

Two-Thirds of Appendectomies May Be Unnecessary

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Appendectomy is the most common emergency surgery performed in the U.S. Many doctors will even suggest prophylactic removal of the appendix when you're having some other abdominal surgery done
- › With the help of white blood cells known as innate lymphoid cells, the appendix acts as a reservoir for beneficial bacteria
- › Once your body has successfully fought and rid itself of a gut infection, the bacteria emerge from the biofilm of the appendix to recolonize your intestines
- › Research suggests nearly two-thirds of patients with appendicitis can be successfully treated with antibiotics alone
- › In an earlier study, only two of 77 participants who received antibiotics ended up requiring surgery within 24 hours, and only one-third of participants needed an appendectomy after being discharged, due to lack of improvement

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You've probably heard that your appendix is a useless organ, an artifact from our ancient past when early humans had to digest tree bark and other fibrous materials.¹ However, modern medical science has again proven your body does not contain superfluous organs that serve no useful function.

Unfortunately, the idea that your appendix is little more than a nuisance and potential health risk has led to the routine removal of this organ. Many doctors will even suggest prophylactic removal of the appendix when you're having some other abdominal surgery done. As noted in a 2017 paper:²

"Appendectomy is the most common emergency surgery performed in the USA. Removal of a noninflamed appendix during unrelated abdominal surgery (prophylactic or incidental appendectomy) can prevent the downstream risks and costs of appendicitis. It is unknown whether such a strategy could be cost saving for the health system."

Based on hypothetical patient cohorts aged 18 to 80, the researchers concluded that people under the age of 30 could save about \$130 over their lifetime by undergoing prophylactic appendectomy during other elective abdominal surgery. However, considering the potential benefits of keeping your appendix, saving \$130 over a lifetime doesn't seem very good value proposition.

Your Appendix Has an Immune Function

Your appendix is found in the lower right portion of your abdomen. This small, slimy, finger-shaped organ is attached to the cecum, a small pouch that's part of the intestines (the cecum is considered to be the beginning of the large intestine) and is part of your gastrointestinal tract.³

According to scientists in France and Australia, your appendix actually plays an important role in your immunity. Published in *Nature Immunology*, their study showed that the appendix – with the help of white blood cells known as innate lymphoid cells (ILCs) – works as a reservoir for beneficial bacteria (probiotics), which are essential for good gut health and healing from infections.⁴

When certain diseases (or use of antibiotics) eliminate the healthy bacteria in your gut, the appendix works as a storage unit for some of these probiotics. The researchers say

that these findings should make people rethink whether the appendix is "irrelevant" to their health.

Once your body has successfully fought and rid itself of the infection, the bacteria emerge from the biofilm of the appendix to recolonize your gut, bringing it back to a healthy state. According to Gabrielle Belz, a professor at Melbourne's Walter and Eliza Hall Institute:⁵

"We've found that ILCs may help the appendix to potentially reseed 'good' bacteria within the microbiome – or community of bacteria – in the body. A balanced microbiome is essential for recovery from bacterial threats to gut health, such as food poisoning."

Despite such findings, other research⁶ suggests prophylactic appendectomy "is ethically justifiable, as there are few complications," and "allows early detection of malignancies." In this case, 10 cases of cancer were found as a result of prophylactic appendectomy on 173 patients.

In the end, it may be an issue of personal choice after considering the pros and cons of removing this organ. Personally, I believe having the ability to repopulate your gut with beneficial bacteria after infection is a significant health benefit that I would be reluctant to eliminate unless absolutely necessary. And, research suggests surgery may not even be necessary in most cases of appendicitis either.

Two-Thirds of Appendicitis Cases Do Not Require Surgery

According to a Finnish study,^{7,8,9,10} nearly two-thirds of patients with appendicitis can be successfully treated with antibiotics alone. In the U.S., an estimated 300,000 appendectomies are performed each year, which means some 199,800 people undergo surgery unnecessarily.

Not that antibiotics are without their side effects in damaging the microbiome, but it appears to be the lesser of two evils in this setting. Overall, the lifetime risk of appendicitis in the U.S. is 1 in 15.¹¹ As reported by Live Science:¹²

"The study looked at data from more than 250 adults in Finland who had appendicitis ... and were treated with antibiotics. This group was compared with another 270 adults who had surgery for appendicitis. All of the participants were followed for five years.

At the end of the study, nearly two-thirds of people who received antibiotics (64 percent) were considered 'successfully treated,' meaning they didn't have another attack of appendicitis. The other 36 percent eventually needed surgery to remove their appendix, but none of them experienced harmful outcomes from the delay ...

It's important to note that all patients in the study had uncomplicated appendicitis, meaning their appendix had not burst, which was confirmed with a CT scan. (Patients with a burst appendix would indeed need surgery.)"

In an accompanying editorial,¹³ deputy editor of JAMA, Dr. Edward Livingston, noted that these findings "dispel the notion that uncomplicated acute appendicitis is a surgical emergency."

Interestingly, of the 100 patients in the antibiotic group that later went on to have surgery anyway, seven of them actually had no evidence of appendicitis at the time of surgery – a finding that hints at underlying skepticism and an ingrained idea that it's better to just take the appendix out to be done with it once and for all.

Pros and Cons of Antibiotic Treatment

The antibiotic treatment group also had fewer complications than the surgical intervention group – about 1 in 4 surgical patients suffered some sort of postoperative complication, ranging from abdominal pain to surgical wound infections – and those who received antibiotics took on average 11 fewer days off from work (surgical patients took on average 22 days off from work).

Cost is also a factor, as surgery is far more expensive than a round of antibiotics. In this study, antibiotic treatment consisted of intravenous antibiotics for three days, followed

by oral antibiotics for seven days.

On the downside, antibiotic treatment for suspected appendicitis could exacerbate the emergence of drug-resistant superbugs, so wanton use of antibiotics is not necessarily ideal either. Dr. Paulina Salminen, a surgeon at the University of Turku in Finland who led the study, told The New York Times:¹⁴

"If I have a CT scan, and I can see that the appendicitis is uncomplicated, I would discuss with the patient the possible results of antibiotic treatment alone or surgery. Then we would make a joint, unbiased decision about what would be best."

Other Supporting Research

This isn't the first time researchers have found antibiotics can do the job well enough that surgery becomes unnecessary. A 2014 study¹⁵ published in the Journal of the American College of Surgeons reviewed 77 uncomplicated cases of acute appendicitis that met certain criteria.

Here, 30 of the patients were given intravenous antibiotics for 24 hours and oral antibiotics for a week instead of surgery. Those whose condition did not improve after the first 24 hours had their appendix removed surgically at that time.

Of the 77 participants, only two required surgery within 24 hours, while a third needed an appendectomy after being discharged due to lack of improvement. However, none of the patients experienced complications.

The other 27 participants who received antibiotics missed fewer days of school and went back to their normal activities much sooner than those who underwent an appendectomy.

Nationwide Children's Hospital professor of surgery and senior study author Dr. Katherine J. Deans said,¹⁶ "It's so dogmatic to operate for appendicitis that it requires a huge paradigm shift. But there are choices. It may be safe to wait."

Signs and Symptoms of Appendicitis

While the proper course of treatment may be up for debate, what's clear is that appendicitis can be a serious condition that needs to be addressed. In short, appendicitis is inflammation in the appendix, usually caused by pathogenic bacteria.

Once these harmful bacteria multiply rapidly, it can lead to swelling and formation of pus in the organ.¹⁷ Hallmark symptoms of appendicitis include intense and progressively worsening pain in the lower, right-side quadrant of your torso, nausea and vomiting. It can occur at any age, although people ages 10 to 30 tend to be more susceptible.¹⁸

If you suspect that you or someone you know is suffering from an inflamed appendix, do seek immediate medical attention. If not addressed, the swollen appendix can rupture and may be fatal.

Just remember that surgical intervention may not be necessary if you have a case of uncomplicated appendicitis. A round of antibiotics may be enough. In this case, also remember to restore the balance of your gut microbiome with a high quality probiotic supplement, after you've finished the antibiotics.

Surgical Alternatives

When it comes to surgery, there are two main types of appendectomy,¹⁹ both of which are performed under general anesthesia. Depending on the progression of the inflammation and the condition of your appendix, your doctor will determine which of these two will be preferable:²⁰

- **Laparoscopy** — Also known as "keyhole surgery," this is the preferred procedure today because of its quicker recovery time. It is also recommended for obese or elderly patients.²¹ In the Finnish study above, all surgeries were open; hence the extended recovery time (22 days) among the surgical patients.

Three or four small incisions are made on the abdomen, and then special instruments and small surgical tools are inserted and used to remove the appendix.

Afterward, dissolvable stitches (or regular ones that your physician will have to remove after several days) will be used to close the incisions.

- **Open surgery** – If the appendix has already ruptured, if you've previously had an open abdominal surgery or if your physician isn't experienced in keyhole surgery, this is the recommended procedure.

A single, larger incision is done in the lower right side of your abdomen, so the appendix can be removed. However, if peritonitis (infection of the abdominal lining) has already occurred, a long cut in the middle of the abdomen may be necessary.

This is called laparotomy.

Normal activities can be resumed in a couple of weeks, but strenuous activities must be avoided for four to six weeks after the surgical procedure to allow enough time for your body to heal. As with any surgical procedure, an appendectomy can still predispose you to certain risks and complications, such as bleeding, infection, injury to other organs, blocked bowels and side effects of general anesthesia.

Natural Treatments for Appendicitis

There are some natural techniques that can help you deal with the pain that comes with appendicitis, but remember that you should not rely on these solely to treat this condition. They should only be used as an adjunct and with the approval of your physician. Natural remedies that may be useful when the infection is detected at an early stage include:^{22,23}

Castor oil pack – This can help relieve the appendiceal blockage and reduce inflammation. To prepare this, simply fold a large cloth, pour 2 tablespoons of castor oil on it and then apply it to your abdomen while lying down.

You can repeat this three times a week for two or three months. Taking castor oil orally may also help relieve constipation and improve bowel movements.

Ginger – This root can reduce inflammation and pain, while alleviating vomiting and nausea. Drink fresh ginger tea twice or thrice daily or massage ginger oil on your abdomen for a few minutes daily.

Garlic – It's a potent anti-inflammatory that can alleviate inflammation and pain. Eat two to three raw cloves on an empty stomach per day.

Fenugreek seeds – They help prevent the intestinal waste and excess mucus from accumulating, which can reduce the risk of the problem becoming severe. Fenugreek seeds also help alleviate pain.

Fresh lemon – Mixed with a small amount of honey, lemon helps prevent indigestion and constipation, relieves pain and boosts your immunity.

Basil – It helps bring down the fever that may come with appendicitis. It's also great for relieving indigestion and intestinal gas. Boil a handful of fresh basil leaves with a teaspoon of grated ginger and then drink the concoction twice a day for two days.

Vegetable juice – A mixture of beets, cucumber and carrot juice may be helpful for patients with appendicitis.

Fasting as Treatment for Uncomplicated Subacute Appendicitis

A case study²⁴ presented by the TrueNorth Health Center also demonstrates how fasting may address appendicitis without further drug intervention. In this case, a 46-year-old man with uncomplicated appendicitis – confirmed through a sonogram – refused surgical and drug treatment, which led the doctors to prescribe medically supervised **water-only fasting** for seven days. According to the case report:

"The patient was monitored daily by on-site physicians in a residential facility. Twice-daily interviews and examinations were performed throughout the fast. Vital signs were taken once in the morning for the duration of the patient's stay as well as a urinalysis performed every five days.

The seven-day fast was followed by a four-day gradual introduction of food consisting of juice, fruits and raw and steamed vegetables.

After the careful refeeding period, the abdominal pain was much improved ... Follow-up laboratory tests revealed a normal white blood cell count ... At three-month follow-up, the patient reported compliance to recommendations and no further abdominal pain.

The patient reported that he had been able to resume his normal exercise regimen of running four hours per week ... At one-year follow-up, the patient reported no return of the abdominal pain over the year. He had resumed full exercise and had even completed a triathlon ...

At two-year follow-up, the patient reported compliance to the lifestyle recommendations, continued to be free of right lower quadrant pain, and still had no recurrence of symptoms since the original presentation."

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