

# **Bowel Prep for Colonoscopies May Disrupt Your Gut Microbiome Balance**

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## **STORY AT-A-GLANCE**

- › The bowel prep used before a colonoscopy does more than empty your colon; it strips protective mucus, wipes out beneficial gut bacteria, and weakens your gut's natural defenses right when they are needed most
- › Research shows nearly half of people experience bloating, abdominal pain, or digestive distress for weeks after a colonoscopy, and these symptoms trace back to microbiome disruption rather than the procedure itself
- › If you already have gut inflammation, inflammatory gut conditions, or low bacterial diversity, bowel prep increases tissue damage, allows harmful bacteria to escape the gut, and raises the risk of prolonged flare-ups
- › Colonoscopy prep shifts the gut environment in favor of inflammatory bacteria by increasing oxygen exposure and reducing butyrate-producing microbes that keep the colon healthy and inflammation controlled
- › Simple choices, such as split-dose prep, carbon dioxide inflation, supportive nutrition, and avoiding inflammatory fats, help protect your gut and speed recovery if you decide to undergo a colonoscopy

A colonoscopy is a medical procedure wherein the inside of your large intestine, also called the colon, is examined by inserting a thin, flexible tube with a small camera on the end through the rectum. Colonoscopies are commonly used for cancer screening,

diagnosing digestive symptoms, and monitoring chronic conditions such as inflammatory bowel disease (IBD).

Before undergoing a colonoscopy, however, patients are required to undergo proper preparation to clean out intestinal contents. It can be an unpleasant experience; however, emerging research suggests the effects may be more complicated.

A recently published study shows that bowel prep before a colonoscopy disrupts gut balance, especially if you already have digestive disease. Simply put, this standard procedure weakens the gut's natural defenses – at the exact moment they were needed most. And if your gut is already compromised, this temporary disruption carries real consequences.

## **Why Colonoscopy Prep Is Harder on Your Gut Than You Think**

A recent animal study sheds new light on what happens inside the gut immediately after bowel preparation. The findings raise important questions about gut health, infection risk, and inflammation – particularly for individuals with IBD. Before we go into the details of the study, though, let's take a closer look at what happens during a bowel prep.<sup>1,2</sup>

- **What happens during a bowel preparation for a colonoscopy?** In order for your doctor to see your colon lining clearly, you need to empty out the stool in your bowels before the procedure. Hence, you'll need to take strong laxatives to completely flush the intestines before a colonoscopy.

The most common laxative used is polyethylene glycol (PEG), which is osmotically active, meaning it acts like a sponge that draws water from surrounding tissues into your intestinal tract, creating the flushing effect that triggers diarrhea. This process is effective for cleaning the bowel; however, it also creates a sudden and extreme change in the gut environment.

Until now, bowel prep has generally been considered safe, with any side effects thought to be short-lived. However, infection rates following colonoscopy are higher than many people realize,<sup>3</sup> prompting scientists to ask whether bowel prep itself might play a role.

- **How bowel cleansing affects the gut environment** – Published in Cell Reports Medicine, the study used a mouse model to simulate what human patients go through before a colonoscopy. They administered PEG to the test subjects and observed the effects.<sup>4</sup>

The PEG caused temporary diarrhea that stripped away the gut's protective mucus lining and significantly reduced the population of beneficial bacteria living in the intestines.

- **It also lowered levels of short-chain fatty acids (SCFAs)** – SCFAs such as butyrate, acetate, and propionate are molecules your gut bacteria produce when they digest fiber. Think of them as the "fuel" your colon cells run on. They play an important role in protecting against infection and reducing inflammation. SCFAs signal your immune system to stay calm and help maintain the oxygen-free environment your beneficial bacteria need to thrive.
- **To see if these changes mattered, the researchers conducted a follow-up test** – In the next phase of their study, the mice were split into two groups. One group received the PEG, while the other was given just water. Then both were exposed to Salmonella Typhimurium, a common harmful bacterium.

The results were striking – While the water group didn't show signs of infection, the PEG group had an increased risk of infection. The Salmonella not only bloomed in their guts, but it also spread beyond, reaching the spleen, liver, and lymph nodes. The bacteria not only survived but invaded as well, because the usual barriers had been torn down. This means that even though the mice recovered a few days after bowel prep, it still created "a window of weakened defenses against pathogens."<sup>5</sup>

These findings in mice raise an important question: If bowel prep can make even healthy guts vulnerable to infection, what happens in people whose intestines are already inflamed? This is what the researchers wanted to look into in the next phase of their study.

## **Those with Inflammatory Conditions May Have Worse Outcomes**

To take their findings a step further, the researchers investigated what happens in the gut in people who are most prone to getting colonoscopies: those with IBD. In these patients, having inflammation in the gut is a common scenario.

- **The researchers created a mouse model of colitis** — This form of inflammation closely resembles what happens in the intestines of people with IBD. They chemically induced colitis so that the mice developed inflamed, irritated intestinal tissue similar to what is seen during an IBD flare. Once this inflammation was established, the mice were given PEG.
- **Mice with colitis experienced significantly worse symptoms** — The bowel prep increased tissue damage in the colon, deepened inflammation, and made the intestinal lining more vulnerable. In short, when inflammation was already present, bowel prep amplified the damage instead of passing through harmlessly.
- **The bacteria also escaped from the gut in inflamed conditions** — When the intestinal barrier is compromised, bacteria that should stay confined to your gut can slip through the damaged lining and enter your bloodstream — a process called bacterial translocation. This can trigger widespread inflammation and force your immune system into overdrive. The researchers found that mice with colitis were more likely to experience bacterial translocation after bowel prep.
- **They conducted additional experiments on germ-free mice** — To explore whether the type of gut bacteria mattered, the researchers also experimented with mice raised in completely sterile environments. These germ-free mice were given gut

bacteria collected from either healthy human donors or individuals with ulcerative colitis (UC), a form of IBD. After the bacteria had time to establish themselves, the mice were exposed to bowel prep conditions.

- **Gut bacteria from people with UC behaved very differently from those of healthy donors** – The bacteria from the UC donors were better able to survive the harsh environment created by bowel prep, multiplied more rapidly, and were more likely to spread beyond the gut during inflammation.

Many of these microbes are known as pathobionts – organisms that are usually harmless but can contribute to disease when the gut environment is disturbed. Think of pathobionts as the neighbors who seem friendly under normal circumstances but cause trouble the moment there's a power outage – they exploit disrupted conditions.

These experiments showed that bowel prep does not affect all guts equally. In the presence of inflammation and an altered microbiome – hallmarks of IBD – bowel prep can worsen tissue damage, increase bacterial spread, and intensify inflammatory responses.

These findings help explain why people with IBD may be more vulnerable to complications following bowel preparation and highlight the importance of considering gut health when medical procedures disrupt the intestinal environment.

## **Colonoscopies Alter Your Gut Microbiome**

In the U.S., 14 million colonoscopies are done yearly,<sup>6</sup> and while it's believed to be "safe," certain side effects may arise because of it. In fact, nearly half (40% to 45%) of patients experience bloating, abdominal pain, and dyspepsia within seven to 30 days after getting this diagnostic procedure.<sup>7</sup> For years, these symptoms were brushed off as minor inconveniences. Now, microbiome research reveals the real cause: The prep doesn't just clear your colon – it destabilizes the entire bacterial ecosystem.

The animal research paints a concerning picture, but does this translate to humans? A comprehensive review in *Clinical Endoscopy* examined data from real patients – and confirmed that the microbiome disruption is far from theoretical. The review included a wide range of participants, from healthy individuals to those with inflammatory conditions, and mapped out the mechanisms that explain what's really happening inside your gut during and after a colonoscopy.<sup>8</sup>

- **Your gut microbiome is a delicate ecosystem** – Inside your digestive tract lives a vast community of microorganisms known as the gut microbiota. This includes trillions of bacteria, along with fungi and viruses, that work together to support digestion, immune function, metabolism, and even mood regulation.

In a healthy gut, these microbes exist in balance. Beneficial bacteria help break down fiber, produce short-chain fatty acids that nourish the intestinal lining, and keep harmful microbes under control. When this balance is disrupted – a condition known as dysbiosis – digestive symptoms and broader health issues can emerge. It's like a garden overtaken by weeds – the "good" plants are crowded out, and the ecosystem no longer functions properly.

- **Colonoscopy prep can lead to gut dysbiosis** – According to the study, undergoing a colonoscopy prep caused the total number of gut bacteria to decrease. Diversity is also affected, with affected guts having fewer different types of microbes. Beneficial bacteria families, including *Lactobacillus* species that support immune function and *Clostridia* that produce protective compounds, decline sharply, while opportunistic pathogens fill the void.
- **One example is Proteobacteria** – The study found that this opportunistic pathogen often rises after colonoscopy. These microbes are more tolerant of oxygen and stress, which allows them to gain a temporary advantage when conditions in the gut are disrupted.

And even though this spike is temporary, it might trigger flare-ups in people with preexisting digestive disorders. For someone already managing digestive issues, this temporary bacterial takeover could mean weeks of symptoms – bloating, pain, irregular bowel movements – that feel like a major setback.

## What's Really Going on in Your Gut

So why does gut microbiome disruption occur with a colonoscopy? The explanation is pretty straightforward – a bowel prep causes intense, fast-acting diarrhea. This "flush" doesn't just clear out stool, but also wipes away bacteria that aren't firmly attached to your gut lining. It's like power-washing a garden bed: You don't just wash away weeds; you remove good soil and nutrients, too.

- **The colon's protective mucus layer thins during prep as well** – PEG used during bowel prep makes the lining more vulnerable to both infection and irritation. It also deprives mucus-loving bacteria like *Akkermansia* of their food source, contributing to further imbalance.
- **Colonoscopy exposes your gut to oxygen** – Your gut is supposed to be an oxygen-free zone, but during a colonoscopy, air is pumped in. This sudden oxygen exposure favors Proteobacteria, while harming beneficial anaerobic (oxygen-avoiding) bacteria like Firmicutes and Bacteroidetes.

These anaerobic bacteria produce **butyrate**, which your colon cells burn for energy. This burning process consumes oxygen, keeping the gut environment oxygen-free. When butyrate-producing bacteria are wiped out, oxygen accumulates – creating conditions that favor inflammatory microbes.

- **Those with digestive issues have a slower recovery compared to healthy people** – Just like in the first study, the researchers found that people with preexisting gut issues or lower baseline diversity in their microbiota are more likely to experience worse, persistent symptoms after a colonoscopy.

What's more, their gut microbiota became less resilient. While most healthy individuals recover their microbial balance within two to six weeks, the recovery timeline is less predictable for those with underlying conditions. In some people, certain types of gut bacteria never return to their original levels, suggesting that for some people, even a single colonoscopy could leave lasting marks on their gut ecosystem.

- **Timing and technique make a difference** – The researchers found that the method of bowel prep used matters. The review found that split-dose prep (where you take half the dose the night before and the rest the next morning) causes less disruption than taking it all at once. In fact, people who used the split-dose method tended to recover their gut bacteria faster.

Additionally, CO<sub>2</sub> insufflation, a method of inflating the colon with carbon dioxide rather than room air during the procedure, caused less damage to the gut's microbial ecosystem. Patients who underwent CO<sub>2</sub> insufflation had fewer symptoms after the procedure and their microbiota rebounded faster.

## **The Drawbacks of Getting a Colonoscopy**

I've never had a colonoscopy, and I don't plan to get one. While I understand that colonoscopies can be helpful in certain cases, I feel confident that my strict avoidance of linoleic acid (LA) and my overall lifestyle greatly lower my risk of developing cancer, including colon cancer.

For individuals at higher risk, colonoscopies may be beneficial, but it's important to carefully weigh the potential benefits against the possible dangers. The studies discussed above provide strong evidence that these medical procedures can still be harmful to your health. Below are some more examples of risks associated with colonoscopy:

- **Bleeding and perforation** — When doctors detect polyps in your colon, they will clip it and send a sample for a biopsy. In some cases, this can lead to bleeding or the device perforating your colon. According to a systematic review and meta-analysis, the risk of perforation is about 6 per 10,000 while the risk of bleeding was about 24 per 10,000 procedures.<sup>9</sup>
- **Anesthesia complications** — Across the United States, 34.4% of people undergoing colonoscopy receive anesthesia, which increases the overall risk of complications. In the Northeast, anesthesia use was linked to a 12% higher risk of complications, while in the West, the increased risk rose to 60%.<sup>10,11</sup> Aspiration pneumonia and intraperitoneal hemorrhage are also anesthesia-related complications linked to colonoscopies.<sup>12</sup>
- **Death** — In one analysis, the risk of death associated with colonoscopy was estimated at 1 in 16,318 procedures, with 82 cases of serious complications identified.<sup>13</sup> Another analysis reported a mortality rate of 3 per 100,000 colonoscopies and serious adverse events occurring in 44 per 10,000 procedures, yielding a number needed to harm of 225.<sup>14</sup> So, to put it simply, the odds are small but they're there.

Remember, while colonoscopies are often described as a universal solution for colon cancer screening, several factors — including your age and risk of colorectal cancer — influence whether or not you should get one. For more information, read "[Should You Get a Colonoscopy?](#)"

## **Equipment Contamination — Another Risk of Colonoscopies**

Another very real risk of undergoing an endoscopy of any nature is the chance of improper sterilization of the flexible scope. Several years ago, I interviewed David Lewis, Ph.D., about this risk. A primary problem is the inability to thoroughly clean the inside of the scope.

These expensive tools are not disposable but require sterilization between each patient, but since endoscopes have sensitive equipment attached, they cannot be heat sterilized. Glutaraldehyde (Cidex) has historically been the most widely used high-level disinfectant for flexible endoscopes. The problem is that this chemical does not dissolve tissue in the endoscope. It actually preserves it.

When sharp biopsy tools are run through the tube, patient material from past testing can be scraped off and deposited into your colon. This is why it's important to find a clinic or hospital that uses peracetic acid to sterilize the equipment. Peracetic acid dissolves proteins found in the flexible endoscopes, thereby lowering the risk of patient-to-patient transmission of biological material.

So, before scheduling any endoscopic examination, be sure to call and ask how the equipment is sterilized between patients. If they're using Cidex, go elsewhere.

## **Simple Ways to Protect Your Gut Before and After a Colonoscopy**

If you're determined to get a colonoscopy, I encourage you to do your research promptly so you will understand the risks and potential benefits before making a decision. While colonoscopies can be lifesaving for high-risk individuals, these risks deserve consideration as part of informed decision-making – not blind acceptance of routine screening recommendations.

What you do before and after the exam matters just as much. This is especially important if you're someone with existing gut issues like IBD, irritable bowel syndrome (IBS), or even chronic bloating and discomfort. Your microbiome is more fragile, and you're more likely to experience symptoms that last far longer than a few days.

These practical steps will help you go beyond just getting through the procedure; they will help you address the root cause of the disruption – gut imbalance and microbial wipeout.

- 1. Choose a split-dose prep schedule whenever possible** — If you're given the option, ask for a split-dose bowel prep. As the featured study showed, this method creates less damage to the gut microbiota than taking the entire dose at once. Your bacteria recover faster, and you're less likely to experience lingering symptoms afterward.
- 2. Request CO<sub>2</sub> insufflation instead of room air** — If you have any say in how your colonoscopy is performed, ask whether CO<sub>2</sub> insufflation is available. This technique uses carbon dioxide to inflate the colon during the procedure, instead of regular air.

Why does this matter? Because oxygen is toxic to many of your beneficial bacteria. Using CO<sub>2</sub> helps preserve your anaerobic microbes, making it easier for your gut to bounce back after the procedure. You'll likely have less pain, less bloating, and a faster microbiome recovery.

- 3. Load up on prebiotic-rich foods in the days before prep** — You can't take probiotics before a colonoscopy — those will get flushed out too. But what you can do is feed your good bacteria ahead of time with fiber-rich, **prebiotic foods**. These include things like leeks, garlic, onions, asparagus, and green bananas.

By loading up your beneficial bacteria with food before the bowel prep, you give them a better shot at surviving and regrowing quickly. This is especially helpful if you're starting with a more fragile gut.

- 4. Rebuild your microbiome with targeted post-procedure nutrition** — After the procedure, your gut is like a blank canvas: vulnerable but full of potential. Start with easy-to-digest, nourishing foods: bone broth, soft-cooked veggies, and fermented options like kefir, sauerkraut, or unsweetened yogurt (if tolerated).

Then, after a couple of days, begin introducing high-fiber foods to encourage SCFA production — this helps nourish your colon lining and reduce inflammation. And yes, this is the ideal time to reintroduce high-quality probiotics too.

**5. Avoid ultraprocessed foods and seed oils** — Your gut lining is already vulnerable, and eating the wrong kinds of fats makes things worse. Avoid seed oils high in linoleic acid (LA), like soybean, corn, sunflower, and canola oil. These oils are known to promote oxidative stress and inflammation — two things your gut doesn't need when it's trying to heal. Stick to anti-inflammatory fats like grass fed butter, ghee, and coconut oil, and omega-3-rich foods like wild salmon.

These steps won't just help you feel better faster — they also support the long-term health of your gut, no matter your diagnosis or history. If your gut is the foundation of your health, then protecting it during medical procedures like a colonoscopy is one of the smartest things you can do.

## **Frequently Asked Questions (FAQs) About Colonoscopy Prep and the Gut Microbiome**

**Q: Does colonoscopy prep really disrupt your gut microbiome?**

**A:** Yes. The bowel prep used before a colonoscopy does far more than empty your bowels. Research shows it strips away beneficial bacteria, thins the protective mucus lining of your colon, and lowers short-chain fatty acids that keep inflammation under control. This creates a temporary but significant imbalance in your gut ecosystem, which explains why many people feel bloated, uncomfortable, or "off" for weeks afterward.

**Q: Why are people with IBD or digestive issues affected more strongly?**

**A:** If you already have conditions like inflammatory bowel disease, irritable bowel syndrome, or chronic gut inflammation, your microbiome is less resilient to sudden disruptions. Studies show bowel prep worsens tissue damage, increases

inflammation, and allows harmful bacteria to escape the gut more easily in these individuals. That's why flare-ups, pain, and prolonged symptoms are more common when your gut starts out compromised.

**Q: What actually causes gut disruption during a colonoscopy?**

**A:** The main trigger is the laxative-induced diarrhea from bowel prep, which flushes out both harmful and beneficial bacteria. At the same time, the mucus layer that protects your intestinal lining thins, and oxygen enters an environment that is supposed to remain oxygen-free. These changes favor inflammatory bacteria while suppressing helpful ones that produce butyrate, the fuel your colon cells rely on to stay healthy.

**Q: How long does it take the gut to recover after a colonoscopy?**

**A:** In healthy people, gut bacteria often rebound within two to six weeks. However, research shows recovery is slower and less predictable if you have digestive disease or low microbial diversity to begin with. In some cases, certain bacteria never return to their original levels, which explains why a single colonoscopy can lead to lingering digestive symptoms for some people.

**Q: What steps help protect your gut if you decide to get a colonoscopy?**

**A:** The article highlights several practical strategies that make a real difference: choosing split-dose bowel prep instead of a single large dose, requesting carbon dioxide instead of room air during the procedure, supporting beneficial bacteria with prebiotic foods beforehand, rebuilding your microbiome carefully afterward, and avoiding inflammatory seed oils while your gut lining heals.

These steps directly address the root cause of post-colonoscopy symptoms – microbiome disruption – rather than just masking discomfort.

## Sources and References

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- <sup>1, 5</sup> [News-Medical.net](#), January 8, 2026
- <sup>2, 4, 6</sup> [Cell Reports Medicine](#), January 20, 2026, Volume 7, Issue 1102517
- <sup>3</sup> [Gut](#) 2018;67:1626-1636
- <sup>7, 8</sup> [Clinical Endoscopy](#) 2025;58(1):25-39
- <sup>9, 14</sup> [CMAJ Open](#). 2021 Oct 12;9(4):E940–E947
- <sup>10</sup> [Gastroenterology](#). 2015 Dec 18;150(4):888–894
- <sup>11</sup> [Medical News Today](#), November 30, 2023
- <sup>12</sup> [Proc \(Bayl Univ Med Cent\)](#). 2015 Jan;28(1):3–6
- <sup>13</sup> [Ann Intern Med](#). 2006 Dec 19;145(12):880-6