

Parasitic worms in dogs, cats may jump into people

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Parasitic worms that infect companion animals such as dogs and cats are more likely to make the leap into humans than other worm species, according to new research from the University of Georgia's Center for

the Ecology of Infectious Diseases.

The study also identified three species of [worms](#) that don't currently infect people but have a more than 70% chance of crossing into humans in the future.

"The [close relationships](#) that we have with pets is the predominant reason why people might become infected with new species of parasitic worms," said Ania Majewska, lead author of the study and a doctoral graduate from the Odum School of Ecology. "Everyday behaviors like playing with and feeding our pets increase opportunities for those parasites to infect people."

Certain traits make parasitic worms more likely to infect people

Parasitic worms, or helminths, are estimated to infect 1.5 billion people globally, according to the World Health Organization. Many of these parasites infect humans, causing a number of serious illnesses, including schistosomiasis and filariasis.

Published in The Royal Society journal *Philosophical Transactions B*, the study focused on 737 parasitic worm species that predominantly infect wild and domesticated mammals. Of these, 137 are known to be able to infect people.

The researchers categorized the worm species' traits and built a machine learning model to determine which characteristics were most commonly associated with transmission into humans.

They found that worms that can infect [companion animals](#) or fish are more likely to cause human infection than worms that infect other

animal species. Geographically widespread parasites were also more likely to make the jump from animals into people.

The analyses showed that three worm species not currently known to infect people have traits that make them very likely to be able to do so: *Paramphistomum cervi*, a flatworm mostly found in livestock and some wild animals; *Schistocephalus solidus*, a fish-based tapeworm that also infects birds and rodents; and *Strongyloides papillosus*, a pinworm found largely in livestock.

The study marks the first time these species have been identified as likely to infect humans, suggesting they are candidates for surveillance and further study.

Pets can be exposed to parasitic worms and bring them home

It's relatively easy for dogs and cats to become infected with parasitic worms, particularly if they're allowed to wander during the day.

"Our pets can become infected with helminths without us noticing," said Majewska. "Dogs and cats, particularly those that freely roam outside, come into contact either directly or indirectly with [wild animals](#), their excrements and other sources of helminths."

Dogs and cats aren't the only transmission route, though.

Fish also host a variety of [parasitic worms](#). People can easily become infected by eating raw, undercooked or improperly prepared fish. The roundworm that causes herring worm disease, for example, infects thousands of people each year, largely in areas where eating raw fish is common, like Japan and parts of Europe.

"Human parasitic worm infections have ancient origins, and we will always be associated with them," said senior author John Drake, Distinguished Research Professor of Ecology and director of the CEID. "However, because of [climate change](#) and increased demands for animal protein, we fully expect that human parasitic worm infections will continue to increase. More research is needed to understand how parasitic worm spillover to humans can be managed."

More information: Ania A. Majewska et al, Predictors of zoonotic potential in helminths, *Philosophical Transactions of the Royal Society B: Biological Sciences* (2021). [DOI: 10.1098/rstb.2020.0356](https://doi.org/10.1098/rstb.2020.0356)

Provided by University of Georgia

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