

Pain, Pus and Poison

What doesn't kill you
can make you stronger.



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Programme running: 3 x 60 mins Production: BBC Available in HD

From a simple aspirin tablet to specially grown antibiotics, we've used science to combat aches, pains and bellyaches. It's a story of revelation and genius, and a story that ultimately has transformed - and saved - the lives of millions of people across the planet.

Episode One: Pain

Pain is all in the brain. When we break a leg or pull a muscle, millions of nerve cells in our brains fire to release chemicals telling us 'it hurts'. To fight the pain, our brains release their own natural painkillers. The problem is, these homemade medicines aren't enough.

Herbs, willow bark and poppies were used by our ancestors for their painkilling powers. The scientific revolution really began with the isolation of morphine by Friedrich Sertürner at the start of the 19th Century – and continued into the 20th century when scientists like Arthur Eichengrün, who survived the horrors of a concentration camp, found a way to synthesise a stable form of a safe painkiller which he called aspirin, a drug that could be manufactured on an industrial scale.

Episode Two: Pus

The Black Death wiped out close to a quarter of the world's population. Even our familiar foe 'the flu' was one of the deadliest infectious disease of the twentieth century. Fighting these killers is an ongoing battle, as each infection adapts to outwit our defences.

Ancient treatments ranged from using leeches to suck out blood to performing strange magical rituals, but nothing stopped the infection - until we discovered antibiotics. The average person now takes two courses of antibiotics every year.



In the war against infection, we've begun to harness science to fight back, developing 'magic bullets' designed to kill specific infections without harming the body's own cells. Yet even as we're discovering new uses for antibiotics, the original infections are developing new drug-resistant strains...

Episode Three: Poison

Poisons in the natural world kill thousands of people every year. They attack our bodies, leading to a 'short-circuit'. Yet some poisons are now being used to improve the way we look!

The deadly poison curare was first used on the tips of arrows used by indigenous hunters in the Amazon rainforests, but its active ingredient is now used everyday in hospitals across the world and even the chemical weapon Mustard Gas used in the horrors of trench warfare has now been adapted to be useful in chemotherapy treatments.

Today the hunt is on for other poisons that can actually help to cure us; we extract the deadly venom of the Death Stalker scorpion, which may offer hope to people suffering from brain cancer.

Poisoned apple © Pafe, pills with leaf © Kryczka

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