

Defence mechanisms

Pathogens can spread in a number of ways:

Droplet infection - when you cough or sneeze tiny droplets are released in the air and breathed in by other people, e.g flu

Direct contact - some diseases are spread by contact of the skin, e.g impetigo and STDs

Contaminated food / drink - Eating raw or undercooked food or drinking contaminated water. You take microorganisms straight into your stomach. E.g salmonellosis

Through a break in your skin – Pathogens can enter your body through cuts and grazes and needle punctures, eg hepatitis, HIV/Aids

The body has a number of defence mechanisms.

First line of defence


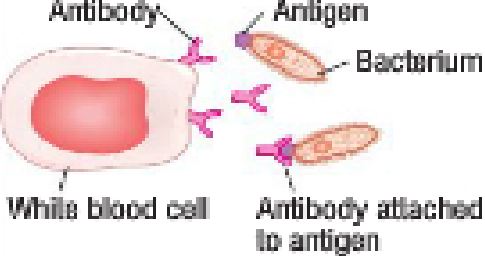
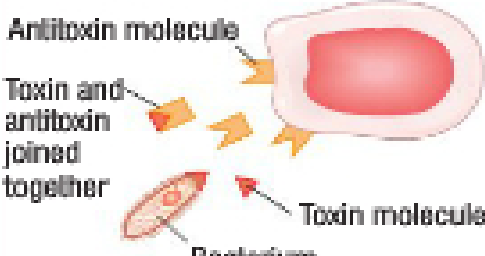
Skin - acts as a barrier to prevent pathogens getting into the body.

If the skin gets broken, the platelets in the blood form a clot which dries into a scab, which seals over the cut.

Breathing system – produces sticky mucus that traps pathogens. It is then moved out of the body or into the stomach where it is destroyed by stomach acid.

Second line of defence

The white blood cells – these destroy the pathogens in a number of ways. See diagram.

Role of white blood cell	How it protects you against disease
<p>Ingesting microorganisms</p> 	<p>Some white blood cells ingest (take in) pathogens, destroying them so they can't make you ill.</p>
<p>Producing antibodies</p> 	<p>Some white blood cells produce special chemicals called antibodies. These target particular bacteria or viruses and destroy them. You need a unique antibody for each type of pathogen. Once your white blood cells have produced antibodies once against a particular pathogen, they can be made very quickly if that pathogen gets into the body again.</p>
<p>Producing antitoxins</p> 	<p>Some white blood cells produce antitoxins. These counteract (cancel out) the toxins (poisons) released by pathogens.</p>