The comprehensive guide to back pain

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- Diagnosing back problems
- Options for managing pain
- Non-surgical and minimally invasive treatments
When your aching back cries out for help – over and over again

If you are suffering from back pain, it’s probably time to do something about the chronic pain affecting your back, neck or legs.

You might find relief in a simple regimen of exercise or over-the-counter remedies, or you might discover that medical interventions or surgery offer the best solution.

Use this guide to start a conversation with your primary care provider or visit ssmhealth.com/doctors to make an appointment.

What is chronic pain?

When discomfort in your body just won’t go away or gets worse over a long period of time, you’re living with chronic pain. Traumatic injuries and many medical conditions can result in a lifetime of chronic pain. By contrast, acute pain arises suddenly and usually goes away with treatment or simply, with time.

Doctors value a progressive defense against pain, starting with front-line home remedies and other non-medical treatments. If the pain does not subside, or continues to worsen and begins to interfere with daily life, it may be time to seek more aggressive treatments.
Conditions that cause **back pain**

**Arthritis/Osteoarthritis**
Among the most common forms of arthritis is osteoarthritis (OA) – a degenerative condition that reflects wear and tear on the body as a person ages. The cushion of cartilage between the joints breaks down and causes the bones to rub against each other, resulting in stiffness, pain and loss of joint movement.

Symptoms can include:
- Sore or stiff joints after inactivity or overuse, particularly in the hips, knees and lower back but also the neck, small finger joints, base of the thumb, ankle and big toe
- Pain that is worse after activity or toward the end of the day

Treatments can include:
- Exercise and weight loss as needed
- Medications to relieve pain
- Physical or occupational therapy to improve strength and function
- Surgery

**Cervical Spondylosis**
Cervical spondylosis involves the breakdown of the cervical spine's discs and loss of fluid, bringing stiffness and pain to the neck or related areas. It generally occurs in middle-age and elderly people as a result of normal use and aging.

Symptoms can include:
- Neck stiffness and pain
- Headaches, which may originate in the neck
- Pain in the shoulders or arms
- Inability to fully bend the neck or turn the head
- A grinding noise or feeling when turning the neck

Treatments can include:
- Medications to relieve pain
- Chiropractic manipulation
- Cervical collar to limit movement and provide support
- Physical therapy
- Pharmaceutical injections
- Surgery (in rare cases)

**Investigating and treating back pain is central to good health. Left untreated, back pain makes it easy to opt out of activities and become sedentary, losing bone mass, muscle tissue and overall wellness.**
Degenerative Disc Disease
Degenerative Disc Disease (DDD) occurs when one or more intervertebral discs of the spine begin to deteriorate. It is a normal result of aging and daily wear and tear on the back, but if left untreated, DDD can cause severe chronic pain.

Symptoms can include:
• Chronic low back pain, sometimes radiating to the hips
• Pain in the thighs, buttocks or legs when walking
• Tingling or weakness in the legs
• Pain while sitting, twisting, bending and lifting
• Chronic neck pain, radiating to the head, shoulders and arms

Treatments can include:
• Medications and heat/ice packs to reduce inflammation
• Physical therapy, proper ergonomics and posture
• Surgery

Fibromyalgia
Fibromyalgia is marked by pain and stiffness in the muscles, tendons and ligaments but it does not involve inflammation or muscle damage. Fatigue and many other symptoms accompany it, but the symptoms are common to other disorders as well. The most distinctive symptom of fibromyalgia is the presence of tender points, which are specific spots on the body that are painful when pressure is applied.

Symptoms can include:
• Widespread musculoskeletal pain (for at least three months)
• Fatigue
• Numerous tender points that are painful when pressed
• Headaches

Treatments can include:
• Stress management
• Exercise and stretching
• Low doses of antidepressant medications
• Massage
• Acupuncture
Herniated or Ruptured Disc

A tear in the outer ring of a disc between any of the spinal vertebrae allows the soft, central portion of the disc to bulge out, or become herniated. This condition is most often caused by accident trauma, lifting injuries or general wear and tear. The tear in the ring may also cause inflammatory chemical mediators to be released, causing severe pain.

Symptoms can include:
• Severe, relentless pain in the neck and arms
• Lower back and leg pain
• Pain in the thighs, knees or feet
• Numbness or tingling
• Muscular weakness and even paralysis

Treatments can include:
• Anti-inflammatory medications
• Activity modification to avoid pain
• Physical therapy and exercise
• Chiropractic manipulation
• Surgery

Osteoporosis

Osteoporosis is the thinning and weakening of bones, making them susceptible to fractures and changes in shape. The spine is most affected by osteoporosis, followed by hips and wrists. Back pain from osteoporosis-related changes may be due to muscle strain or compressed spinal nerves. Women older than 50 are at greatest risk, though younger women as well as men can also suffer from osteoporosis.

Symptoms can include:
• Back pain
• Loss of height
• Stooped posture
• Easily broken bones

Treatments can include:
• Education about diet and nutrition, particularly about calcium and Vitamin D
• Exercise (if no fractures) to help maintain bone density
• Medications to strengthen bones and prevent further bone loss
Conditions that cause back pain

**Sciatica**
Sciatica is a set of symptoms in the lower spine (lumbar area) rather than a specific disease. Affecting the two sciatic nerves that extend from the lower back and into the back of each leg, sciatica may be caused by irritation or compression to spinal nerve roots or to either (or both) of the nerves themselves.

Symptoms can include:
- Pain in the lower back and buttock
- Pain, numbness or weakness in the leg and foot
- Tingling or pricking in the leg
- Difficulty moving or controlling the leg

Treatments can include:
- Exercise and stretching
- Heat and/or ice packs
- Anti-inflammatory medications
- Epidural steroid injections
- Chiropractic manipulation, acupuncture and massage therapy
- Surgery

**Scoliosis**
Scoliosis presents as a side-to-side curvature of the spine with a twisting of the vertebrae within the curve. Most often, it begins in adolescence and could progress into adulthood, but it may also result from muscle disorders and degeneration of the spine in older adults.

Symptoms can include:
- Uneven shoulders
- One shoulder blade that appears more prominent than the other
- Uneven waist
- One hip higher than the other

Treatments can include:
- Exercises to keep back muscles strong
- Back braces
- Surgery (in extreme cases)

**Spinal Stenosis**
An abnormal narrowing of the spinal canal can occur in any area of the spine. This narrowing, or stenosis, restricts the canal and results in a neurological deficiency that blocks normal operation of the nerves.

Symptoms can include:
- Pain while walking
- Numbness
- Loss of motor control
- A burning, pricking or tingling sensation in the skin

Treatments can include:
- Activity modification to avoid discomfort
- Exercise
- Anti-inflammatory medications
- Epidural steroid injections
- Surgery
**Spondylolisthesis**

Spondylolisthesis is the troublesome result of a vertebra sliding forward over the bone below it. Most often affecting the lower spine (lumbar area), it may cause the spinal cord or nerve roots to be squeezed.

Symptoms can include:
- Stiff back
- Tight hamstrings
- A change in gait and posture
- Pain in the lower back
- Pain when sitting or standing up
- Shooting pain from the buttocks into the thigh or lower leg

Treatments can include:
- Anti-inflammatory medications
- Heat and/or ice packs
- Stretching and physical therapy
- Chiropractic manipulations
- Epidural steroid injections
- Surgery
Various tests and diagnostic tools are available to identify back problems and other issues that cause pain. In addition, blood tests help eliminate concerns about certain contributing physiological factors. The following list provides the most common diagnostic tools specific to back pain.

**X-ray**
Quick and painless, X-rays take a picture of the inside of the body, particularly bones, by using electromagnetic beams of radiation.

**CT Scan**
Computerized tomography (CT scans) are composed of a series of X-ray views taken from many different angles. They provide much more information than regular X-rays because they show cross-sections of bones and soft tissues inside the body. These scans usually take fewer than five minutes.

**MRI**
Magnetic Resonance Imaging (MRI) requires a patient to lie still inside a long tube-shaped machine that creates detailed images of soft tissues within the body. A magnetic field temporarily realigns hydrogen atoms in the body, and radio waves cause these aligned atoms to produce very faint signals, which are used to create cross-sectional and 3D images that may be viewed from many different angles. These scans can take up to 30 minutes.

**Fluoroscopy**
Invaluable in seeing the inside of the body through real-time moving images, fluoroscopy is the visual examination of a part of the body with a fluoroscope, which uses X-rays and a fluorescent screen.

**Myelogram**
A myelogram uses X-rays and a contrast dye to make pictures of the bones and fluid-filled space between bones of the spine. It is especially helpful to diagnose problems such as a herniated disc, narrowing of the spinal canal caused by arthritis or other issues that cannot be diagnosed by MRI or CT scan. A CT scan is often done after the X-rays, while the dye is still active in the body, to get even more information from the test.

**Bone Density Scan**
X-rays of the spine, hip or forearm help diagnose osteoporosis by measuring how many grams of calcium and other bone minerals are packed into a segment of bone.

**Discography**
This procedure involves pressurizing spinal discs by injecting them with a sterile contrast dye to induce pain in the affected discs. Usually, a CT scan is also obtained to document the internal architecture of the disc.

Unfortunately, there is no easy fix for back pain. Sometimes the only “cure” may be surgery, but surgery is not without risks or consequences.
The front-line defense against back pain begins with conservative treatments, such as home remedies, over-the-counter medications, yoga, walking and other exercise. These tactics may be complemented by physical therapy, chiropractic care, acupuncture and/or massage therapy. As always, a physician’s consent helps identify a course that will provide the greatest benefit without causing further trauma to your back or affecting your health in another way.

If chronic back pain continues to plague your daily life, your doctor may also suggest medical treatments to manage your pain. These options generally provide substantial short-term relief and are not to be confused with cures.

**Injections and Blocks**

**Epidural Steroid Injection, Lumbar, Thoracic or Cervical**

Also referred to as an epidural block, this injection delivers pain medication into the epidural space around your spinal cord and spinal nerves, stopping the nerves from transmitting pain signals.

Used to treat: neck, mid-back, lower back pain and radiating pain

**Facet Joint Injection**

A small amount of anesthetic and anti-inflammatory medication is injected in the area of the facet joint.

Used to treat: neck, back or leg pain caused by inflammation, irritation or arthritis of the facet joints

**Ganglion Impar Block**

This injection of a steroid and anesthetic around the ganglion impar nerves in the lower spine will block pain impulses.

Used to treat: chronic pelvic pain

**Intercostal Nerve Block**

A local anesthetic is injected between the two ribs where the intercostal nerve is located, temporarily blocking or disrupting painful nerve impulses.

Used to treat: upper back, chest and rib pain

**Piriformis Injections**

This injection temporarily eliminates pain by stopping muscle spasms and helps to determine if piriformis muscle contractures are involved in the cause of the pain.

Used to treat: buttock and sciatica-type pains

**Radiofrequency Denervation**

Relying on heat energy, this treatment is used to alter small sensory nerves around the spinal joints that are causing pain.

Used to treat: lower back pain

Though exercise and stretching may seem counterintuitive when you are in pain, keep in mind that movement is necessary to keep muscles and joints flexible and working properly. Exercise will also make you stronger.
Sacroiliac Joint Injections
An injection of cortisone into the joints in the lower back helps reduce painful inflammation and swelling.
Used to treat: lower back pain

Selective Nerve Root Block
The region around an irritated nerve root is isolated and injected with an anti-inflammatory medication.
Used to treat: symptoms of a herniated disc, sciatica or swelling/irritation of the nerve roots

Sympathetic Nerve Blocks
This injection of anesthetic into different nerves determines if there is damage to the sympathetic nerve chain.
Used to treat: nerve pain, reflex sympathetic dystrophy or complex regional pain syndrome in the arms or legs

Trigger Point Injections
Tight bands of muscles, called trigger points, receive an injection of a local anesthetic to alleviate pain.
Used to treat: extremely painful areas of muscle, specifically in the arms, legs, lower back and neck

Implants
Pacemaker-sized devices to manage back pain can be surgically implanted under the skin. The following two options are used to treat lower back pain as well as leg pain.

Intrathecal Pain Pumps
The intrathecal pump delivers concentrated amounts of pain-relieving medications into the spinal fluid area through a small catheter or tube.
Used to treat: lower back pain

Spinal Cord/Peripheral Nerve Stimulation
This device electrically activates a pain-inhibiting process and causes a tingling sensation that masks pain. The stimulator sends pulsed electrical signals to the spinal cord to control chronic pain.
Used to treat: lower back pain and leg pain
Minimally Invasive Surgery

Computer-assisted technology, combined with highly specialized cameras and instrumentation, enables surgeons to work on the spine through much smaller incisions that pose less risk and less disruption to the body. While conventional back surgery is sometimes necessary, medical advancements provide an increasing number of options for minimally invasive surgery and quicker recovery, such as the two listed below.

Vertebroplasty/Kyphoplasty

Fractures in the spinal bones (from accident, injury, osteoporosis or other bone-weakening condition) can be repaired quickly and easily through these minimally invasive procedures. A hollow needle is inserted through the skin and into the body of the fractured vertebra. In kyphoplasty, a balloon is first inserted through the needle and inflated to create a cavity. Then, a special cement mixture is delivered to strengthen the fractured bone from the inside. In vertebroplasty, physicians inject a special cement mixture through a needle directly onto the fracture.

XLIF Fusion

The XLIF (eXtreme Lateral Interbody Fusion) surgery involves an incision on the side of the lower back as opposed to the front or back access required in similar spine surgeries. The disc in the front of the spine is removed and replaced with an implant containing a bone graft (see next page). Screws and rods provide stability over the next few months as new bone grows to fuse the vertebrae together. This prevents motion that had been resulting in pinched nerves and serious back pain.
Surgical procedures

**Bone Graft**, used in Fusion and XLIF Surgeries
To fuse the spine, very small pieces of extra bone may be used. This bone acts as the “putty” that fuses the vertebrae together. Bone grafts come from a bone bank, allograft, or from your own body, autograft. Your surgeon will choose the type of graft.

- Traditionally, bone from patients’ own bodies has been used for grafting. During the fusion surgery, a small amount of bone is taken from the surface of the pelvis. Bone may be taken through the incision made for your fusion, or through a separate incision. The area the bone is taken from can hurt until it heals.
- Bone marrow may also be used for grafting. It would be removed with a needle.
- Recent scientific advances have allowed the use of bone from a bone bank. Calcium crystals may be mixed with bone from the bone bank to form a putty that’s very much like your own bone in composition.
- In very rare cases, a recombinant polypeptide, bone morphogenic protein may be used.

**Traditional Surgery**

**Discectomy**
A discectomy removes a portion of a ruptured disc. A small amount of bone must be removed to expose the disc before the problem can be corrected. Surgeons remove any portion of the disc that presses on a nerve and any disc matter that is loose or may cause problems in the future.

**Dynamic Stabilization**
Dynamic stabilization provides stability to prevent nerves from getting pinched because of too much movement while not entirely eliminating flexibility of the spine. Stability can be restored using metal and woven instruments to reconstruct the soft supports of the spinal column.

**Spinal Fusion**
Spinal fusion locks two or more vertebrae together to prevent future motion. It’s accomplished by stimulating bone to grow between two or more adjacent vertebrae. Once they are fused, the vertebrae can no longer move separately. As a result, the vertebrae can no longer pinch nerves, and the pain goes away. To keep the spine steady, metal hardware (screws, plates and rods) may be used. The hardware is left in place after surgery.
Laminectomy
During a laminectomy, a small portion of bone called the lamina is removed from the vertebrae above and below a pinched nerve to take pressure off the nerve. Disc matter or a bone spur that is pressing on the nerve may also be removed.

Total Disc Replacement
This surgery begins by removing a damaged disc and replacing it with an artificial one. The new disc then preserves motion, balances stress along the spine and restores height.
With something as serious as your back and spinal cord, doctors insist on trying the most conservative measures first, such as exercise and over-the-counter solutions. Surgery is always a last resort. But, for some, surgery is the only option to reduce or relieve their pain.

Talk to your SSM Health primary care provider about next steps to manage pain or to get a referral to a specialist. If you do not have a primary care provider, visit ssmhealth.com/doctors to make an appointment.
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