

3.1.6 Human defence systems

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.

What kinds of defence systems does the human body have to protect it from pathogens?

The body has non-specific defence systems to prevent pathogens from entering the body and it has the immune system to destroy any pathogens that do get into the body.

What are the human body's non-specific defence systems?

The human body has the following non-specific defence systems to prevent pathogens from entering it:

- Skin - The skin acts as a barrier. It also produces antimicrobial secretions that destroy pathogens. If the skin is cut, a blood clot forms to prevent pathogens from entering.
- Nose - The nose contains hairs and mucus to trap pathogens. The mucus is mostly swallowed, which takes the pathogens into the stomach.
- Trachea and bronchi - The trachea and bronchi secrete mucus which traps pathogens. They are lined with hair-like structures called cilia, which beat back and forth to waft the mucus up to the back of the throat where it is swallowed.
- Stomach - The stomach contains acid to destroy any pathogens in food or in swallowed mucus.

What type of cells make up the immune system?

The immune system is made up white blood cells.

What are the roles of white blood cells in the immune system?

The roles of white blood cells in the immune system include the following:

- Some types of white blood cells carry out a process called phagocytosis, which is when the white blood cell ingests (takes in) a pathogen cell and destroys it.
- Some types of white blood cells produce antibodies - proteins that target specific pathogens and help to destroy them.
- Some types of white blood cells produce antitoxins - proteins that bind to toxins released by pathogens and prevent them from causing harm.