

# Rapid and unexpected weight gain after fecal transplant

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A woman successfully treated for a recurrent *Clostridium difficile* infection with stool from an overweight donor rapidly gained weight herself afterwards, becoming obese, according to a case report published in the new journal *Open Forum Infectious Diseases*.

Fecal microbiota transplant (FMT) is a promising treatment for relapsing *C. difficile* infections, a common cause of antibiotic-related diarrhea that in severe cases may be life-threatening. The case suggests that clinicians should avoid selecting stool donors who are overweight. The report also raises questions about the role of [gut bacteria](#) in metabolism and health.

At the time of the woman's fecal transplant in 2011, her weight was stable at 136 pounds, and her Body Mass Index (BMI) was 26. Then 32 years old, she had always been of normal weight. The transplant used donor stool from the woman's overweight but otherwise healthy teenage daughter, administered via colonoscopy, to restore a healthy balance of bacteria in the woman's gut, curing her *C. difficile* infection.

Sixteen months later, the woman weighed 170 pounds, and her BMI was 33, meeting medical criteria for obesity. The [weight gain](#) persisted despite a medically supervised liquid protein diet and exercise program. Continuing efforts to diet and exercise did not lower her weight: Three years after the transplant, she weighed 177 pounds with a BMI of 34.5, and she remains obese today.

"We're questioning whether there was something in the fecal transplant,

whether some of those 'good' bacteria we transferred may have had an impact on her metabolism in a negative way," said Colleen R. Kelly, MD, of the Warren Alpert Medical School of Brown University, who wrote the case report with Neha Alang, MD, of Newport Hospital in Rhode Island. Such a link between bacteria in the gastrointestinal tract and weight is supported by previously published animal studies, where transfer of gut bacteria from obese to normal-weight mice can lead to a marked increase in fat. In light of the case and the animal data, the authors recommend selecting stool donors who are not overweight for [fecal transplants](#).

Importantly, the FMT was not the only possible cause of the woman's weight gain. In addition to treatment for *C. difficile*, she had also been treated with several antibiotics for *Helicobacter pylori* infection. Other possible contributing factors in the woman's weight gain include the resolution of her *C. difficile* infection, genetic factors, aging, and stress related to illness. However, as noted above, she had never been overweight before.

The case raises many questions about donor selection and highlights the importance of studying long-term outcomes of FMT, according to Ana A. Weil, MD, and Elizabeth L. Hohmann, MD, both of Massachusetts General Hospital, who wrote a related editorial.

"Careful study of FMT will advance knowledge about safe manipulation of the gut microbiota," they wrote. "Ultimately, of course, it is hoped that FMT studies will lead to identification of defined mixtures of beneficial bacteria that can be cultured, manufactured, and administered to improve human health."

## Fast Facts

- Fecal transplants are a promising approach for treating recurrent

*C. difficile* infections, a common cause of potentially life-threatening diarrhea.

- In this case report, a woman successfully treated for a relapsing *C. difficile* infection with a fecal transplant rapidly became overweight for the first time in her life. The stool donor, the woman's daughter, was overweight.
- The report suggests that donor screening for these transplants should exclude those who are [overweight](#).

**More information:** Weight Gain After Fecal Microbiota Transplantation: [ofid.oxfordjournals.org/content/2/1/ofv004.full](https://ofid.oxfordjournals.org/content/2/1/ofv004.full)

Fecal Microbiota Transplant: Benefits and Risks: [ofid.oxfordjournals.org/content/2/1/ofv005.full](https://ofid.oxfordjournals.org/content/2/1/ofv005.full)

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