

5.2.4 Control of body temperature

AQA GCSE Biology (Higher) Question and answer notes

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How to use these notes

These notes cover everything you need to know for this part of the specification. They have been written in question-answer format to make them easier for you to study from.

In order to study successfully, I recommend you do the following for each question and answer:

- Read it carefully and make sure you **understand** it.
- **Memorise** the answer.
- **Practice** applying your understanding to past exam questions.

A good way to memorise information is to use **retrieval practice**. This is when you practise retrieving information from your memory. You could do this by making a flashcard for each question with the question on one side and the answer on the other. Or you could use a flashcard app. Alternatively, use a sheet of paper to cover up the answer so you can only see the question. Try to answer the question and then check how you did.

You should practise retrieving each answer from your memory until you can do it perfectly. Even once you can retrieve the answer perfectly, your ability to retrieve it will probably fade as time passes without practising. Therefore you will need to keep going back to the questions that you have previously mastered and practising them again. However, each time you re-learn the answer, the memory will be stronger and will last longer than the time before.

Which part of the body monitors and controls body temperature?

The thermoregulatory centre in the brain monitors and controls body temperature.

How does the thermoregulatory centre monitor body temperature?

The thermoregulatory centre monitors body temperature in two ways:

- It contains receptors which monitor the temperature of the blood passing through it. This allows it to measure the internal temperature of the body.
- It receives nerve impulses from temperature receptors in the skin. This allows it to measure the surface temperature of the body.

What is vasoconstriction?

Vasoconstriction is when blood vessels close to the body surface constrict (narrow), reducing the amount of blood flowing through them.

What is vasodilation?

Vasodilation is when blood vessels close to the body surface dilate (widen), increasing the amount of blood flowing through them.

If the body temperature is too low, how does the thermoregulatory centre respond?

If the body temperature is too low, the thermoregulatory centre responds by causing the following changes in the body:

- Vasoconstriction. Since this reduces the amount of blood flowing close to the surface, less heat is lost from the blood to the surroundings.
- Stopping sweating. This reduces the amount of heat lost through the evaporation of sweat.
- Shivering. This is when skeletal muscles rapidly contract to generate heat.

If the body temperature is too high, how does the thermoregulatory centre respond?

If the body temperature is too high, the thermoregulatory centre responds by causing the following changes in the body:

- Vasodilation. Since this increases the amount of blood flowing close to the surface, more heat is lost to the surroundings.
- Increased sweat production. The water in sweat absorbs heat from the body and then evaporates, carrying that heat away from the body.