

Video Summary

How Antibiotics Work (e-Bug): Antibiotics can be bactericidal, meaning they kill bacteria by disrupting the cell wall, or bacteriostatic, meaning they slow the growth by interfering with processes such as DNA replication, metabolism and protein production. They can be broad-spectrum, meaning they work on many different types of bacteria (including useful ones), or narrow spectrum, which are specific to one or two types of bacteria. Viruses have a different structure and mechanism of infection, meaning that antibiotics have no effect on them and thus cannot be used to treat viral infections.

How Antibiotic Resistance Arises (e-Bug): Antibiotic resistance is one of the leading kinds of antimicrobial resistance. It is caused by changes in the bacteria's structure that mean it can avoid being killed by antibiotics and become resistant to their use. When bacteria are exposed to antibiotics, the resistant strains have a selective advantage. Antibiotics influence all our bacteria (including healthy bacteria). The overuse and misuse of antibiotics speeds up this process. The video below shows how antibiotic resistance arises.

How Antibiotic Resistance Spreads Between Bacteria (e-Bug): Antibiotic resistance can spread from one bacterium to another, either through horizontal or vertical gene transfer. Horizontal gene transfer occurs between different species of bacteria through transfer and absorption of genes from the environment or direct transfer of genes between two bacterial cells. Vertical gene transfer occurs during reproduction of bacteria. Antibiotic-resistant bacteria can be carried silently in our bodies and remain there for years. They can be passed on silently from person to person, mainly through our hands or things that we touch.

