

# Antibiotics have long-term impacts on gut flora

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Short courses of antibiotics can leave normal gut bacteria harbouring antibiotic resistance genes for up to two years after treatment, say scientists writing in the latest issue of *Microbiology*, published on 3 November.

The researchers believe that this reservoir increases the chances of resistance genes being surrendered to pathogenic bacteria, aiding their survival and suggesting that the long-term effects of [antibiotic therapy](#) are more significant than previously thought.

[Antibiotics](#) that are prescribed to treat pathogenic bacteria also have an impact on the normal microbial flora of the human gut. Antibiotics can alter the composition of microbial populations (potentially leading to other illnesses) and allow micro-organisms that are naturally resistant to the antibiotic to flourish.

The impact of antibiotics on the normal gut flora has previously been thought to be short-term, with any disturbances being restored several weeks after treatment. However, the review into the long-term impacts of antibiotic therapy reveals that this is not always the case. Studies have shown that high levels of resistance genes can be detected in gut [microbes](#) after just 7 days of antibiotic treatment and that these genes remain present for up to two years even if the individual has taken no further antibiotics.

The consequences of this could be potentially life-threatening explained

Dr Cecilia Jernberg from the Swedish Institute for Infectious Disease Control who conducted the review. "The long-term presence of resistance genes in [human gut](#) bacteria dramatically increases the probability of them being transferred to and exploited by [harmful bacteria](#) that pass through the gut. This could reduce the success of future antibiotic treatments and potentially lead to new strains of antibiotic-resistant bacteria."

The review highlights the necessity of using antibiotics prudently. "Antibiotic resistance is not a new problem and there is a growing battle with multi-drug resistant strains of [pathogenic bacteria](#). The development of new antibiotics is slow and so we must use the effective drugs we have left with care," said Dr Jernberg. "This new information about the long-term impacts of antibiotics is of great importance to allow rational antibiotic administration guidelines to be put in place," she said.

Provided by Society for General Microbiology

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