INFLAMMATORY BOWEL DISEASE

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THE LINK BETWEEN GUT BACTERIA AND P-GP

New research may explain the role that gut bacteria play in inflammatory bowel disease. Researchers found that people with a healthy balance of gut bacteria also have healthy levels of a protein called P-gp. But people who have inflammatory bowel diseases have lower levels of this important protein. That matters because P-gp cuts inflammation in the gut and protects the walls of the intestines. Without enough P-gp, gut inflammation can get out of control. Understanding the connection between gut bacteria and this important protein can lead to new treatments for IBD or dietary recommendations to improve the makeup of the gut bacteria.

SOURCE: Microbiome

6.8 MILLION

Estimated number of IBD cases worldwide.



Smokers' risk of developing Crohn's disease compared with nonsmokers' risk.

SOURCE: Crohn's & Colitis Foundation of America

COULD A NEW PILL PREVENT INFLAMMATION?

Researchers at Harvard's Brigham and Women's Hospital have souped up a healthy microbe in the hope that it will treat inflammatory bowel disease. They took the same type of yeast that's in beer and genetically reengineered it to detect inflammation in the gut. Aptly named a "Yeast Bot," the idea is that when the pill reaches the gut, it will find inflammation, and emit an anti-inflammatory substance to stop the process and repair the damage. But before you can get a prescription for this newfangled drug, the researchers must put it through clinical trials. Stay tuned. SOURCE: *Nature Medicine*

GET STRESS IN CHECK

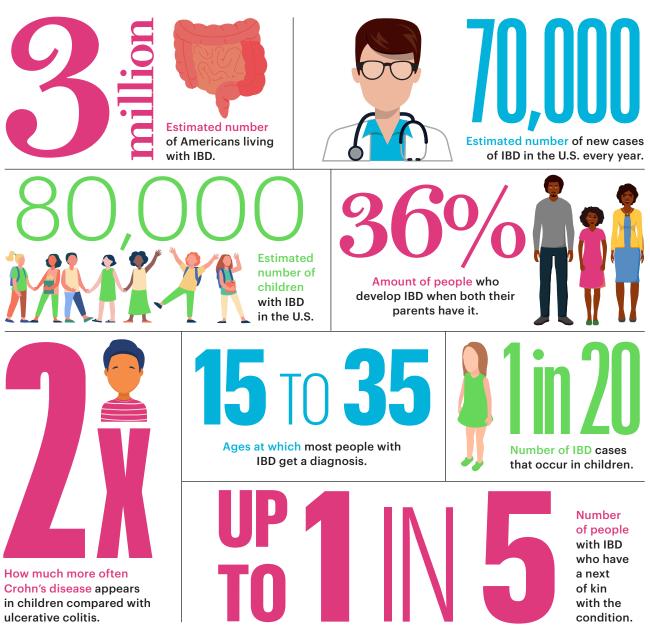
Does stress trigger your Crohn's disease flares? Researchers may have discovered why. In a small laboratory study, they found that hormones the body releases when under stress weakened the part of the immune system whose job is to protect the gut from harmful bacteria. This can make the gut more prone to infection with *Enterobacteriaceae*, a group of bacteria that include *E. coli* and has links to Crohn's flares. If unchecked stress is causing you frequent flares, talk to your doctor about how to manage it. Exercise, proper sleep, meditation, and "me" time may help.

SOURCE: Nature Communications



STATS & FACTS

By Sonya Collins Reviewed by Neha Pathak, MD, WebMD Lead Medical Editor



SOURCES: CDC, Crohn's & Colitis Foundation of America

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For adults with moderate to severe ulcerative colitis (UC) or Crohn's disease (CD) when other medicines have not worked well enough or cannot be tolerated.

Focus where UC/CD hits you hard. **GUT-FOCUSED ENTYVIO** IS MADE FOR YOU. Individual results may vary.

Ask your doctor how ENTYVIO:

- Acts specifically in the gut
- Helps control inflammation
- May help you achieve remission

For more information, please see ENTYVIO.com/info

Important Safety Information for **ENTYVIO®** (vedolizumab)

Entyvio[®] vedolizumab

- Do not receive ENTYVIO if you have had an allergic reaction to ENTYVIO or any of its ingredients.
- ENTYVIO may cause serious side effects, including:
- Infusion-related and serious allergic reactions can happen while you are receiving ENTYVIO or several hours after treatment. You may need treatment if you have an allergic reaction. Tell your healthcare provider or get immediate medical help if you get any of these symptoms during or after an infusion of ENTYVIO: rash, itching, swelling of your lips, tongue, throat or face, shortness of breath or trouble breathing, wheezing, dizziness, feeling hot, or palpitations (feel like your heart is racing).
- ENTYVIO may increase your risk of getting a serious infection. Before receiving and during treatment with ENTYVIO, tell your healthcare

provider if you think you have an infection or symptoms of an infection, such as fever, chills, muscle aches, cough, shortness of breath, runny nose, sore throat, red or painful skin or sores on your body, tiredness, or pain during urination.

- People with weakened immune systems can get progressive multifocal leukoencephalopathy (PML) (a rare, serious brain infection caused by a virus). Although unlikely while receiving ENTYVIO, a risk of PML cannot be ruled out. PML can result in death or severe disability. There is no known treatment, prevention, or cure for PML. Tell your healthcare provider right away if you have any of the following symptoms: confusion or problems thinking, loss of balance, change in the way you walk or talk, decreased strength or weakness on one side of the body, blurred vision, or loss of vision.
- Liver problems can happen in people who receive ENTYVIO. Tell vour healthcare provider right

away if you have any of the following symptoms: tiredness, loss of appetite, pain on the right side of your abdomen, dark urine, or yellowing of the skin and eyes (jaundice).

- The most common side effects of ENTYVIO include common cold, headache, joint pain, nausea, fever, infections of the nose and throat, tiredness, cough, bronchitis, flu, back pain, rash, itching, sinus infection, throat pain, and pain in extremities. These are not all the possible side effects of ENTYVIO. Call your healthcare provider for medical advice about side effects.
- Before receiving ENTYVIO, tell your healthcare provider about all of your medical conditions, including if you: have or think you may have an infection or have infections that keep coming back; have liver problems: have tuberculosis (TB) or have been in close contact with someone with TB; have recently received or are scheduled to receive a

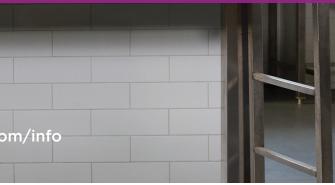
Please see the Important Facts for ENTYVIO on the adjacent page and talk with your healthcare provider.

You are encouraged to report negative side effects of prescription drugs to the FDA.

ENTYVIO is a prescription medicine used in adults for the treatment of:

Takeda

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vaccine; or if you are pregnant, breastfeeding, plan to become pregnant, or plan to breastfeed.

Visit www.fda.gov/medwatch or call 1-800-FDA-1088.

Uses of ENTYVIO[®] (vedolizumab)

• moderately to severely active ulcerative colitis

moderately to severely active Crohn's disease



IMPORTANT FACTS

ENTYVIO (en ti' vee oh) (vedolizumab) for injection, for intravenous use

What is the most important information I should know about ENTYVIO?

ENTYVIO may cause serious side effects, including:

- Infusion-related and serious allergic reactions. These
 reactions can happen while you are receiving ENTYVIO or
 several hours after treatment. You may need treatment if you
 have an allergic reaction. Tell your healthcare provider or get
 medical help right away if you get any of these symptoms
 during or after an infusion of ENTYVIO: rash, itching, swelling
 of your lips, tongue, throat or face, shortness of breath or
 trouble breathing, wheezing, dizziness, feeling hot, or
 palpitations (feel like your heart is racing).
- Infections. ENTYVIO may increase your risk of getting a serious infection. Before receiving ENTYVIO and during treatment with ENTYVIO, tell your healthcare provider if you think you have an infection or have symptoms of an infection such as fever, chills, muscle aches, cough, shortness of breath, runny nose, sore throat, red or painful skin or sores on your body, tiredness, or pain during urination.
- Progressive Multifocal Leukoencephalopathy (PML). People with weakened immune systems can get progressive multifocal leukoencephalopathy (PML) (a rare, serious brain infection caused by a virus). Although unlikely while receiving ENTYVIO, a risk of PML cannot be ruled out. PML can result in death or severe disability. There is no known treatment, prevention, or cure for PML. Tell your healthcare provider right away if you have any of the following symptoms: confusion or problems thinking, loss of balance, change in the way you walk or talk, decreased strength or weakness on one side of the body, blurred vision, or loss of vision.
- Liver Problems. Liver problems can happen in people who receive ENTYVIO. Tell your healthcare provider right away if you have any of the following symptoms: tiredness, loss of appetite, pain on the right side of your stomach (abdomen), dark urine, or yellowing of the skin and eyes (jaundice).

See "What are the possible side effects of ENTYVIO?" for more information about side effects.

What is ENTYVIO?

ENTYVIO is a prescription medicine used in adults for the treatment of:

- · moderately to severely active ulcerative colitis.
- moderately to severely active Crohn's disease.

It is not known if ENTYVIO is safe and effective in children under 18 years of age.

Who should not receive ENTYVIO?

Do not receive ENTYVIO if you have had an allergic reaction to ENTYVIO or any of the ingredients in ENTYVIO. See the end of this Medication Guide for a complete list of ingredients in ENTYVIO.

Before receiving ENTYVIO, tell your healthcare provider about all of your medical conditions, including if you:

- have an infection, think you may have an infection or have infections that keep coming back (see "What is the most important information I should know about ENTYVIO?").
- · have liver problems.

- have tuberculosis (TB) or have been in close contact with someone with TB.
- have recently received or are scheduled to receive a vaccine. Talk to your healthcare provider about bringing your vaccines up-to-date before starting treatment with ENTYVIO.
- are pregnant or plan to become pregnant. It is not known if ENTYVIO will harm your unborn baby. Tell your healthcare provider right away if you become pregnant while receiving ENTYVIO.
 - Pregnancy Registry: There is a pregnancy registry for women who use ENTYVIO during pregnancy. The purpose of this registry is to collect information about the health of you and your baby. Talk with your healthcare provider about how you can take part in this registry or you may contact the registry at 1-877-825-3327 to enroll.
- are breastfeeding or plan to breastfeed. ENTYVIO passes into your breast milk. Talk to your healthcare provider about the best way to feed your baby if you take ENTYVIO.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins and herbal supplements. Especially tell your healthcare provider if you take or have recently taken Tysabri (natalizumab), a Tumor Necrosis Factor (TNF) blocker medicine, a medicine that weakens your immune system (immunosuppressant), or corticosteroid medicine.

How will I receive ENTYVIO?

- ENTYVIO is given through a needle placed in a vein (intravenous infusion) in your arm.
- ENTYVIO is given to you over a period of about 30 minutes.
- Your healthcare provider will monitor you during and after the ENTYVIO infusion for side effects to see if you have a reaction to the treatment.

What are the possible side effects of ENTYVIO?

ENTYVIO may cause serious side effects, see "What is the most important information I should know about ENTYVIO?".

The most common side effects of ENTYVIO include: common cold, headache, joint pain, nausea, fever, infections of the nose and throat, tiredness, cough, bronchitis, flu, back pain, rash, itching, sinus infection, throat pain, and pain in extremities.

These are not all of the possible side effects of ENTYVIO.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

General information about ENTYVIO

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. You can ask your pharmacist or healthcare provider for information about ENTYVIO that is written for health professionals.

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For more information, go to www.ENTYVIO.com or call 1-877-TAKEDA-7 (1-877-825-3327).

YOUR MENTAL HEALTH

A CLOSER LOOK AT THE IMPACT OF THIS CHRONIC DISEASE

By Kendall K. Morgan Reviewed by Neha Pathak, MD, WebMD Lead Medical Editor

When you have inflammatory bowel disease (IBD), it's natural to struggle with mental health and tough emotions. Fatigue, pain, and frequent trips to the bathroom can get in the way of doing what you love. But, there's more to the link between IBD and mental health than this, according to Charles Bernstein, MD, a gastroenterologist and director of the IBD Clinical and Research Centre at the University of Manitoba in Winnipeg, Canada.

"People with IBD are more likely to have mood disorders or depression or generalized anxiety disorders for years prior to the IBD," Bernstein says.

In addition, the symptoms of IBD and daily challenges of having any chronic disease add stress to one's life. You also may take steroids to help with the inflammation that comes with IBD.

"Steroids are one medication we know can have an adverse affect on emotional state," Bernstein says.

MANAGE YOUR MENTAL HEALTH

Bernstein says it's not clear that stress actually makes your gut inflamed. But he has noticed that people feeling under stress more often do have symptoms flare up. Mental health challenges may make it harder for you to stick to your medications, too.

He says that your IBD doctor should ask you not just about IBD symptoms, but about how you are feeling in other ways, too. Whether your doctor asks you or not, let them know if you are having trouble, even if you don't think it's related to your IBD. Ask if they have ways to help or can refer you to someone who can. Online resources might help you, too. In fact, Bernstein is studying whether an online program that teaches how to manage stress can help in dealing with IBD symptoms.

TRY SOME ALTERNATIVES

"There are many things people can do," Bernstein says. "In general, mindfulness techniques, yoga, meditation, physical exercise—these are all things I would encourage."

You might not feel up to boot camp or some other intensive exercise regimen and that's OK. Try long walks, cycling, or tai chi—anything that works for you to relieve stress and get active, Bernstein says. Think about what your stressors are and who can help. Those stressors "may be work or financial or may be related to other health problems," he adds.

Bernstein says he has at times referred his IBD patients to a social worker. To manage your IBD, it's important to take an open and holistic approach. Find a doctor who is willing to consider everything that's going on in your life. The first step for you, Bernstein says, is having some awareness that your "mental health may affect how you feel from a GI perspective."



SCAN ME)

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HOW I BEAT

FROM A CHILDHOOD DIAGNOSIS TO SYMPTOM-FREE LIVING

By Danielle Brown

Reviewed by Neha Pathak, MD, WebMD Lead Medical Editor

I was only 13 when I started having really bad abdominal pain and loose, bloody stools. I was so embarrassed that I kept it a secret from everyone, even my mom. Then after I turned 14, things got worse out of nowhere. I rarely ate, and when I did eat, it wasn't much. It seemed like as soon as I swallowed a bite, I'd have to run to the bathroom.

That was when my mom started to notice things were off with me. I lost a lot of weight really quickly because nothing would stay in me. My complexion started getting paler. It was like my color was fading away. And then I got to the point where there was no longer stool in the toilet when I'd use the bathroom. It was just blood.

My mom decided it was time for a trip to the emergency room. Unbelievably, the doctors there told me it was no big deal, that I probably just had a UTI (urinary tract infection). They gave me antibiotics and sent me back home. But of course, the next day I still felt terrible. So my mom loaded me back in the car and drove me an hour away to UNC Children's hospital in Chapel Hill, NC, where I was immediately admitted.

The specialist told me right away he suspected I had ulcerative colitis. He scheduled me for a colonoscopy the next day. And when the results came back, they showed an inflamed colon with ulcers all over it.

I started right away on multiple medications, including steroids. I was taking 12 to 14 pills twice a day. The side effects were horrible. I gained a lot of







DANIELLE'S TIPS

When you have a pouch or a bag, it's important to eat well and keep things moving.

- + Hydrate. Drink water—lots of it. When I don't drink enough water, I can tell a difference in how I feel really quickly.
- + Get your greens. Fruits and veggies can help you stay regular. Smoothies are a good way to get them in.
- + Avoid red meat. It's not going to be your best friend. When I eat steak or ribs, it feels like a block sitting in my stomach.

weight in a really short amount of time. It messed me up emotionally, too. My temper was always short, and I was constantly upset or sad.

I spent about a year trying different combinations of medications. If one didn't work, my doctor would wean me off and we'd try another. But my body never seemed to respond the way it needed to. Meanwhile, rumors swirled about me at school. I was absent a lot and my weight was up and down. People made assumptions that I was pregnant. It was a hard year.

Eventually, my doctors started talking about surgery. The best option for me seemed to be to remove my colon. So in 2011 at age 17, I had a colectomy. The surgeon created an internal J-pouch, which as a high schooler, I felt very fortunate to have in place of an ostomy bag. The J-pouch takes some getting used to—pushing too hard when I go to the bathroom can feel like a bubble trying to burst in my stomach, for example, and I dealt with a few infections of my pouch. But virtually all of my UC symptoms are gone now. I'm considered cured.

A UC diagnosis may feel like the end of the world—especially if you deal with it at a young age like I did—because the symptoms are hard to deal with, and it can feel embarrassing. But a positive attitude can go such a long way. And there's such good science out there that can help. Today, I'm healthy and happy. What I went through made me stronger. It made me who I am.



BEYOND THE GI SYSTEM

SYMPTOMS OF IBD THAT AFFECT OTHER PARTS OF THE BODY

By Kendall K. Morgan Reviewed by Neha Pathak, MD, WebMD Lead Medical Editor

The inflammation caused by IBD comes with plenty of gastrointestinal (GI) trouble. But at least 1 in 4 people with IBD have signs in other parts of the body. Doctors sometimes call these "extraintestinal manifestations" of IBD.

ARTHRITIS

"The predominant one is joint pain," says Charles Bernstein, MD, gastroenterologist at the University of Manitoba in Canada. "About a quarter of people with IBD also have redness and other signs of arthritis."

People with IBD may have arthritis symptoms at a young age in large joints of the arms and legs. They also may have symptoms in various parts of the spine, although this is less common. Often, the joint pain gets better as GI symptoms improve with treatment.

SKIN CONDITIONS

About 1 in 5 people with IBD have skin conditions,

either related to the IBD or its treatment. Some common ones include erythema nodosum, in which tender red bumps appear on the shins, and pyoderma gangrenosum, in which lesions or ulcers form often where there's an injury. Bernstein says that the red

Bernstein says that the red bumps typically show up when IBD is most active. The lesions of pyoderma gangrenosum can arise separately from IBD flares. They're often related to ostomy surgery, which allows waste to leave your body through a pouch, or other trauma. IBD also can come with painful tears around the anus and small ulcers called canker sores in your mouth.

EYES, BONES, AND LIVER

Approximately 1 in 10 people with IBD have problems with their eyes. These may involve redness and pain in different parts of the eye. While it can change your vision, these eye problems in IBD are treatable with eye drops or other medicines.

Up to 60% of people with IBD have thin and weakened bones, too. As a result, Bernstein says they are more at risk for

QUESTIONS TO ASK YOUR DOCTOR

- + Could other symptoms I have be linked to my IBD?
- + Are there other medicines to take for them?
- + What can I do to prevent bone loss?
- + I feel tired a lot. Could it be low iron (anemia)?

osteoporosis. This can happen from using steroids for a long time or from the inflammation itself. While relatively rare, about 5% of people with IBD have serious liver disease.

WHICH COMES FIRST?

Bernstein says that these other conditions may come up before, after, or around the same time as a diagnosis of IBD. While it's good to know these can happen, he says he doesn't want folks with IBD to worry about every minor discomfort.

"Aches and pains can be normal," he says, and all people feel them. "It's good to be aware of it, but just because you have red eyes one day doesn't mean you've got iritis [inflammation of the eye's iris]. I try not to make my patients too vigilant about short-lived symptoms."

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TREATMENT SMARTS

OPTIONS TO TREAT CROHN'S DISEASE

TALK TO YOUR DOCTOR ABOUT WHICH ONE IS BEST FOR YOU

By Kendall K. Morgan Reviewed by Neha Pathak, MD, WebMD Lead Medical Editor

There's no cure for Crohn's, but there are ways to control it. The goal is to get your Crohn's disease into remission and keep it there.

You and your doctor will have many medicines to choose from. They fall into different categories based on how they work to control the disease and its symptoms. Najwa El-Nachef, MD, a gastroenterologist at the University of California at San Francisco says that the best place for you and your doctor to start will depend on how severe your disease and inflammation is.

AMINOSALICYLATES

Aminosalicylates, which lower inflammation, can be an early step in treating Crohn's disease. There are several to choose from. They can be applied to the surface of your intestine with an enema or suppository or you can take them by mouth.

"If someone has very mild disease, you may start with these more topical therapies," El-Nachef says. But, she adds, they less often work well for Crohn's compared with other types of inflammatory bowel disease. Doctors used them more in the past.

STEROIDS

Corticosteroids can fight inflammation in your gut. But steroids aren't a long-term solution. That's both because they aren't the best way to keep Crohn's in remission and they have side effects if taken too long.

"Steroids help with flares," El-Nachef says.

"They're not considered good long-term agents."

IMMUNE SUPPRESSORS

You might also hear these drugs, which are taken by mouth, called "immune modulators." There are several of them, all of which work to lower the activity in your immune system that's causing the problems in your gut. But, El-Nachef says, these treatments also are falling out of favor for treating Crohn's as safer and more effective treatment options have grown.

"There's an idea out there that a pill is safer than an infusion or injection, but that's not always the case," El-Nachef says.

BIOLOGICS

You'll get biologic therapies as an infusion or injection once every several weeks. They're antibodies that target the immune system in one of a few different ways. Your doctor will help you decide which to try first.

El-Nachef says any of today's biologics "are reasonable first-line treatments" for Crohn's. They work better than earlier medicines and come with fewer side effects.

DIET AND SURGERY

In addition to biologics or other medicines, your doctor may suggest changes to your diet or letting your bowel rest. Sometimes people with Crohn's also need surgery, but this is becoming less common thanks to treatment advances.

"[Biologic] medications have changed the whole landscape of what it means to have Crohn's," El-Nachef says. "People have less surgery now and, if they do, they are less likely to have another surgery [later]."

Want to learn more about Crohn's disease or ulcerative colitis?

Register now for our MyIBDLearning Patient Education Programs!

Throughout 2022, the Crohn's & Colitis Foundation is hosting virtual, in person, and on demand MyIBD Learning education programs.

Each program is created for patients and caregivers of all ages—wherever they are in their patient journey, whether newly diagnosed or living with these diseases for a long time.

MyIBD Learning Webinar Programs—learn about the latest information on hot topics in IBD from patients and IBD experts.

MyIBD Learning Regional In-Person Programs—hear from leading healthcare professionals across your region, and learn about the latest IBD research and more. MyIBD Learning Partnership Programs—we partner with medical clinics and institutions (both virtually and in person) to provide local information focused on the latest IBD treatments, clinical trials, and more.



