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Treating infection may have sting in the tail, parasite study shows

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Using drugs to treat an infection could allow other co-existing conditions to flourish, a study in wild animals has shown.

Researchers studying wild mice – which typically carry multiple parasitic infections at once – found that when these animals were treated for one type of bug, other infections they had tended to worsen.

The findings suggest that infections that co-exist in our bodies can compete with each other to alter disease. Treating one infection may have unintended consequences by enabling others to gain a stronger foothold – perhaps to the overall detriment of our health.

Scientists from the University of Edinburgh treated wild wood mice for a gut worm infection over several weeks. During treatment, researchers monitored levels not only of the worm, but also tested the animals for dozens of other common parasite infections. During treatment, levels of the gut worm fell, but levels of other parasites in the gut increased.

The study is the first of its type to show that multiple infections in wild animals can compete with one another, and that treating one infection can directly impact on others that may be present.

The study, published in *Proceedings of the Royal Society B*, was carried out in collaboration with The University of Liverpool and supported by the Natural Environment Research Council and the Wellcome Trust.

Dr Amy Pedersen, of the University of Edinburgh's School of Biological Sciences, who led the study, said: "In nature, infections rarely occur by themselves, and this study shows for the first time that treating infections in isolation can have knock-on effects for other diseases that may be present. More work is needed to understand the effect of drug treatment for disease where individuals are prone to, or likely to be carrying a range of infections."

Provided by University of Edinburgh

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