

MALDEK

PATIENT TEACHING · MALDEK CONDITION CATALOG

Acute Low Back Pain and Red Flags

A plain-English guide for you and your family

WHAT IS HAPPENING

Your lower back is built like a tower. Twenty-four stacked bones (vertebrae) run from your neck to your tailbone. Between each bone sits a soft jelly-filled cushion (the disc) that squishes down when you walk, jump, or lift and springs back when you unload. Behind each disc, two small knobs of bone on each side form a facet joint—like a door hinge—that lets you twist and bend. Thick rubber-band-like straps (ligaments) run up and down the front, back, and sides of the tower, holding the bones together so they do not slide apart. Layers of muscles wrap around the whole stack, pulling the bones into place when you stand, bend, or lift. Through the center of every bone runs a tunnel (the spinal canal). Your spinal cord—a thick cable of nerves carrying messages between your brain and body—runs down that tunnel and ends around the level of your belly button (the first or second lumbar bone, L1-L2). Below that, a bundle of nerve roots called the cauda equina (Latin for horse's tail) fills the canal and sends branches out to your legs, bladder, bowels, and the skin around your groin and buttocks. Rich blood vessels run along the bones and through the discs, bringing oxygen and healing cells. That is why most strains heal on their own in four to six weeks. Most of the time when your back hurts, a muscle has pulled, a ligament has stretched too far, or a disc has bulged—the same way you might sprain your ankle. Those strains hurt when you move (bending forward, twisting, lifting) and feel better when you rest or lie down. The body protects the injured spot by locking the muscles tight (you feel stiff), yelling with pain to force you to stop moving, and pooling fluid to cushion the joint. That is the body buying time for healing. But sometimes the problem is deeper and will not heal on its own. A bone can crack (compression fracture) if it is weak from osteoporosis (thin, brittle bones) or a hard fall. Germs can invade the spine through your bloodstream and form a pocket of pus (epidural abscess, discitis, or osteomyelitis). Cancer from your lung, breast, prostate, kidney, or thyroid can break off, travel through your blood, and land in the spine, eating away the bone. An inflammatory disease like ankylosing spondylitis can start attacking the spine joints, fusing them together over time. A disc can tear so badly that it crushes the cauda equina, cutting off signals to your bladder, bowels, and legs (cauda equina syndrome). Or the big blood pipe in your belly (the abdominal aorta) can balloon out (aneurysm) and start leaking, causing back pain that feels like it is coming from your spine—if it ruptures fully, you can bleed to death in minutes. Your body sends clues to tell these apart. Safe, everyday back pain gets worse when you move and better when you rest. Dangerous back pain wakes you from sleep at night, comes with fever or weight loss you did not plan, causes numbness in your groin, buttocks, and inner thighs (the saddle area), brings new trouble starting or stopping your pee or bowel movements, or causes weakness in both legs at once. If you see any of those red flags, the person needs urgent imaging (MRI or CT scan), blood tests, and specialist care—neurosurgery for cauda equina, infectious disease or spine surgery for infection, oncology for cancer, or vascular surgery for an aortic aneurysm—to stop the damage before it becomes permanent.

What you might feel

- Mechanical low back pain that gets worse when you move (bending, lifting, sitting or standing for a long time) and feels better when you rest or change position
- Pain shooting down one leg (sciatica) following a specific stripe of skin (L4, L5, or S1 nerve path)
- Tight, knotted muscles along your lower spine and trouble bending or twisting
- Numbness or tingling in the groin, buttocks, area between the legs, and inner thighs (saddle anesthesia)
- Cannot empty your bladder, leaking urine without feeling it, losing control of bowel movements, or loss of squeeze in the rectal muscle
- Weakness in both legs or a foot that drops and drags when you walk (foot drop)
- Fever, soaking night sweats, or losing weight without trying—all happening with your back pain
- Pain that stays the same or gets worse when you lie down or try to rest at night

Call the doctor right away if...

- Age over 50 with new back pain, or any history of cancer (worry about cancer spreading to the spine or a fracture from weak bones)
- Recent hard fall, car crash, or even a minor bump in someone over 50 or with osteoporosis (vertebral fracture risk)
- Using IV drugs, taking immune-suppressing medicine (HIV, steroids, chemotherapy), or fever with back pain (spinal infection: bone infection, disc infection, or abscess)
- Saddle numbness, cannot pee or leaking without control, losing bowel control, or both legs weak (cauda equina syndrome—emergency MRI and surgery within 24–48 hours)
- Severe pain that never lets up, pain at night, unexplained weight loss, or no improvement after 4–6 weeks of rest and therapy (worry about cancer, infection, or inflammatory arthritis of the spine)

What the care team will do

- Screen immediately for red-flag symptoms: fever, age over 50 with new pain, cancer history, recent trauma, saddle numbness (groin and buttocks), bowel or bladder control changes, bilateral leg weakness, or unrelenting nighttime pain.

- Perform a focused neurologic exam: test strength in ankle dorsiflexion (L4 nerve—lift foot up), big-toe extension (L5 nerve—push toe toward ceiling), and ankle plantarflexion (S1 nerve—stand on tiptoes); check sensation in the same stripes on the leg and test patellar and Achilles reflexes.
- Teach the patient to stay active and avoid bed rest beyond one to two days; encourage walking, gentle stretching, and gradual return to daily activities as pain allows.
- Start scheduled anti-inflammatory medicine: ibuprofen 400–600 mg every six to eight hours (maximum 2400 mg per day) or naproxen 500 mg twice daily with food, or acetaminophen 650–1000 mg every six hours (maximum 3000 mg per day) if NSAIDs are not safe.
- Apply heat to the lower back for 15–20 minutes three to four times daily after the first 48 hours; ice can be used in the first two days if there is acute injury or swelling.
- Refer to physical therapy within the first two weeks for supervised core strengthening, lumbar stabilization exercises, and posture training.
- Educate on proper body mechanics: bend at the knees and hips (not the waist) when lifting, hold objects close to the body, avoid twisting while carrying weight, and switch positions every 30–45 minutes when sitting or standing.
- Schedule follow-up in four to six weeks or sooner if pain worsens, new leg weakness develops, or red-flag symptoms appear; arrange MRI and specialist referral if radicular pain (sciatica) persists beyond six weeks despite conservative treatment.

Medicines you may be given — and why

Ibuprofen (Advil, Motrin)

Ibuprofen blocks an enzyme called COX (cyclooxygenase) that lives inside the cells of your injured back tissues. COX is like a tiny factory that makes prostaglandins—chemicals that turn up pain signals and cause swelling. When ibuprofen stops COX, fewer prostaglandins get made, so the tissue swells less and sends fewer pain messages up your nerves to your brain. Think of it like turning down the volume knob on both pain and swelling at the same time.

Acetaminophen (Tylenol)

Acetaminophen works mainly in your brain and spinal cord to raise the pain threshold—the level of irritation needed before you actually feel pain. It is thought to block COX enzymes in the central nervous system (not out in the tissues like ibuprofen does), which reduces pain signals traveling up your spinal cord to your brain. Exactly how it does this is still not fully understood, but the result is that you feel less pain. It does NOT lower swelling in the injured tissue itself, so it is weaker than NSAIDs for inflamed injuries like muscle strains.

Naproxen (Aleve, Naprosyn)

Naproxen works just like ibuprofen—it blocks the COX enzyme in injured back tissues so that fewer prostaglandins (the chemicals that cause pain and swelling) are made. The main difference is that naproxen lasts longer in your body—up to twelve hours per dose compared to ibuprofen's four to six hours—so you take it less often (usually twice a day instead of three or four times). It reduces both pain and inflammation at the injury site.

Cyclobenzaprine (Flexeril)

Cyclobenzaprine works in your brainstem—the base of your brain that controls basic body functions like muscle tone (the background tension in your muscles). It acts on pathways for serotonin (a brain messenger that steadies mood and other signals) and norepinephrine (a messenger that revs up the body) to turn down the signals that keep muscles contracted. Think of it like dimming the electrical current to a tight, cramping muscle. It does NOT work directly on the muscle fibers themselves; instead, it calms the nervous system's grip on those muscles, so spasm (involuntary squeezing) eases and you can move more comfortably.

Methocarbamol (Robaxin)

Methocarbamol works in your brain and spinal cord to calm the nervous system signals that cause muscles to stay tight. Its exact mechanism is not fully understood, but it is thought to depress (slow down) nerve activity in the central nervous system, which reduces muscle spasm. Like cyclobenzaprine, it does NOT act directly on the muscle fibers—it turns down the brain's and spinal cord's commands to contract. It is used for acute muscle spasm in the first few days of back pain.

Diclofenac gel (Voltaren Gel, topical NSAID)

Diclofenac gel is rubbed directly onto the skin over your lower back. It soaks through the skin into the tissue below—muscles, ligaments, and shallow joints—where it blocks COX enzymes and lowers prostaglandin production just like oral NSAIDs (pills) do. Because it is applied locally and only a small amount enters your bloodstream, the risk of stomach and kidney side effects is much lower than with pills. It works best for pain close to the surface, like muscle strains or facet joint (the small hinges between spine bones) pain, and less well for deep disc pain.

Where this information comes from

- American College of Physicians (ACP) 2017 Low Back Pain Guideline
- North American Spine Society (NASS) Evidence-Based Clinical Guidelines
- Cochrane Back and Neck Group
- American Academy of Family Physicians (AAFP) 2020 Low Back Pain Clinical Summary

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