

Drug for erectile disorder show promise in the treatment of obesity

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Although sildenafil is best known for promoting erections, it may also serve as a weight loss aid by coaxing our bodies to store more healthy "brown fat" relative to unhealthy "white fat" than it would otherwise do on its own. According to new research published online in *The FASEB Journal*, this is because sildenafil inhibits the breakdown of cyclic GMP, which has been well known as a messenger molecule used by the body to control blood pressure and flow, and has now been shown to play an important role determining which type of fat—white or brown—the body stores.

"There is a growing need for novel treatments against obesity," said Alexander Pfeifer, M.D., Ph.D., a researcher involved in the work from the Institute of Pharmacology and Toxicology at the University of Bonn, Biomedical Center in Bonn, Germany. "Finding new positive effects of existing drugs, such as sildenafil, in adipose tissue might help to bridge the period until [novel drugs](#) against obesity have been developed."

To make this discovery, Pfeifer and colleagues used mice to show that cyclic GMP reduced the [secretion](#) of pro-inflammatory hormones, which, in turn, shifted the "color code" of fat from white to brown. Mice treated with sildenafil showed browning of the white fat after just a few days of treatment, which is believed to be the result of high cyclic GMP levels. Then the researchers used isolated [fat cells](#) and treated the cells directly with cyclic GMP and identified a "browning" effect as well.

"Clearly, size matters when it comes to our weight," said Gerald

Weissmann, M.D., Editor-in-Chief of *The FASEB Journal*. "Numerous studies show that obesity is a risk factor for virtually every human disease, and that obesity is epidemic. The finding that Viagra® and similar drugs can change our body fat composition has major implications. These drugs have well defined risk/benefit profiles and are approved for the treatment of erectile disorders. Further research will determine whether they are useful in the treatment of human girth disorders."

More information: Michaela M. Mitschke, Linda S. Hoffmann, Thorsten Gnad, Daniela Scholz, Katja Kruithoff, Peter Mayer, Bodo Haas, Antonia Sassmann, Alexander Pfeifer, and Ana Kilić. Increased cGMP promotes healthy expansion and browning of white adipose tissue. *FASEB J* April 2013 27:1621-1630; [doi:10.1096/fj.12-221580](https://doi.org/10.1096/fj.12-221580)

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