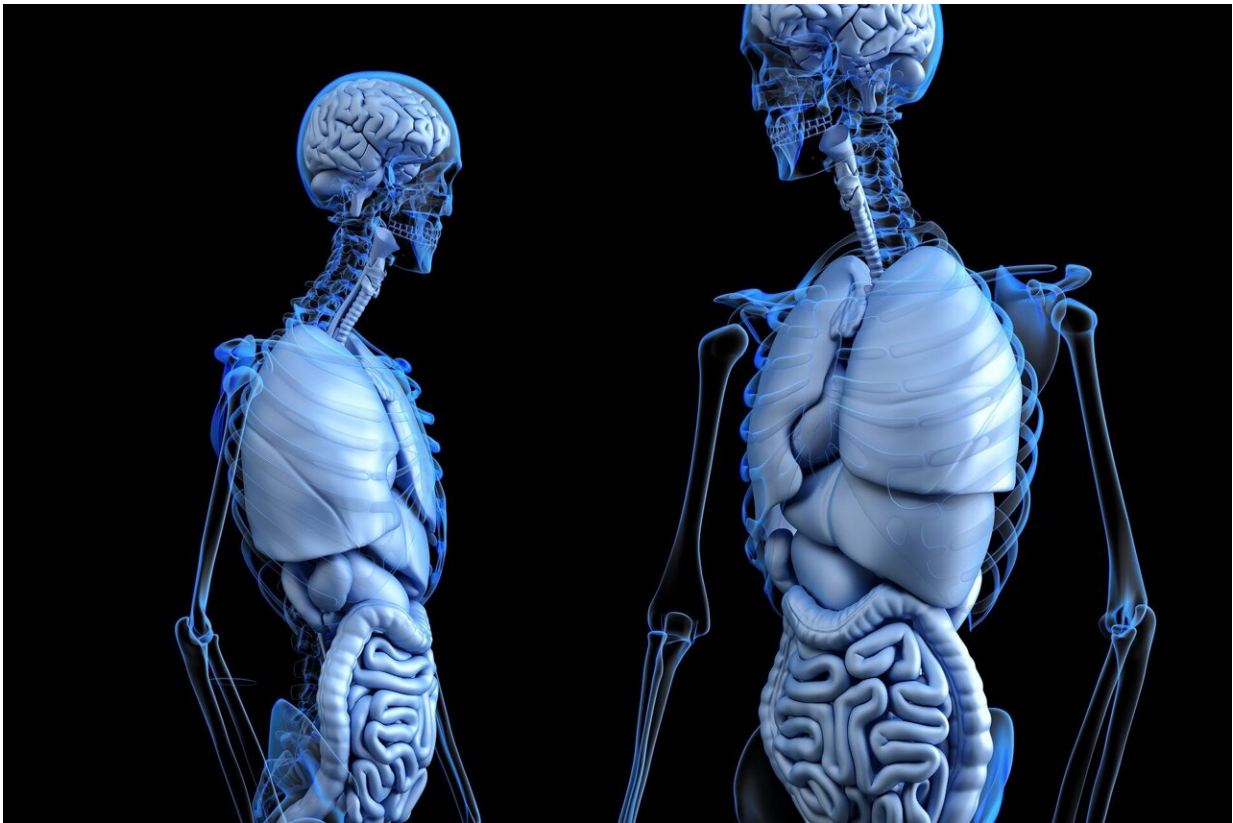


Gut bacteria may contribute to susceptibility to HIV infection, research suggests

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New UCLA-led research suggests certain gut bacteria—including one that is essential for a healthy gut microbiome—differ between people who go on to acquire HIV infection compared to those who have not

become infected.

The findings, published in the peer-reviewed journal *eBioMedicine*, suggest that the [gut microbiome](#) could contribute to one's risk for HIV infection, said study lead Dr. Jennifer Fulcher, assistant professor of medicine, division of infectious diseases, at the David Geffen School of Medicine at UCLA.

"This is an important area that needs further research to better understand if and how these bacteria could affect HIV transmission," said Fulcher, who also has an appointment with VA Greater Los Angeles Healthcare System. "Microbiome-based therapies are becoming a hot area of research with great potential. With further research this could be a novel way to help in HIV prevention."

It is known that there is link between chronic HIV and changes in [gut bacteria](#), Fulcher said. The researchers wanted to get a better understanding of when following HIV infection these changes begin to take place.

To this end, they examined gut microbiome samples from 27 men who have sex with men that were collected both before and after they became infected. They then compared those samples with 28 men who were at similar behavioral risk for infection but did not have HIV.

The samples came from the UCLA-led Collaborating Consortium of Cohorts Producing NIDA Opportunities (C3PNO), a resource and data center for millions of pieces of research, lab samples, statistics and other data aimed at boosting investigations into the effects of substance abuse on HIV/AIDS.

The researchers found that during the first year there was very little change in the infected men's gut bacteria. They found, however, that the

men who acquired HIV had pre-existing differences in gut bacteria, even before they became infected, compared with their uninfected counterparts.

Specifically, these men had decreased levels of *Bacteroides* species, a type of bacteria prevalent in the lower intestinal tract that have important metabolic functions in maintaining a healthy gut environment, and increased levels *Megasphaera elsdenii*, whose role in the human gut is not yet known, compared with the uninfected at-risk controls. The researchers also found that prior to infection the men who acquired HIV had elevated [inflammatory cytokines](#) and bioactive lipids, both of which are associated with systemic inflammation, indicating that their bodies were constantly on the defense against infection or injury, compared to the matched controls.

Study limitations include the relatively small sample size, and the focus being on only young men who have sex with men, most of whom use drugs, which may reduce its generalizability to other populations.

More information: Jennifer A. Fulcher et al, Gut dysbiosis and inflammatory blood markers precede HIV with limited changes after early seroconversion, *eBioMedicine* (2022). [DOI: 10.1016/j.ebiom.2022.104286](#)

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