Fighting Disease

Defenses against disease

Harmful microbes can cause disease by damaging body cells.

Once microbes have entered the body, it's important that they are removed as quickly as possible to reduce damage.

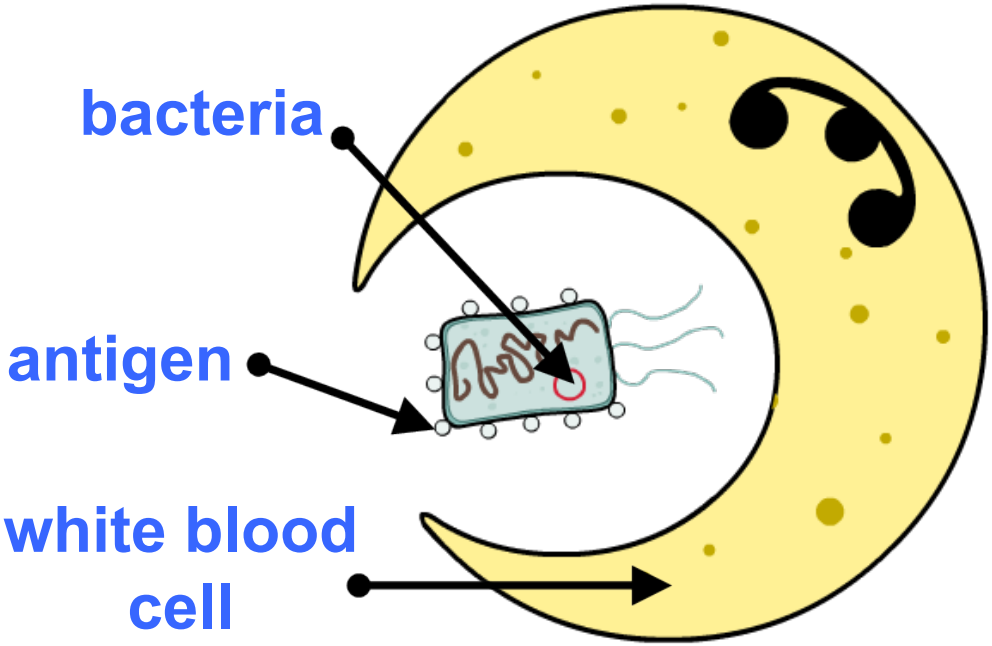
The body's **immune system** uses specialized cells called **white blood cells** to identify and destroy the microbes.

How does the body try to stop microbes from entering?

The body's defenses

What do white blood cells do?

If harmful microbes enter the body, the immune system produces **white blood cells** to help defend it from microbes.



Some white blood cells can destroy microbes by engulfing them.

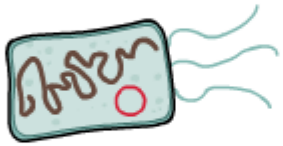
Some white blood cells are able to produce chemicals called **antibodies**. These pair with matching **antigens** on the surfaces of microbes and so help the white blood cells to engulf microbes.

Destroying microbes

How do white blood cells destroy microbes?

How do white blood cells destroy microbes such as bacteria?

Click "**play**" to find out.

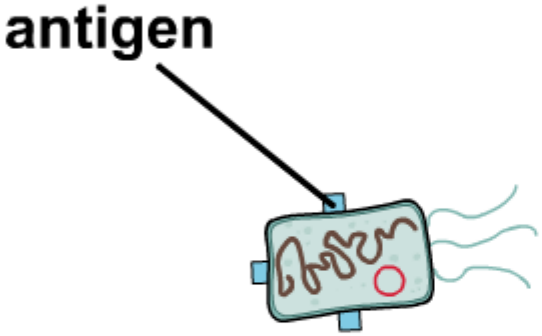


Producing antibodies

Where do antibodies come from?

How do **antibodies** help **white blood cells** destroy microbes such as bacteria?

Click "**play**" to find out.



Preventing the spread of disease

There are several methods that can help reduce the spread of disease:

- disinfecting surfaces
- disinfecting skin using antiseptics
- sterilizing equipment
- using food preservatives in food
- personal hygiene.

The spread of disease can also be reduced by vaccinating the population and using antibiotics.

What are antibiotics?

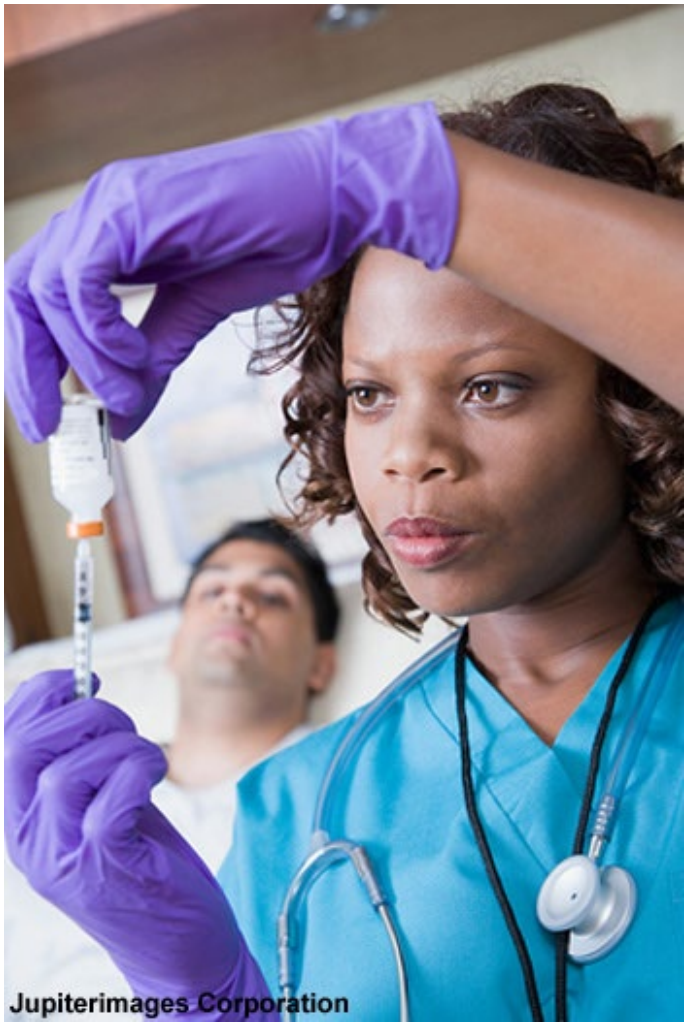
Antibiotics are chemicals used to treat bacterial infections. These chemicals kill or stop the growth of bacteria.

However, some types of bacteria are no longer affected by certain antibiotics – this is called **antibiotic resistance**.

This can be a problem because without effective antibiotics some people might not be able to fight the infection themselves.

What are vaccines?

Vaccines can protect people from diseases, such as measles.



Vaccines contain dead or weakened strains of the harmful microbe that causes the disease.

This stimulates the immune system. If the person comes into contact with the microbe again the immune system can destroy it quickly and effectively.

Why is it important that everyone is vaccinated?

Why do we need to have vaccinations?

Why is it important to be vaccinated?

Why is it important that everyone is vaccinated?

Click "**play**" to find out more about how vaccination can help to protect a population from disease.

Who invented vaccines?

Where did the idea of vaccination come from?

Vaccines have helped to protect millions of people around the world.

They were first developed by an English doctor, **Edward Jenner**, in the 1790s.

Click "**start**" to find out how Edward Jenner discovered vaccination.

start