

# Nutrition News

Department of Human Nutrition



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## Can a Virus Contribute to Obesity?

### What do we know?

In the weight equation, we know that if we ingest more calories than we need, we gain weight. Beyond that certainty, we know that there are many factors that impact our increasing waist lines including genetic predisposition and inadequate physical activity.

### Could another factor be a virus that causes some of us to be more prone to gaining excess weight?

Scientists in several institutions are exploring the possibility that up to three different viruses could have a role in promoting fat accumulation. Nikhil Dhurandhar first became interested in potential obesity-related viruses when he was doing research in India.

In his work, he noted that chickens infected with a particular avian adenovirus became fatter—not thinner—before they died. Later, he and his colleagues at Louisiana State University began studying the effect of

the Human adenovirus-36 (Ad-36) and found that lab animals became fat when they were exposed to the virus. The researchers noted that infected animals that became obese had low cholesterol and triglycerides. Typically, obese animals would be expected to have higher levels of those lipids.

Richard Atkinson, Nikhil Dhurandhar and colleagues at different institutions found that when lab animals were injected with Human Ad-36, their body fat cells and visceral fat around the abdomen increased. Tests were then performed on 506 humans, some obese and some normal weight, in three different cities to determine if any of them had the virus Ad-36. The Ad-36 was found in 30% of the obese individuals and only 11% of the others. Atkinson and colleagues also screened 89 sets of twins for the virus. They noted the subjects that showed signs of the virus were significantly heavier and fatter than their

respective twins who did not show signs of the virus.

### Now what?

The pressing question for researchers now is “Why do some people become heavier when exposed to adenovirus-36, when others don’t?” While we wait for the answer, is there any action we can take? Perhaps. It is encouraging to know that one of the scientists who became infected was able to maintain his weight by eating moderate amounts of nutrient dense foods and getting plenty of physical activity. Good advice for all of us, regardless of whether or not we have been exposed to an obesity virus!

Sources: Atkinson RL, Dhurandhar NV, et al. Human adenovirus-36 is associated with increased body weight and paradoxical reduction of serum lipids. *Int J Obes* 2005; 234<sup>th</sup> national meeting of the American Chemical Society, Boston, August 19-23, 2007. News release, American Chemical Society. Genomics of Obesity; *Mayo Clin Proc.* 2007;82(10):1192-1198. Viruses as an Etiology of Obesity.

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