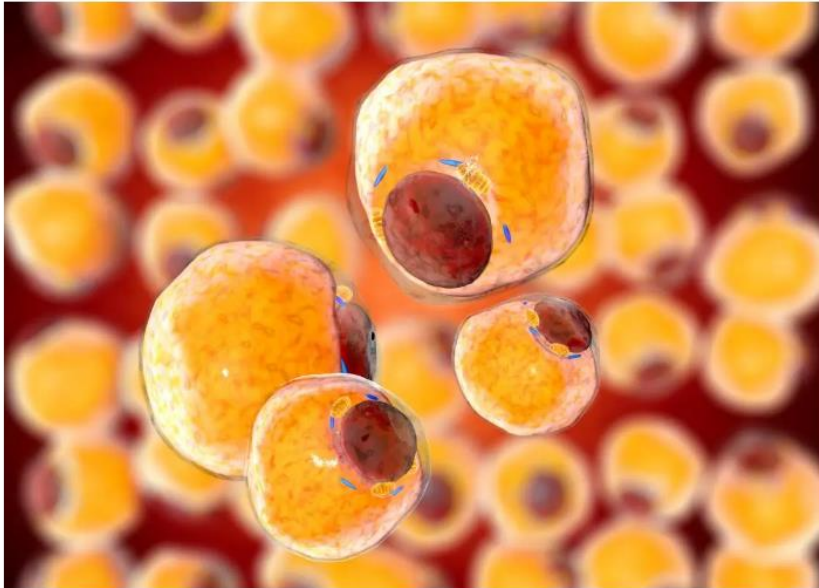


New drug could 'shrink' harmful fat cells

By Honor Whiteman on January 8, 2018 —
[Fact checked](#) by Jasmin Collier

What if there was a drug that could get rid of excess fat without the need for dieting? According to a recent study, such a feat might not be too far off.



Blocking the enzyme NNMT reduced the size of white fat cells in mice fed a high-fat diet.

A team of researchers at the University of Texas Medical Branch (UTMB) at Galveston reveal how using small molecules to block the enzyme nicotinamide-N-methyltransferase (NNMT) led to the “shrinkage” of fat cells in obese mice fed a high-fat diet.

Senior study author Stanley Watowich, from the Department of Biochemistry and Molecular Biology at UTMB, and colleagues say that their findings indicate that targeting NNMT could be an effective way to tackle overweight and [obesity](#).

The team recently published their [results](#) in the journal *Biochemical Pharmacology*.

It is estimated that around [70.2 percent](#) of adults in the United States are overweight or obese. This puts a significant burden on public health, as excess weight is a key risk factor for [heart disease](#), [stroke](#), [type 2 diabetes](#), and some forms of [cancer](#).

The main cause of weight gain is an energy imbalance, wherein we consume more [calories](#) than we burn. This causes the body to store fat.

“As fat cells grow larger,” explains Watowich, “they begin to overexpress a protein that acts as a metabolic brake that slows down fat cell metabolism, making it harder for these cells to burn accumulating fat.”

“In addition,” he continues, “as the fat tissue expands, they secrete greater amounts of hormones and pro-inflammatory signals that are responsible for several chronic diseases, including type 2 diabetes and cardiovascular disease.”

However, Watowich and his colleagues may have discovered a way to restart fat cell metabolism in white fat cells, which are those that cause the most harm to health.

White fat cell size reduced by 30 percent

The team focused on the inhibition of NNMT, which is an enzyme that previous [research](#) has shown to play a role in slowing fat cell metabolism.

For their study, the researchers tested an NNMT inhibitor in mice that were obese due to having been fed a high-fat diet.

Mice treated with the NNMT inhibitor experienced a 30 percent reduction in the size of their white fat cells, as well as a 7 percent reduction in total body weight, the team reports.

What is more, the blood [cholesterol](#) levels of mice that received NNMT inhibitors were normalized, making them comparable with the cholesterol levels of mice with a healthy weight.

Mice treated with the [placebo](#), however, showed an increase in the size of white fat cells, and they gained weight.

Notably, both groups of mice consumed the same amount of food during the study period. The researchers say that this shows that the weight loss of mice treated with NNMT inhibitors was not down to the suppression of appetite.

While further studies are needed to determine whether NNMT inhibitors are safe and effective in humans, Watowich and colleagues believe that they could be a promising treatment for obesity.

“Blocking the action of the fat cell brake provides an innovative ‘fat’-specific mechanism to increase cell metabolism and reduce the size of white fat deposits, thereby treating a root cause of obesity and related metabolic diseases.”

– Senior study author Harshini Neelakantan, UTMB

“These initial results are encouraging and support further development of this technology as a new and more effective approach to combating metabolic diseases,” Neelakantan adds.

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