

Disruption of gut bacteria may help explain AIDS symptoms

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A study of chimpanzees in Africa has shown that a healthy balance of gut bacteria is disrupted in individuals with SIV - the simian version of HIV - a condition that may contribute to the devastating immune system dysfunction that is the hallmark of AIDS, a new Yale-led study shows.

Researchers at Yale and the University of Pennsylvania examined a decade's worth of fecal samples from chimps in Gombe National Park in Tanzania. They were able to detect an increase in pathogenic bacteria in the guts of chimps that had been infected with SIV compared to non-infected chimps. The damaging bacteria that had been held in check by a balanced microbiome may, in turn, cause further weakening of the immune systems of infected chimps, the authors suggest.

"It could be this is a vicious cycle," said Andrew Moeller, graduate student in the lab of Howard Ochman and lead author of the study published in the journal *Cell Host & Microbe*. "The immune degradation caused by infection disrupts the gut microbiome, which, in turn, can cause further immune system dysfunction."

Moeller notes that recent research has shown that disruption of gut microbes has also been found in obese individuals, diabetics, and even children with autism. The study in chimps was the first to track the changes in individuals before and after infection with immunodeficiency virus, something that would be impossible to do in humans.

The chimpanzee SIV strain was transmitted to humans in the early 20th century, leading to a global HIV epidemic, which has killed millions.

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