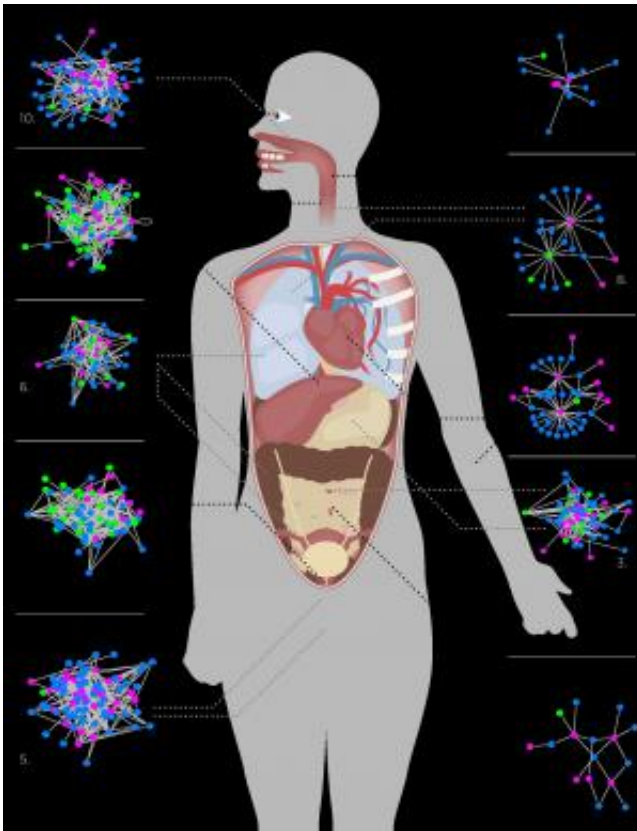


The first food web inside humans suggests potential new treatments for infection

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This is the parasite food web containing ten groups of clustered parasites, tissues, and immune responses. Credit: Dr. Griffiths

Imagine going to the doctor with an infection and being sent home with a course of drugs. Unknown to your doctor you actually have two infections. If you take the drugs will the other infection go away by

itself? What if you take the drugs and the other infection gets worse? This quandary faces those treating patients with multiple infections.

A new study led by former University of Sheffield PhD student Dr Emily Griffiths, in collaboration with the universities of Edinburgh, Liverpool and Zürich, has taken a novel approach to understanding this problem, shedding light on how multiple parasites interact within humans.

The study compiled a list of many of the parasites that infect humans, another list of the parts of the body consumed by each parasite, and also information about how the immune system responds to each parasite. This information was used to construct a large network of multiple infections in humans - a bit like a [food web](#) of infections inside the human body.

Building this network revealed some previously unknown patterns, something that could pave the way for new treatment strategies which help tackle multiple infections. For example, groups of parasites often share similar parts of their host, and these groups are prime candidates for coordinated treatment.

Dr Griffiths, who carried out the research during her PhD in the Department of Animal and Plant Sciences at the University of Sheffield, said: "After studying the fascinating range of hundreds of different infections that can occur in the same person at the same time, we've shown that we could better treat patients if we know what parasites are eating inside our bodies.

"Our web has revealed the ways hundreds of [parasites](#) could live together, which means that we can develop new coordinated treatments that help fight more than one [infection](#).

"The next step will be to work with collaborators to find out why some coinfections pose bigger health risks than others and how strongly the immune system can fight multiple infections."

More information: Analysis of a summary network of coinfection in humans reveals that parasites interact most via shared resources, *Proceedings of the Royal Society B*, [rspb.royalsocietypublishing.org1098/rspb.2013.2286](https://royalsocietypublishing.org/doi/10.1098/rspb.2013.2286)

Provided by University of Sheffield

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