

Fecal Microbiota Transplant Improves Gut Health in People With Cirrhosis

Restoration of gut function and microbial diversity could lead to improvement of hepatic encephalopathy.

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Fecal microbiota transplants (FMT) can help restore gut function, improve mucosal immunity and reduce toxic ammonia levels in people with advanced [liver cirrhosis](#), according to research presented at the [EASL Congress](#) in Vienna.

“These initial findings are promising news for patients with chronic liver disease who are in desperate need of alternative treatment options,” senior investigator Debbie Shawcross, MD, PhD, of King’s College London, said in an [EASL press release](#).

Over time, chronic [hepatitis B](#) or [hepatitis C](#), [fatty liver disease](#), [heavy alcohol use](#) and other causes can lead to severe liver complications, including fibrosis, cirrhosis (severe scarring) and [liver cancer](#). Eventually, patients may progress to decompensated cirrhosis, meaning the liver can no longer carry out its vital functions. This can lead to portal hypertension (excess pressure in the portal vein that supplies the liver), internal bleeding, ascites (fluid buildup in the abdomen), accumulation of toxins, such as ammonia, and hepatic encephalopathy (brain dysfunction). Early research suggests FMT can improve hepatic encephalopathy.

People with cirrhosis have reduced gut bacteria diversity, with an overabundance of harmful germs in their gut microbiome, according to the researchers. This imbalance, combined with damage to the gut barrier, allows bacteria and their toxins to leak into the body, triggering inflammation and immune dysfunction. This microbial translocation and reduced antimicrobial immune response heightens the risk for infections and death.

“Patients with chronic liver disease are often prescribed antibiotics; however, they are at high risk of multidrug-resistant infections, and this is contributing to the global health crisis of antimicrobial resistance,” said lead investigator Lindsey Ann Edwards, PhD, of King’s College. “Reducing the susceptibility and incidence of infection in this specific group of individuals will lead to fewer prescriptions of antibiotics, reduced hospitalizations and reduced incidence of antimicrobial resistance, which could be of huge global societal benefit.”

The [PROMISE trial](#), a feasibility study of FMT, included 32 people with advanced cirrhosis. The

participants were randomly assigned to receive a frozen liquid FMT preparation or a placebo administered directly into the small intestine via endoscopy. Blood and stool samples were collected at baseline and at 7, 30 and 90 days after administration.

FMT led to engraftment—although this varied across patients—and restoration of gut microbiome diversity, Edwards said at an EASL media briefing. People who received FMT had improved intestinal barrier function, increased ammonia metabolism and excretion, enhanced antimicrobial mucosal immunity and reduced biomarkers of inflammation. After 30 days, people who received FMT had less ammonia in their blood and more in their feces. Lowering ammonia could improve hepatic encephalopathy.

Microbes for FMT come from the feces of healthy donors. In clinical practice, FMT could be delivered orally. (The Food and Drug Administration [recently approved](#) the first fecal microbiota capsules to treat *Clostridioides difficile* infection.) The researchers have produced freeze-dried fecal capsules for further testing. The randomized PROMISE trial aims to enroll 300 people who will receive multiple doses of FMT or placebo capsules and will be followed for about two years.

“This exciting study confirms the growing awareness in recent times of the link between gut health and liver disease and suggests that modulating the microbiome and restoring crucial functions holds tremendous potential for improving patient outcomes and will be key to our scientific understanding around liver health for years to come,” said EASL secretary-general Thomas Berg, MD, of Leipzig University Medical Center in Germany.

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