

Penicillin – ‘wonder drug’

How often do you cut or scratch yourself? Nowadays we don't worry about it because if the cut becomes infected, we can usually get better after taking antibiotics like penicillin. The situation was very different 70 years ago. There was no effective treatment for infections. People could die from a scratch, a sore throat or an operation. People were as afraid of infection as people are now of cancer. Who developed this 'wonder drug'?

You might know that Alexander Fleming discovered penicillin by accident after leaving a petri dish of bacteria in his lab when he went on holiday. When he returned he found that there was mould in the dish and the bacteria were dead. He named the substance penicillin and in 1929 he published his findings. He knew that penicillin had potential, but he couldn't extract the substance which killed the bacteria, so he moved on to other research.

In 1939 Howard Florey and his team of scientists in Oxford began research into the drug after reading an article about Fleming's discovery. Because of the Second World War, the team worked under difficult conditions with not enough funding or equipment. At first, they had to use any equipment they could find and even used hospital bedpans to grow the mould! On 25th May 1940 they began the first trial on mice. First they infected eight mice and treated four with penicillin. The next day the four untreated mice were dead but the ones treated with penicillin were fine.

In 1941 they tested penicillin on the first human. The man had a very badly infected scratch and was near death. After they gave him penicillin he started to recover, but they didn't have enough of the drug to continue the treatment and he died. They knew that penicillin could cure infection, but they needed to produce large amounts of the drug to test more patients. Because of the war in Europe they had to go to the US to get funding. The Americans helped them to produce larger quantities of mould and in 1943 drug companies began mass-producing penicillin.

Unfortunately, some bacteria became resistant to penicillin after a few years because of the overuse of antibiotics. Now doctors are more cautious about prescribing antibiotics. The penicillin family of antibiotics are still the most widely-used form of antibiotics and millions of people are alive today thanks to Alexander Fleming and Florey's team.

1 Which paragraph in the text (1–5) talks about each of the following?

- | | |
|--|-----------------|
| 1 testing penicillin on people | paragraph _____ |
| 2 the difference between getting a cut now and in the past | paragraph _____ |
| 3 the problem with giving too much penicillin | paragraph _____ |
| 4 testing penicillin on animals | paragraph _____ |
| 5 the discovery of penicillin | paragraph _____ |

2 Read the article and decide if the sentences are true (T) or false (F). Circle the correct statements and correct those that are false.

- | | |
|---|-----|
| 1 70 years ago doctors could cure infections. | T/F |
| 2 Alexander Fleming developed penicillin. | T/F |
| 3 Howard Florey's team of scientists didn't have much money for their research. | T/F |
| 4 The first trial of penicillin was on rats. | T/F |
| 5 All bacteria became resistant to penicillin after a few years. | T/F |
| 6 Penicillins are the most commonly used antibiotics today. | T/F |

3 Use the words from the box to complete the sentences about the text.

mould prescribe resistant trial infections cure bacteria

- 70 years ago people were very worried about getting _____ .
- Fleming found that the _____ in the petri dish killed _____ .
- The _____ of penicillin on mice was successful.
- Florey's team knew that penicillin could _____ infections.
- After a few years some bacteria became _____ to penicillin.
- Doctors now _____ penicillin less often than in the 1940s.

4 Read the text again and underline all the regular verbs in the past simple (finishing *-ed*). Then put the verbs in the correct column for the pronunciation of *ed*.

sounds like /d/	sounds like /t/	sounds like /ɪd/
discovered	developed	infected

5 Complete the sentences using some of the verbs from exercise 4.

- Alexander Fleming _____ penicillin by accident.
- In 1929 Fleming _____ his findings.
- Fleming found that the mould _____ the bacteria.
- After penicillin, Fleming _____ on to other research.
- Florey's team _____ under difficult conditions.
- The team _____ bedpans to grow the mould.
- First they _____ eight mice and then _____ four with penicillin.
- In 1941 they _____ the first person with penicillin and he _____ to recover.
- They _____ to produce large amounts of penicillin and the Americans _____ them to do this.

6 Discuss these questions with your partner(s).

- What was the most interesting or surprising thing you learned about penicillin?
- The discovery and development of penicillin was a result of team work. Can you think of any other discoveries or inventions that were a result of team work?
- How important do you think it is for governments to give funding for medical research?
- Which diseases do you think need more research / funding now?

Glossary

antibiotic (*noun*) - a drug that cures illnesses and infections caused by bacteria

bacteria (*noun*) - very small living things that can cause diseases

cautious (*adj*) - careful to avoid problems

cure (*verb*) - to stop someone from being affected by an illness

effective (*adj*) - someone or something that is effective works well

bedpan (*noun*) - a wide flat container used as a toilet by people who are too ill to get out of bed

extract (*verb*) - to remove something from a particular place (*formal*)

funding (*noun*) - money that a government or organisation provides for a specific purpose

infected (*adj*) - containing bacteria or other substances that cause disease **infection** (*noun*)

mould (*noun*) - green, blue, or white bacteria that grow on things that are not kept clean and dry

overuse (*verb*) - to use something so much that it is not effective

petri dish (*noun*) - a flat dish with a lid that is used in laboratories, especially for growing bacteria etc.

potential (*noun*) - the possibility to develop or achieve something in the future

prescribe (*verb*) - if a doctor prescribes a drug or treatment, they say you should have it

resistant (*adj*) - not harmed or affected by something

scratch (*verb*) - to cut the surface of your skin **scratch** (*noun*)

treatment (*noun*) - the process of providing medical care **treat** (*verb*)

trial (*noun*) - the process of testing a product, plan, or person over a period of time