

COMPONENT 2 – PRESENTATION

Type 2 Diabetes

1. Integrating Anatomy,
2. Physiology and
3. Person-Centred Care

Introduction to Physiology | BMHP5023

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Introduction to the Fictional Patient

Daniel Williams – a person-centred case study

PATIENT PROFILE

- Daniel Williams
- 52 | Newly Diagnosed
- Office-based occupation

KEY RISK FACTORS

- BMI 31 kg/m²
- Sedentary lifestyle
- Diet
- Family history

CARE NEEDS

- Diet
- Activity
- Education
- Self-management

CONCERNS

- Medication
- Long-term complications

PERSON-CENTRED GOAL: Realistic, sustainable lifestyle changes to improve glycaemic control.

Understanding Type 2 Diabetes

A progressive Disorder of Glucose regulation

Type 2 diabetes develops when the body cannot use insulin effectively and pancreatic B-cells become progressively unable to compensate.

Why does this matter?

- Persistent hyperglycaemia can contribute to **microvascular and macrovascular complications**, affecting organs such as the:
 - Eyes
 - Kidneys
 - Nerves
 - Heart and blood vessels
- Type 2 diabetes is not simply "high blood sugar"; it reflects **progressive disruption** of insulin action and glucose regulation.

Insulin Resistance

Body cells respond less effectively to insulin

B-Cell Dysfunction

Pancreatic B-cells progressively become unable to produce sufficient insulin

Reduced Glucose Uptake

Increased glucose

Persistent Hyperglycaemia

Blood glucose remains elevated

Normal Glucose Regulation

How insulin maintains blood glucose within a normal range

Pancreas

- Located behind the stomach
- Functions as both an endocrine
- Contains clusters of cells called the islets of Langerhans

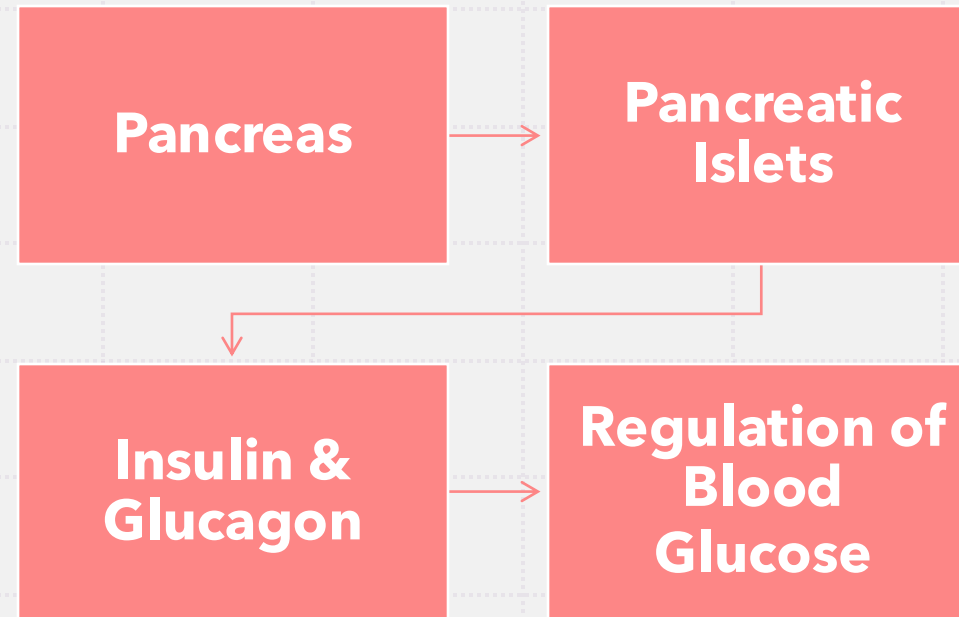
B-cells

- Produce insulin

A-cells

- Produce glucagon

Why are these important?



KEY MESSAGE: Insulin enables glucose to move from the bloodstream into insulin-sensitive tissues, helping maintain glucose homeostasis.

Normal Respiratory Physiology

key structures involved in maintaining glucose homeostasis



Food is consumed

Carbohydrates are broken down into glucose, which enters the bloodstream



Blood glucose rises

Pancreatic b-cells detect the increase and release insulin



Insulin acts on target tissues

Insulin promotes glucose uptake into muscle and adipose tissue
Supports glucose storage in the liver



Blood glucose falls towards normal

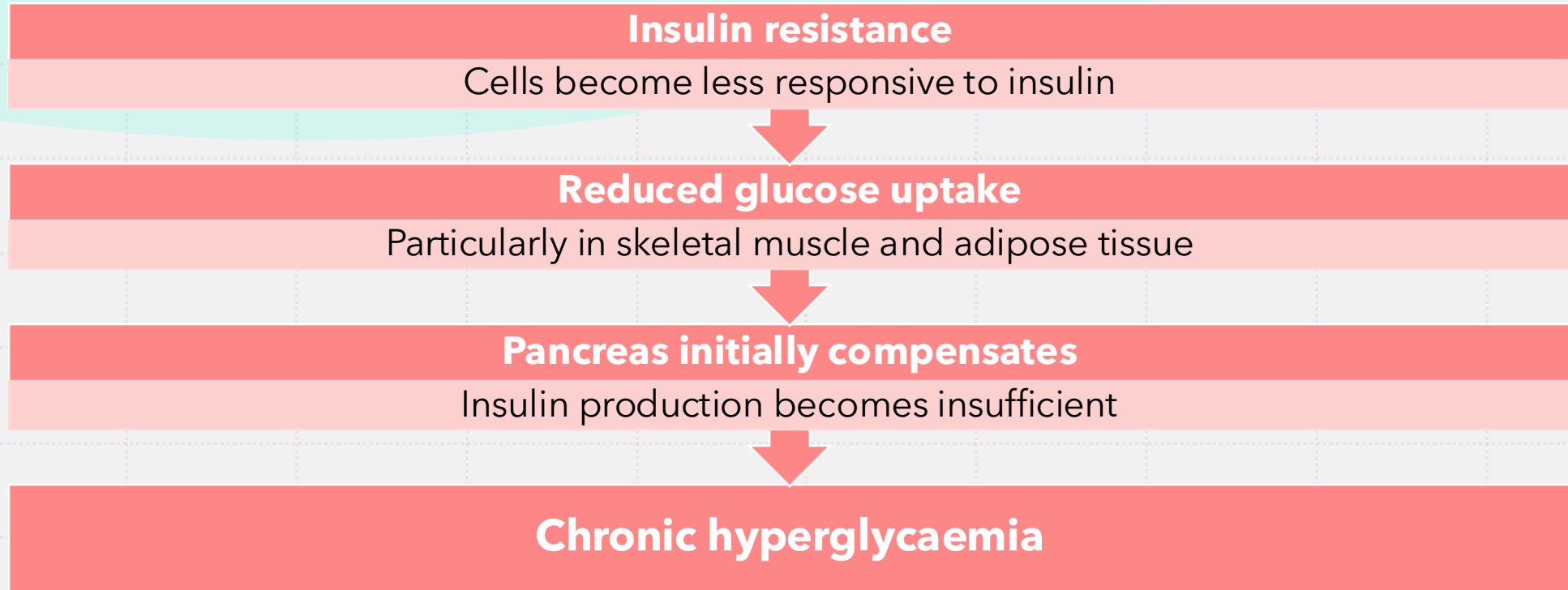
As glucose levels decrease, insulin secretion reduces

Glucose Homeostasis



Pathophysiology of Type 2 Diabetes

How disruption of insulin action leads to hyperglycaemia



Long-term: Persistent hyperglycaemia contributes to vascular and tissue damage, increasing the risk of diabetes-related complications.

The Impact of Type 2 Diabetes on Daniel

Why long-term glucose management is important

Short-term/ Current Effects

- Increased thirst and urination
- Fatigue and reduced energy
- Possible blurred vision
- Difficulty maintaining healthy blood glucose levels

Long-term health risks

- **Microvascular**
 - Retinopathy
 - Neuropathy
 - Kidney disease
- **Macrovascular**
 - Cardiovascular disease
 - Stroke
 - Peripheral vascular disease

CARE PRIORITY:

Achieve and maintain good glycaemic control while reducing Daniel's risk of complications.

Daniel's Individual Risk Factors

Lifestyle and personal factors influencing his health

Non-modifiable

- Age: 52 years
- Family history: Father with Type 2 diabetes

Modifiable

- BMI: 31 kg/m²
- Sedentary lifestyle: Predominantly office-based work
- Limited physical activity

WHY THIS MATTERS?

Daniel's modifiable lifestyle factors provide opportunities for intervention, while his age and family history should be recognised when assessing his overall risk.

Care approach:

Identify → prioritise → set realistic goals → review progress

Daniel's Person-centred Care Plan

Supporting realistic and sustainable dietary changes

Care Need	Goal	Planned Intervention
Diet	Improve dietary quality	Individual nutritional advice, gradual reduction of processed/ high-energy foods
Physical activity	Increase daily activity	Gradually introduce regular aerobic and resistance activity
Weight	Support healthier weight	Agree realistic, sustainable weight-management goals
Medication	Safe and informed treatment	Discuss benefits, concerns and adherence; review medication with healthcare
Self-management	Increase confidence	Diabetes education, goal-setting and shared decision-making
Monitoring	Assess progress	Regular HbA1c, weight, lipids and complication screening

Person-centred principle: Goals should be agreed collaboratively with Daniel and adapted to his preferences, circumstances and ability to self-manage.

Monitoring Diabetes and Preventing Complications

- 1. Person-centred monitoring
- 2. Results should be discussed with Daniel → goals reviewed → care plan adapted

Monitoring	Purpose
HbA1c	Assess average blood glucose control
Blood pressure	Identify cardiovascular risk
cholesterol	Assess cardiovascular risk
Kidney function	Detect early diabetic kidney disease
Foot checks	Identify neuropathy, ulcers and infection
Retinal screening	Detect diabetic eye disease
Weight/BMI	Monitor weight-management progress



Nutrition, Physical Activity and Weight Management

Lifestyle
Management:
Diet and Physical
activity

Dietary management

Physical activity

Weight management

Include
strength/resistance
activity

Reduce prolonged
periods of sitting

Increase vegetables,
fruit, wholegrains
and pulses

Gradually increase
activity from Daniel's
current baseline

Choose high-fiber,
lower-GI
carbohydrates

Agree a realistic
initial target of 5%-
10% weight loss

Individualise advice
around preferences,
lifestyle and
willingness to
change

Reduce highly
processed foods and
excess saturated fat

Aim towards 150
minutes of moderate
activity per week

Focus on sustainable
behavioural changes
rather than rapid
weight loss

(NICE, 2026; NHS,
2026)

Medication and Safe Diabetes Management

Individualised treatment

- Medication choice should reflect Daniel's **glycaemic control, cardiovascular and renal risk, weight, preferences and treatment goals**
- Pharmacological treatment should complement, not replace, lifestyle management

Treatment considerations

- Explain **benefits, risks and potential side effects**
- Review treatment effectiveness and tolerability
- Consider **adherence and Daniel's preferences**
- Adjust treatment when clinically indicated

Shared decision-making

Inform → Discuss → Agree → Review Goal

Effective glycaemic control + treatment safety + Daniel's confidence in managing his condition

Preventing Long-Term Complications

Glycaemic control

- Maintain Daniel's agreed **individualised HbA1c target**
- Review treatment when control is inadequate

Cardiovascular protection

- Monitor and manage **blood pressure and cholesterol**
- Encourage physical activity, healthy eating and weight management

Complication screening

- Regular **retinal screening**
- Kidney function and albuminuria monitoring
- Foot assessment and ongoing foot care

Wider health behaviours

- Avoid smoking
- Maintain a healthy lifestyle
- Attend regular diabetes reviews

Prevention principle Early detection + effective management + self-management = reduced risk of complications

(NICE, 2026; NHS, 2026)

Communications, Ethics and Self-Management

- Use **clear, respectful and non-judgmental language**
- Check Daniel's understanding and encourage questions
- Explore his **preferences, concerns and priorities**

Ethical practice

- Respect **autonomy and informed choice**
- Support **shared decision-making**
- Maintain **confidentiality and dignity**
- Avoid blame or stigma

Self-management

- Provide diabetes education and practical support
- Encourage **goal-setting and problem-solving**
- Support Daniel to take an active role in his care
- Review goals and progress collaboratively

Person-centred approach: Listen → Explain → Agree → Empower → Review

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