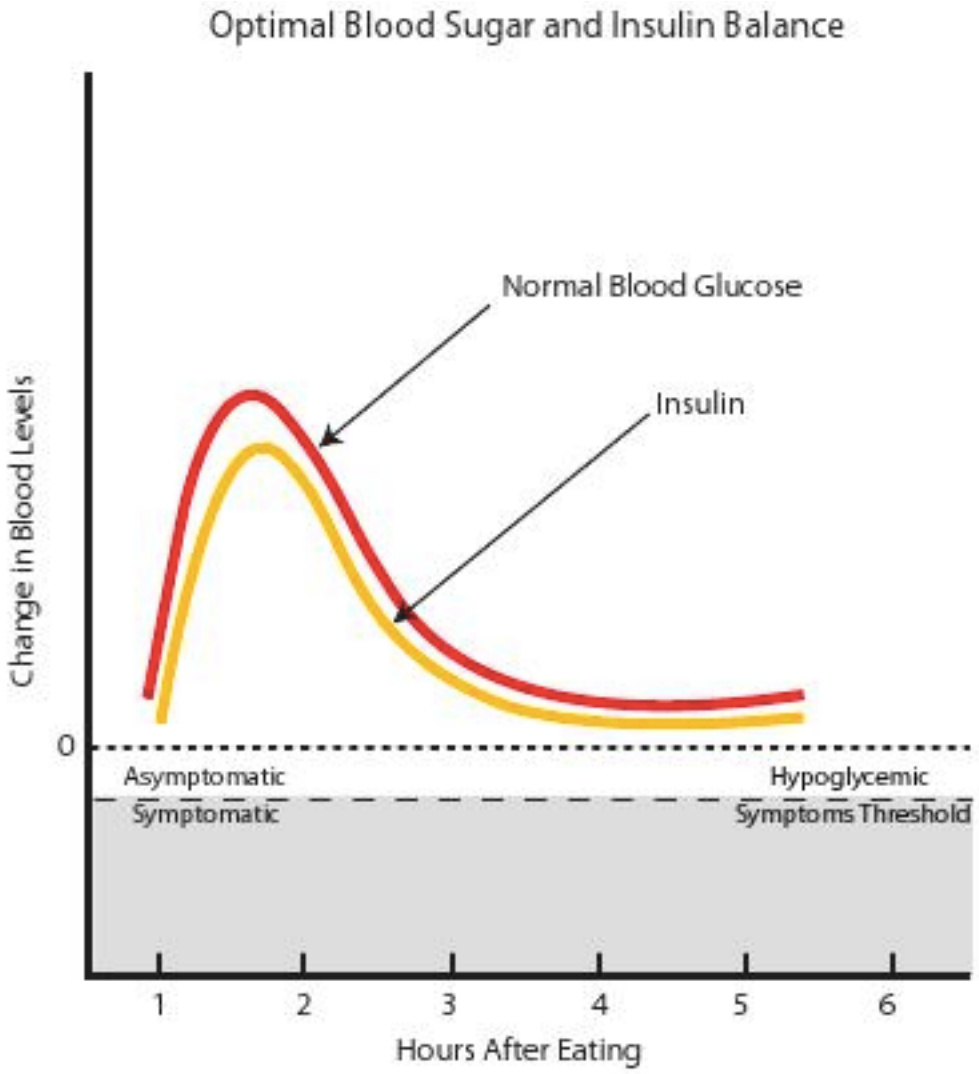
Type II Diabetes

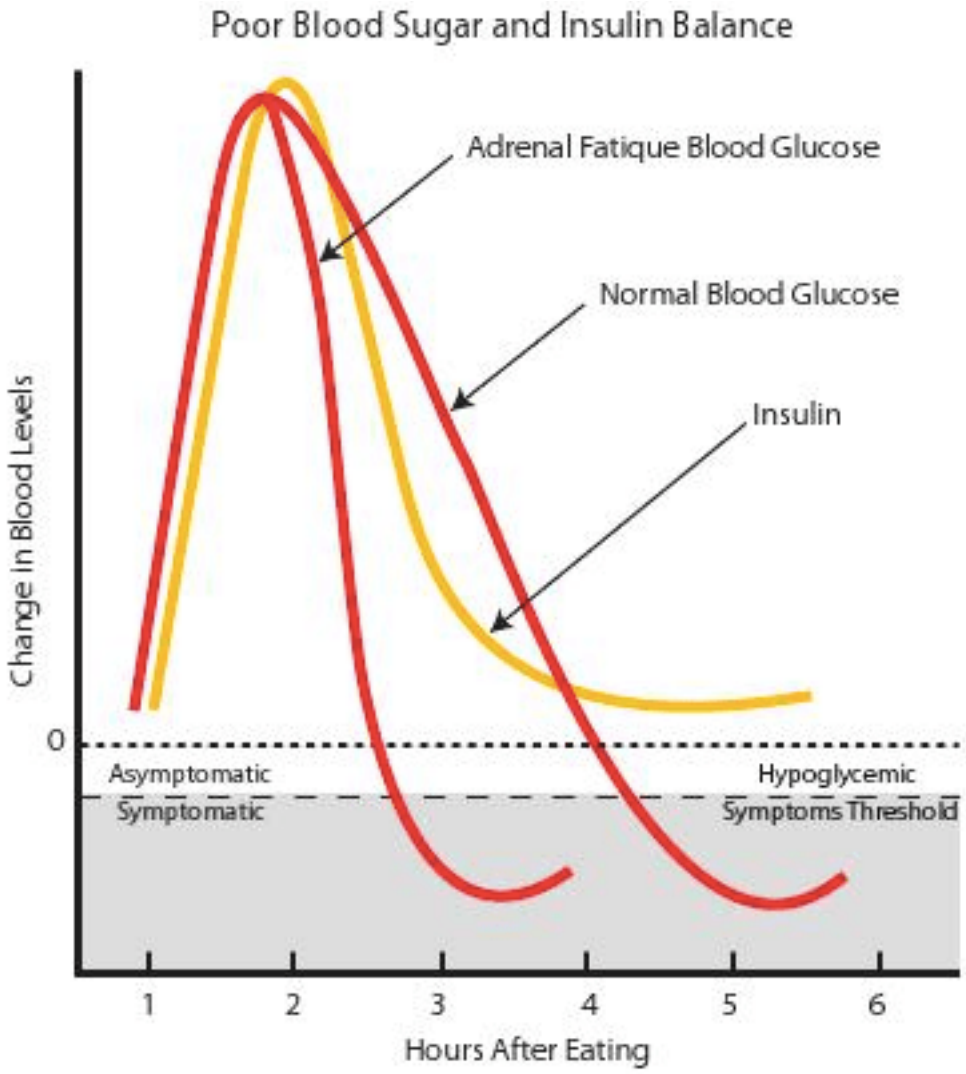
Type 2 diabetes is a serious condition where the insulin your pancreas makes can't work properly, or your pancreas can't make enough insulin. This means your blood glucose (sugar) levels keep rising.

There are fewer signs and symptoms as it is a progressive condition – but ultimately, you will get similar symptoms as Type I Diabetes (heart, eye, feet, kidney issues).

- When you have type 2 diabetes, your body still breaks down carbohydrate from your food and drink and turns it into glucose. The pancreas then responds to this by releasing insulin. But because this insulin can't work properly, your blood sugar levels keep rising. This means more insulin is released.
- For some people with type 2 diabetes this can eventually tire the pancreas out, meaning their body makes less and less insulin. This can lead to even higher blood sugar levels and mean you are at risk of hyperglycaemia.

Insulin Response





Risk Factors

- Family history (Type I & II)
- Age (Type II)
- If you have a parent, brother, sister or child with diabetes (Type II)
- Ethnicity (Type II)
- High blood pressure (Type II)
- Overweight/obese (Type II)
- Poor diet (Type I)

Ethnicity

- In 17/18, people recorded as black were twice as likely to be diabetic under the age of 50 than those recorded as white.
- In 17/18 people with type II diabetes recorded as Asian were 2 ½ times more likely to be under the age of 50 than those recorded as white
- Consistently, black African-Caribbean populations have been reported to exhibit pronounced insulin resistance and higher rates of hypertension compared to other ethnic groups even in the absence of abdominal obesity.
- People from black ethnic groups are more likely to have undiagnosed diabetes than people from white British backgrounds.
- South Asians are at risk of diabetes at a lower BMI, and develop diabetes 5-10 years earlier than White Europeans, which means it’s important for healthcare professionals to be screening for diabetes in South Asians from the age of 25.

Exercise and Lifestyle Interventions - Nutrition

Nutrition – eat a less sugary diet!

- Learn about your nutrition!
- Eat a low Glycaemic Load (GL) diet
- Eat a diet high in fibre
- Eat less high Glycaemic Index (GI) snacks such as chocolate, sweets and fizzy drinks
  - 30.5 grams in a Mars Bar
  - 57 grams in a 500ml Monster!

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References and Further Info

- https://www.bhf.org.uk/
- https://www.diabetes.org.uk/
- https://www.ons.gov.uk/