

IBD · Inflammatory Bowel Disease

IBD is chronic gut swelling from the immune system attacking itself. Crohn disease can strike anywhere from mouth to anus and punches through all gut layers. Ulcerative colitis only hits the colon and rectum and stays in the inner lining. Where and how deep the swelling goes decides treatment.

THE ONE-LINE TRUTH

The immune system mistakenly attacks the gut lining over and over, causing long-lasting swelling and damage.

The chain — how it unfolds

1. Genetic susceptibility plus an environmental trigger (infection, antibiotics, stress, diet) breaks immune tolerance in the gut. — why: People inherit variants in over 200 genes — such as NOD2 (which senses bacteria), IL23R and IL12B (which control T cell signals), and ATG16L1 (which helps cells clear bacteria) — that make the gut barrier leaky and the immune system jumpy. When a trigger arrives, the immune system misfires.
2. T cells (CD4+ helper cells) flood the gut wall and release inflammatory cytokines: TNF- α , IL-12, IL-17, and IL-23. — why: Dendritic cells in the gut wall mistakenly tag harmless bacteria as dangerous and activate T helper 1 (Th1) and T helper 17 (Th17) cells, which pump out signals that call more white blood cells to the scene and tell them to attack.
3. Neutrophils and macrophages invade the gut lining, releasing enzymes and free radicals that chew up tissue, forming ulcers and bleeding. — why: Neutrophils are the body's first responders to infection — they release bleach-like chemicals to kill germs, but here they damage healthy gut cells by mistake. Macrophages eat debris and release even more TNF- α , keeping the fire burning.
4. In ulcerative colitis: continuous inflammation in the colon's inner lining causes bloody diarrhea, urgency, a constant urge to pass stool (tenesmus) (feeling that more stool is left inside), and cramping. — why: Ulcers bleed easily because the surface layer of cells is destroyed, and the colon contracts rapidly to try to expel blood and mucus, giving no time to absorb water — so stool stays liquid and bloody.

5. In Crohn disease: patchy, transmural inflammation anywhere from mouth to anus causes belly pain, non-bloody diarrhea, strictures, fistulas, abscesses, and perianal sores. — why: Inflammation bores through all layers of the gut wall, creating deep ulcers that can tunnel into nearby organs (fistulas) or trap pus (abscesses). Repeated healing lays down thick scar tissue that narrows the tube (strictures), causing cramping and partial blockages.
6. Chronic gut inflammation spills inflammatory cytokines into the bloodstream, triggering extra-intestinal manifestations: arthritis (joint pain and swelling), uveitis (eye redness and pain), redness (erythema) nodosum (painful red bumps on shins), and pyoderma gangrenosum (deep skin ulcers). — why: The same overactive immune cells and cytokines circulate everywhere, so joints, eyes, skin, and liver become collateral damage. These flares often mirror gut disease activity.
7. The body tries to contain the damage with scar tissue and abscesses, but ongoing inflammation prevents healing — leading to strictures, fistulas, malabsorption (poor nutrient uptake), anemia, weight loss, and growth delay in children. — why: Scar tissue is stiff and narrows the gut, blocking food. Fistulas leak gut contents into places they do not belong. Inflamed gut cannot absorb iron, B12, fats, or calories well, so the body starves even if you eat.
8. Without treatment, complications arise: toxic megacolon (the colon balloons and stops moving, risking perforation), perforation (a hole in the gut spills stool into the belly, causing peritonitis and sepsis), massive bleeding, or colorectal cancer (chronic inflammation damages DNA in colon cells over years). — why: The gut wall weakens from repeated ulcers — one deep ulcer can punch through, or the colon can swell so much that its muscle layer stops working. Chronic inflammation also mutates colon cells, raising cancer risk starting around 8–10 years of disease, especially if the whole colon is involved.

Spot it — what you see, and why

- Diarrhea (loose, watery poops) that keeps coming back or won't go away: The immune system attacks the lining of the intestine by mistake, damaging the cells that normally absorb water and nutrients. The inflamed tissue leaks fluid and can't grab water back from the stool, so the poop stays loose and comes more often.
- Blood or mucus in the stool: The inflamed, damaged lining of the colon (the large intestine) bleeds easily, like a scraped knee. Mucus is the slippery coating the gut makes to protect itself; when it's irritated, it makes extra mucus that mixes with the poop.
- Cramping belly pain, often worse before or during a bowel movement: The inflamed intestine is swollen and sensitive. The muscles in the intestine wall squeeze to move stool along, and when they squeeze an inflamed area, it hurts—like pressing on a bruise.

- Urgent need to poop, sometimes waking you up at night: The inflamed rectum (the last part of the intestine before the anus) is extra sensitive and can't stretch or hold stool well. Even a small amount of stool triggers a strong signal to the brain: 'Go now.'
- Weight loss without trying: The damaged intestine can't absorb nutrients and calories properly. Plus, inflammation speeds up the body's metabolism (the rate it burns energy), and pain or nausea can make eating less appealing—so you lose weight even if you're eating normally.
- Fever and feeling very tired: The immune system is in overdrive, releasing messenger proteins called cytokines (especially TNF-alpha and interleukins) that raise body temperature and make you feel drained, like when you have the flu. Chronic blood loss and poor nutrient absorption also leave you low on iron and energy.

Red flags — act now

- Severe belly pain that doesn't ease, or a belly that becomes hard and very tender (could mean a perforation—a hole in the intestine—or severe blockage)
- Heavy rectal bleeding that soaks through toilet paper quickly or makes you dizzy (sign of major blood loss)
- High fever over 101.5°F (38.6°C) with shaking chills, especially with worsening belly pain (could mean a serious infection or abscess)
- Sudden inability to pass stool or gas, with severe cramping and vomiting (signs of a bowel obstruction)
- Signs of severe dehydration: very little urine, dark urine, extreme thirst, confusion, or a racing heart (from fluid loss through diarrhea)

Treat it — in this order

1. 5-aminosalicylic acid (5-ASA) drugs like mesalamine or sulfasalazine for mild-to-moderate ulcerative colitis → 5-ASA drugs block the chemical messengers (prostaglandins and leukotrienes) that call immune cells to the colon lining. This calms the attack on gut tissue, stops ulcers from forming, and lets the lining heal. They work well for surface inflammation in ulcerative colitis.
2. Corticosteroids like prednisone (oral) or methylprednisolone (IV) during acute flares → Steroids shut down the entire immune attack fast by blocking genes that make inflammatory chemicals and by killing activated T cells (the immune soldiers attacking the gut). Bleeding stops, diarrhea slows, and pain eases within days. This buys time to start slower, safer drugs.

3. Immunomodulators like azathioprine, 6-mercaptopurine (6-MP), or methotrexate for steroid-dependent or moderate-to-severe disease → These drugs block DNA synthesis in rapidly dividing cells, especially T cells and other immune cells. Fewer immune soldiers means less attack on the gut lining. Over 8 to 12 weeks, inflammation drops and you can taper off steroids safely. They help keep the disease quiet (maintain remission) for months to years.
4. Biologic drugs: anti-TNF agents (infliximab, adalimumab, golimumab, certolizumab), anti-integrin (vedolizumab, natalizumab), anti-IL-12/23 (ustekinumab), or JAK inhibitors (tofacitinib, upadacitinib) → Each biologic blocks a specific molecule that calls immune cells to the gut or keeps them activated. Anti-TNF drugs block tumor necrosis factor-alpha (TNF- α), a powerful alarm signal that recruits and activates T cells. Anti-integrins block adhesion molecules so immune cells cannot stick to and enter the gut wall. Anti-IL-12/23 drugs block interleukins that help T cells mature and attack. JAK inhibitors block signals inside immune cells. All of these stop the immune attack at a precise step, heal ulcers, and keep the disease quiet longer than older drugs.
5. Antibiotics like metronidazole or ciprofloxacin for perianal Crohn disease, abscesses, or bacterial overgrowth → Antibiotics kill bacteria in infected tunnels (fistulas), drain pockets of pus (abscesses), and reduce bacterial load in the gut. In Crohn, they help heal perianal disease and can calm inflammation in some cases by changing the gut microbiome.

Your top priorities at the bedside

1. Monitor vital signs every 4 hours and report temperature over 100.4°F, heart rate over 90, systolic blood pressure under 90, or signs of dehydration like dry mouth and decreased urine output. — why: A fast heart rate (Tachycardia), fever, and low blood pressure (hypotension) signal severe inflammation, sepsis, or hypovolemia (low blood volume) from diarrhea and bleeding, which can lead to shock and organ failure without prompt fluid resuscitation and antibiotics.
2. Assess stool frequency, volume, consistency, and presence of blood or mucus every shift, and document using the Bristol Stool Scale and color description. — why: Objective tracking separates mild flares treatable with oral mesalamine from severe colitis needing IV corticosteroids or biologic rescue therapy, and monitors response to treatment over days.
3. Examine the abdomen for distension, firmness, bowel sounds, and tenderness with each assessment, and immediately notify the provider if rigidity or rebound pain develops. — why: Toxic megacolon causes the colon to dilate beyond 6 centimeters with risk of perforation; absent bowel sounds and peritoneal signs mean emergency surgery may be needed to prevent death from peritonitis (infection in the belly cavity).