PMT
•resources•tuition•courses

3.3 HOMEOSTASIS

Blood glucose

- Controlled by pancreas
  - Too high
    - Insulin released and binds to liver cells
      - Glucose converted into glycogen
      - Glucose moves into muscle cells for respiration
  - Too low
    - Glucagon released and binds to liver cells
      - Glycogen broken down into glucose
- Diabetes
  - Type 1 diabetes
    - Pancreas unable to produce sufficient insulin
    - Insulin injections
  - Type 2 diabetes
    - Exercise & carb-controlled diet
    - Body cells unable to respond to insulin

Body temperature

- Temperature too high
  - Vasodilation
  - Sweat glands produce sweat
  - Glucose converted into glycogen
- Temperature too low
  - Controlled by thermoregulatory centre in brain
  - Hair stand to trap warm air
  - Skeletal muscle contract – shivering

KEY

'Higher tier only' written in orange.
'Biology only' written in clouds.

OCR (A)

www.pmt.education PMTEducation
CC BY NC ND

3.3 HOMEOSTASIS: Water Balance

Blood's water concentration decreased

- Cell shrinks

Blood's water concentration increased

- Cell bursts

Kidney

Function

- Filtering of blood
- Selective reabsorption

Excreted in...

- Excess amino acids deaminated in liver, converted to urea
- Vasoconstriction

Acts on

- ADH is released by the pituitary gland when water level is too low
- Tubule becomes more permeable to water
- Absorbs more water into the blood

Loss of water via...

- Increased sweating
- Salt loss so kidney increases salt retention
- You feel more thirsty

KEY

'Higher tier only' written in orange.
'Biology only' written in clouds.

OCR (A)

CC BY NC ND