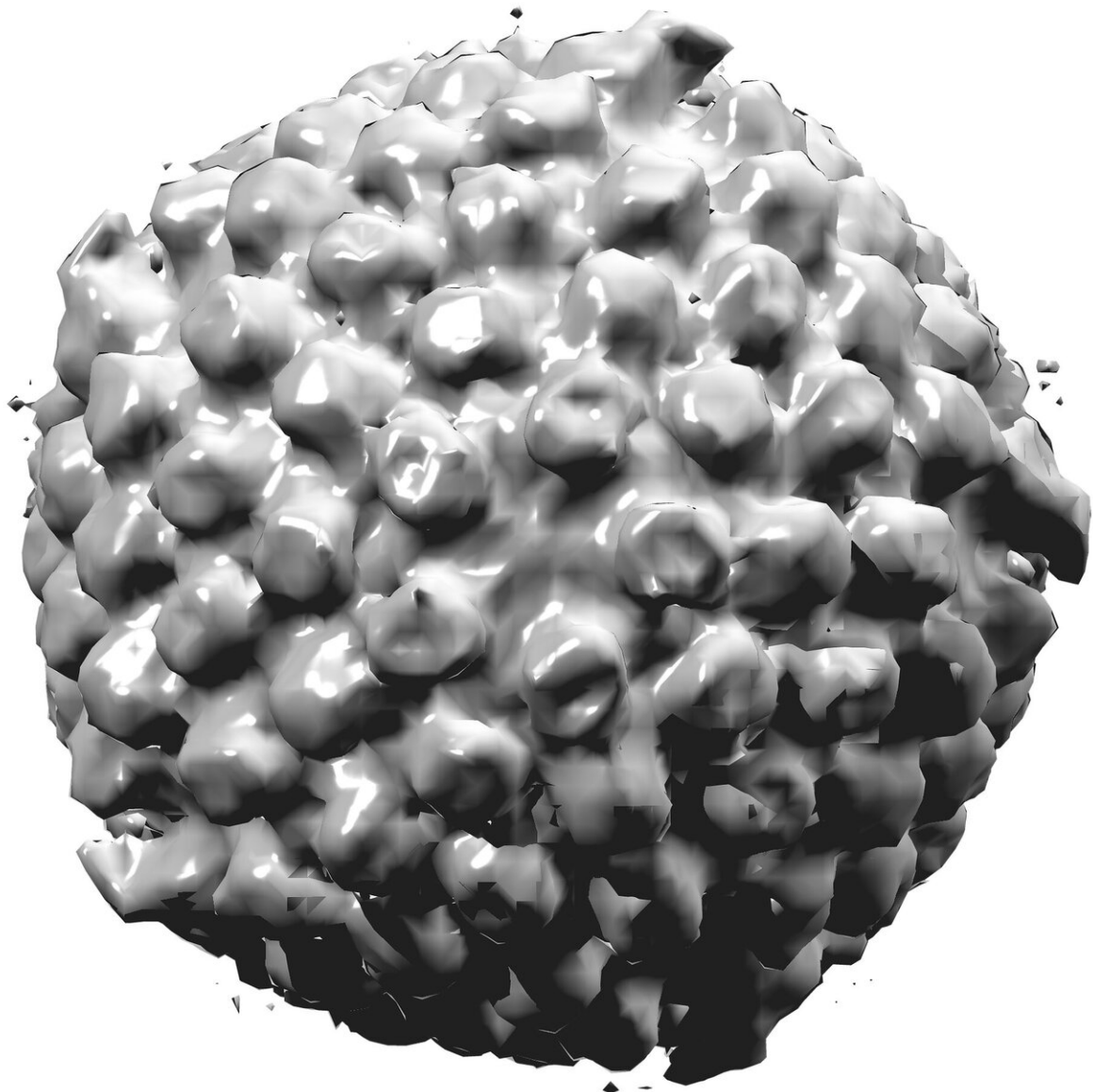


Researchers find stronger immune response against herpes simplex virus 2 in obese mice

November 14 2022, by Bob Yirka



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A team of researchers at Korea Advanced Institute of Science and Technology, working with a colleague from Myunggok Medical Research Center, has found that test mice intentionally overfed to make them obese put up a stronger immune response against the herpes simplex virus 2 than did mice fed normally. In their paper published in the journal *Cell Reports*, the group describes their work with testing immune response in lab mice and what they found.

Prior research has shown that obesity in humans can lead to [cardiovascular disease](#) and in some cases, a greater risk of developing some types of cancers. Studies have also found evidence that in some instances, obesity can lead to an impaired immune system. On the other hand, obesity has never been linked to an increased risk of developing or dying from cervical cancer, which has been found to be caused mainly by human papillomavirus (HPV) infections.

Prior research has also shown that if lab mice become infected with herpes simplex virus 2, they are overcome quickly and die within a matter of weeks. In this new effort, the researchers wondered if obese female lab mice would die faster from such an infection, due perhaps, to a weakened immune system. To find out, they fed one group of [lab mice](#) a [high-fat diet](#) and another a lean diet. They kept this up until the high-fat diet mice became obese. Next, they intravaginally swabbed all of the [test mice](#) with [herpes simplex virus 2](#).

In monitoring the mice, the researchers found, to their surprise, that half of the obese mice survived the infection, while all of the lean mice died. They also found that levels of the virus in the obese mice began clearing faster than in the lean mice.

Taking a closer look, the researchers found higher levels of cytotoxic gamma-delta ($\gamma\delta$) T-cells, in the vaginal mucosa of the female mice. When they inhibited such cells, the mice lost their ability to fight off the virus showing that it was $\gamma\delta$ T-cells that were giving the mice the ability to fight off the virus. They also found that intravaginally injecting the mice with antibiotics reduced their ability to fight off the virus.

More information: Jang Hyun Park et al, Obesity enhances antiviral immunity in the genital mucosa through a microbiota-mediated effect on $\gamma\delta$ T cells, *Cell Reports* (2022). [DOI: 10.1016/j.celrep.2022.111594](https://doi.org/10.1016/j.celrep.2022.111594)

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