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Cystic Fibrosis Treatments May Have Unseen Long-term Benefits

ScienceDaily (July 17, 2009) — Cystic fibrosis medicines that help to break down mucus in the lungs may carry an unexpected long-term benefit, a study suggests.

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The treatments not only help breathing in the short term - they may also make lung infections develop to be less harmful in the long run, research from the University of Edinburgh shows.

Scientists studied how bacteria which infect the lungs of cystic fibrosis patients gather nutrients from their surroundings. The work builds on the knowledge that most bacteria co-operate to scavenge what they need from their environment, but some bacteria do not actively hunt, instead stealing

nutrients from neighbouring bacteria.

Scientists found that in a viscous environment, similar to thick mucus, the co-operating type of bacteria is most common. However, in a more liquid environment - similar to mucus having been broken down by medicine - the number of thieving bacteria increases, eventually outnumbering the scavenging type. In this environment, because the thieving bacteria are less adept at obtaining food, the bacterial growth slows down.

The results suggest that liquefying lung mucus would be expected to limit the impact of infection in cystic fibrosis.

Dr Rolf Kuemmerli, formerly a researcher at the University of Edinburgh, who led the study, said: "Treating cystic fibrosis patients with drugs that clear their lungs delivers short-term relief for the patient, but may have long-term health benefits too. We hope that our findings will underline the need for treatments that target mucus in the lungs."

Dr Freya Harrison of the University of Bath, who took part in the study, added: "Bacterial infections develop over time, and understanding how medical treatments affect this could be very important for managing long-term infections such as those found in cystic fibrosis."

Cystic fibrosis is an inherited condition that affects more than 8,000 people in the UK, according to the Cystic Fibrosis Trust. Thick mucus can clog the internal organs, especially the lungs and digestive system, making it hard to breathe and digest food.

The study, carried out by researchers at the Universities of Edinburgh, Oxford and Bath, was published in *Proceedings of the Royal Society B*. Work was supported by the Royal Society and the Leverhulme Trust.

Adapted from materials provided by [University of Edinburgh](#).

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