

Your stomach may be the secret to fighting obesity

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Scientists believe a stomach-specific protein plays a major role in the progression of obesity, according to new research in *Scientific Reports*. The study, co-authored by an Indiana University School of Medicine

researcher, could help with development of therapeutics that would help individuals struggling with achieving and maintaining weight loss.

Researchers focused on Gastrophilin-1 (GKN1)—a protein produced exclusively and abundantly in the stomach. Previous research has suggested GKN1 is resistant to digestion, allowing it to pass into the intestine and interact with microbes in the gut.

In the *Scientific Reports* study, researchers show that inhibiting GKN1 produced significant differences in [weight](#) and levels of [body](#) fat in comparison to when the protein was expressed.

"While diet and exercise are critical to maintaining a healthy weight, some individuals struggle with weight loss—even in cases of bariatric surgery, maintaining [weight loss](#) can be a challenge," said David Boone, Ph.D., associate professor of microbiology and immunology at IU School of Medicine, an adjunct professor in the Department of Biology at the University of Notre Dame, and a co-author of the study. "These results are an example of how a better understanding of the gut microbiome and the physiological aspects of obesity—how our bodies regulate metabolism and accumulate body fat—could help inform new therapies."

Data from the Centers for Disease Control show adult obesity rates have increased to 42.4 percent in the United States. In addition to increasing an individual's risk of stroke, diabetes, certain cancers and other [health issues](#), obesity can also increase the risk of severe illness due to COVID-19.

Boone and his team conducted a microbiome analysis of mouse models with and without the GKN1 protein expressed. Researchers measured food intake, caloric extraction, blood sugar, insulin and triglyceride levels. They used magnetic resonance imaging to monitor body

composition. The team also calculated energy expenditure and observed inflammation levels.

Models without GKN1 weighed less and had lower levels of total body fat and higher percentages of lean mass—despite consuming the same amount of food. When put on a [high-fat diet](#), models without GKN1 showed a resistance to weight gain, increased body fat and hepatic inflammation, which can lead to liver disease. Researchers also found no evidence of adverse effects such as cancer, diabetes, loss of appetite, malabsorption or inflammation—and results were consistent in male and female models.

While more research is needed to determine the efficacy of blocking GKN1 to prevent obesity, researchers said if proved as a viable solution, such therapies could reduce the burden on health care systems and help improve quality of life for patients.

More information: *Scientific Reports* (2021). [DOI: 10.1038/s41598-021-88928-8](https://doi.org/10.1038/s41598-021-88928-8)

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