

Removable 'gut sleeve' might become a future weight-loss tool

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Study of experimental procedure showed promise in rats.

(HealthDay)—People struggling with severe obesity are increasingly turning to bariatric, or weight-loss, surgery. But the procedure is invasive, irreversible and not without risks. A new study conducted on rats describes a nonsurgical approach using an experimental "gut sleeve" procedure.

It's hoped that if the procedure eventually works in humans, it may provide a more effective and less expensive alternative to weight-loss surgery, and reduce related health problems.

The procedure, which still needs to be tested in humans, would place an "intestinal barrier sleeve" by endoscopy, which involves inserting a thin tube through the mouth into the stomach. A flexible, nonpermeable silicone sleeve would be placed near the end of the stomach, reaching to the first part of the small intestine. If desired, the tube could be removed by endoscopy at a later date.

The study, published online Oct. 9 in the journal *Gut*, was a collaboration of German researchers and scientists at the University of Cincinnati.

Like other weight-loss procedures, the intestinal barrier sleeve would work by preventing the absorption of calories and nutrients from the intestine. This technique is unique, however,

because it doesn't require surgery.

"This research fits with the trend to devise the least invasive treatment for the maximum benefit," said Kirk Habegger, co-lead author of the study and an assistant professor at the University of Cincinnati.

Weight-loss surgery, such as gastric bypass, is more difficult, Habegger said. "That's a major surgery—you make a small pouch out of the stomach, just 5 percent of its original size, and bypass one-third to one-half of the small intestine," he said.

Bariatric surgery is designed for severely obese people—commonly defined as those weighing at least 100 pounds more than is ideal for their age and height—who have been unsuccessful losing weight through diet, exercise or medication. It works by physically restricting the amount of food people can eat or by interrupting the digestive process.

For the study, tiny silicone intestinal barrier sleeves were crafted for rats and placed surgically just inside the end of the stomach, extending along the intestine near the ligament of Treitz, an anatomical landmark. The procedure was performed surgically, rather than by endoscopy, because doing endoscopy in rats is not feasible, Habegger said.

Two groups of rats were compared: those that had the intestinal barrier sleeves implanted and those that had surgery but did not have the barrier sleeves placed. Body composition, glucose tolerance and bile acid levels were assessed before and after the procedure.

The researchers found that the intestinal barrier sleeve significantly reduced body weight and improved the balance between glucose (sugar) and fats. The data also showed that bile acids may have an important role in reducing weight, a potentially important clue to understanding the

mechanics of fat metabolism, Habegger said.

Why might the intestinal barrier sleeve work? By placing the sleeve directly below the stomach in the upper part of the small intestine, Habegger said, the food-sensing and satiation triggers that exist in that area may be altered.

Although the findings of the new study are promising, scientists maintain that research involving animals often fails to produce similar results in humans.

Research with humans is in the works: A physician not associated with this study said he will soon be involved as a principal investigator in a related clinical trial, testing the intestinal barrier sleeve in people.

"If [the intestinal barrier sleeve] is really safe, it may change the indication for weight-loss surgeries," said Dr. Edward Phillips, vice chairman of the department of surgery and director of the Weight Loss Center at Cedars-Sinai Medical Center in Los Angeles. "It would allow more people who now don't qualify for surgery—because they're not heavy enough—to get it."

The possibility of improving glucose metabolism—and the lower cost and risk of the procedure—would fit the needs of more patients, he said.

The intestinal barrier sleeve procedure could be done for people with Crohn's disease and other illnesses that make them ineligible for gastric bypass surgery, Phillips said. But because the sleeve is made of silicone, those with latex allergies would most likely not be able to have the procedure, he added.

Phillips said the intestinal barrier sleeve procedure would allow patients to avoid hospitalization and not run the risk of perforation of the colon or death from anesthesia or surgery. "This is going to be safer and reversible," he said.

The biggest risk associated with the intestinal barrier sleeve is the chance that it will not stay in place, Phillips said. "But even if it stays in place for

just a couple of months, [the sleeve] could be a help, especially for someone who needs to lose weight quickly to have a heart transplant or other [surgery](#)," he said.

More information: To learn more about preventing and treating obesity, visit the [U.S. Centers for Disease Control and Prevention](#).

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