

Worm infections leave African women more vulnerable to STIs

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Intestinal worm infections can leave African women more vulnerable to STIs.
Credit: University of Birmingham

Intestinal worm infections can leave women in sub-Saharan Africa more vulnerable to sexually-transmitted viral infections, a new study reveals.

The rate and severity of sexually-transmitted [viral infections](#) (STI) in the region are very high, as are those of [worm infections](#), which when caught in the intestine can change immunity in other parts of the body.

Researchers at the Universities of Birmingham and Cape Town led an international team which discovered that intestinal worm [infection](#) can change vaginal immunity and increase the likelihood of Herpes simplex virus type 2 (HSV-2) infection—the main cause of genital herpes.

Publishing their findings today in *Cell Host and Microbe*, the research team also notes that worm infections significantly increase the death of tissue in the vagina (necrosis), which can result in gangrene.

However, the researchers found that they could prevent this worm-induced changes in HSV2 pathology by targeting a particular type of immune cell called eosinophils—suggesting that this pathology could be prevented or reduced by using existing drugs.

Co-author Dr. William Horsnell, from the Institute of Microbiology & Infection at the University of Birmingham and Institute of Infectious Disease and Molecular Medicine, University of Cape town commented: "Our work identifies for the first time how a worm infection can influence a very important viral STI. This is important for [health workers](#) and may help them to explain why STIs are more virulent in areas where worm infections are common.

"We show that worm infections that never colonize the vagina cause a strong change in vaginal immunity. Following a viral vaginal sexually transmitted infection the pathology caused by the virus is hugely increased. Research into STIs has, until now, largely neglected the role of worm infections in influencing the severity of these important diseases."

Rates and severity of sexually transmitted viral infections in sub-Saharan Africa are very high and are one of the world's leading causes of pathological disease. Worm infection rates are also very high in this region, but do not colonize the female reproductive tract.

"Our research shows that eosinophils can have a very important role to play in vaginal immunity—we hope that this discovery will boost efforts to understand how parasitic worm infection indirectly influence control of sexually transmitted infections," added Dr. Horsnell.

The research was funded by DFG, Poliomyelitis Research Foundation, Marie Curie and National Research Foundation (South Africa). The research team is currently studying in West Africa (Togo) and South Africa how existing and past worm infections associate with risk of women having an STI.

More information: Alisha Chetty et al. I4ra-independent vaginal eosinophil accumulation following helminth infection exacerbates epithelial ulcerative pathology of HSV-2 infection. *Host Cell and Microbe*. DOI:doi.org/10.1016/j.chom.2021.02.004

Provided by University of Birmingham

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