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Low Back Pain

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Topic Overview

Is this topic for you?

This topic provides a general overview of low back pain. If you have been diagnosed with a herniated disc or spinal stenosis, see the topic [Herniated Disc or Lumbar Spinal Stenosis](#).

What is low back pain?

Low back pain can affect the back anywhere below the ribs and above the legs. The lower back (See figure 1 in appendix) is the connection between the upper and lower body, and it bears most of the body's weight. Because of these roles, it is easily injured when you lift, reach, or twist.

Almost everyone has low back pain at one time or another. The good news is that most low back pain will go away in a few weeks with some basic self-care. But if your pain is severe or lasts more than a couple of weeks, see your doctor.

What causes low back pain?

Low back pain is often caused by overuse, strain, or injury. For instance, people often hurt their backs playing sports or working in the yard, being jolted in a car accident, or lifting something too heavy.

Aging plays a part too. Your bones and muscles tend to lose strength as you age, which increases your risk of injury. The spongy discs between the bones of the spine (vertebrae) may suffer from wear and tear and no longer provide enough cushion between the bones. A disc that bulges or breaks open (herniated disc) can press on nerves, causing back pain.

In some people, low back pain is the result of arthritis, broken vertebrae (compression fractures) caused by bone loss (osteoporosis), illness, or a spine problem you were born with.

Often doctors don't really know what causes low back pain. But it is more likely to become long-lasting (chronic) if you are under stress or depressed.

What are the symptoms?

Depending on the cause, low back pain can cause a range of symptoms. It may:

- Be dull, burning, or sharp.
- Be felt at a single point or over a broad area.
- Come on gradually or suddenly.
- Occur with muscle spasms or stiffness.
- Cause leg symptoms, such as pain, numbness, or tingling, often extending below the knee. These symptoms can occur on their own or along with low back pain. Leg symptoms are often caused by lower spine problems that place pressure on a nerve that leads to the leg.

A rare but serious problem called cauda equina syndrome can occur if the nerves at the end of the spinal cord are squeezed. Seek emergency treatment if you have weakness or numbness in both legs, or loss of bladder or bowel control.

Doctors say back pain is:

- **Acute** if a spell (or episode) of pain lasts less than 3 months. Most back pain is acute and goes away with 4 to 6 weeks of home treatment.
- **Recurrent** if acute symptoms come back. Most people have one or more episodes of recurrent low back pain.
- **Chronic** if your back bothers you most of the time for longer than 3 months.

How is low back pain diagnosed?

The doctor will ask questions about your past health, symptoms, and work and physical activities. He or she will also do a physical exam. Your answers and the exam can help the doctor rule out a serious cause for the pain. In most cases, doctors are able to recommend treatment after the first exam.

Most people do not need further testing. Imaging tests such as X-rays, CT scans, and MRIs are not helpful for diagnosing most episodes of low back pain. In most cases, they are only used if the doctor suspects a serious problem, such as a herniated disc, a broken bone, or cancer, or if surgery is being considered or planned. You might also have imaging tests if worker's compensation or a lawsuit is involved.

How is it treated?

Most low back pain will improve with the following treatment:

- For the first day or two, rest in a comfortable position (See figure 2 in appendix). Try lying on your side with a pillow between your knees. Or lie on your back on the floor with a pillow under your knees. Do not stay in one position for too long, though. Every 2 to 3 hours, take a short walk (about 10 to 20 minutes), then rest in a comfortable position again.
- Take over-the-counter pain medicine if needed, such as acetaminophen (Tylenol, for example) or an anti-inflammatory drug such as aspirin or ibuprofen (Advil or Motrin, for example). For most people, these medicines work best if taken on a regular schedule.
- Try using a heating pad on a low or medium setting for 15 to 20 minutes every 2 or 3 hours. Try a warm shower in place of one session with the heating pad. You can also buy single-use heat wraps that last up to 8 hours. You can also try an ice pack for 10 to 15 minutes every 2 to 3 hours. There is not strong evidence that either heat or ice will help. But you can try them to see if they help.
- As soon as possible, get back to your normal activities. Staying in bed for more than 1 or 2 days can weaken your muscles and make the problem worse.

Walking is the simplest and maybe the best exercise for the lower back. It gets your blood moving and helps your muscles stay strong. Start with easy walks of 5 to 10 minutes a day, and gradually increase your time. Walking in water up to your waist or chest is also good exercise.

A doctor or physical therapist can recommend more specific exercises to help your back muscles get stronger. These may include a series of simple exercises called core stabilization. The muscles of your trunk, or core, support your spine. Strengthening these muscles can improve your posture, keep your body in better balance, and lower your chance of injury.

Some people get relief from pain by using treatments such as massage, spinal manipulation (chiropractic or osteopathic manipulation), or acupuncture. Certain treatments work for some people but not for others. You may need to try different things to see which work best for you.

If your symptoms are severe or you still have them after 2 weeks of self-care, see your doctor. You may need stronger pain medicines, or you might benefit from physical therapy.

Having ongoing back pain can make you depressed. In turn, depression can have an effect on your level of pain and whether your back gets better. People with depression and chronic pain often benefit from both counseling and medicine. A cognitive-behavioral therapist can teach stress management and pain control skills. Antidepressant medicines may help too.

Only a few people with low back pain need surgery. Surgery may help if you have a herniated disc or back pain along with symptoms of nerve damage, such as numbness in your legs. Even in these cases, most people will improve without surgery. Having surgery does not guarantee that all your pain will go away. Before you have surgery, it is a good idea to get a second opinion.

How can you prevent low back pain from returning?

After the first time you have had low back pain, you are likely to have it again. To help keep your back healthy and avoid further pain:

- Practice good posture when you sit, stand, and walk.
- Get regular, low-impact exercise. Walk, swim, or ride a stationary bike. Stretch before you exercise.
- Wear low-heeled shoes with good support.
- Sleep on your side. A medium-firm mattress may put the least stress on your back.
- Watch your weight. Being too heavy, especially around your waist, puts extra stress on your back.
- Don't try to lift things that are too heavy for you. When you must lift, bend your knees and keep your back straight, keep the object you are lifting close to your belly button, and avoid lifting and twisting at the same time. See a picture of proper lifting technique (See figure 3 in appendix).

If you sit or stand for long periods at work:

- Pay attention to your posture. Sit or stand up straight, with your shoulders back.
- Make sure your chair has good back support.
- Take regular breaks to walk around.

If your work involves a lot of bending, reaching, or lifting:


- Talk to your human resources department to see if there are other ways you can do your work.
- Don't depend on a "back belt" to protect your back. Studies have not shown these belts to be effective in reducing back injuries. The most they can do is to help remind you to use good techniques for lifting.

Frequently Asked Questions



Learning about low back pain:

- What is low back pain?
- What causes low back pain?
- What increases my risk of low back pain?
- What can I do to prevent low back pain?
- Who is affected by low back pain?



Being diagnosed:

- How is the cause of low back pain diagnosed?
-  Should I have magnetic resonance imaging (MRI) for low back pain?

Getting treatment:

- How is new (acute) low back pain treated?
-  Should I have spinal manipulative therapy to treat low back pain?
- How is chronic low back pain treated?
- What can I do to relieve my low back pain?
- What medications are typically used to relieve low back pain?
- What are trigger point and epidural injections?
- What is intradiscal electrothermic therapy (IDET)?
- What is spinal cord stimulation?
- What is botulinum toxin (Botox) injection?
-  Should I have surgery for a herniated disc?

Ongoing concerns:

- What measures can I take to manage my risk of low back pain throughout my life?
-  How can I lift properly to prevent back injury?
(See *Back problems: Proper lifting* in appendix)
-  What exercises can I do for low back pain? (See *Low back pain: Exercises to reduce pain* in appendix)

Credits for Low Back Pain

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Appendix



Back problems: Proper lifting

No one is immune to back injury. Whether you have a strong back or have hurt your back before, it is well worth it to:

- **Stop** yourself before casually picking up a light or heavy load.
- **Plan** in your mind for the best way to lift what's in front of you. This could include enlisting help from one or more people.
- **Lift and move** slowly and carefully.

The time you take to use the right lifting mechanics is far less than the days, weeks, or months it can take to heal from a back injury.



What types of lifting can cause injury?



Why is it important to be careful about lifting?



How can I lift without hurting my back?



Where can I get more information about healthy back body mechanics?



What types of lifting can cause injury?

Before focusing on the right way to lift, review the following **common lifting mistakes** that easily lead to a back injury:

- Allowing the back to curve forward while you grasp an object, then lifting by straightening the back
- Bending at the hips but keeping the legs straight while grasping and lifting
- Twisting the back while lifting or holding, usually by turning the shoulders, but not the hips
- Holding an object away from the body
- Lifting a heavy object (or child) above shoulder level
- Attempting to lift an object that's too heavy or awkward for one person to safely lift
- Underestimating the need to be careful when lifting a light object

Test Your Knowledge

1. I only need to be careful about body mechanics when I'm lifting something that's heavy or awkward.

a. True

This answer is incorrect.

Regardless of the weight of an object, careful lifting is important. You can injure your back simply by turning the wrong way while lifting a light object.

b. False

This answer is correct.

Regardless of the weight of an object, careful lifting is important. You can injure your back simply by turning the wrong way while lifting a light object.



Why is it important to be careful about lifting?

Back injury is best avoided at all costs. After the first time you have injured your back, it becomes more vulnerable to future injury. A back injury can alter your entire quality of life and possibly your livelihood, especially if it returns or becomes chronic.

Poor lifting technique can injure your back in various ways:

- Muscle or ligament strain—or tiny tears in the muscle or ligament—commonly results from a combination of poor body mechanics and too much of a burden on your back muscles.
- Spinal disc injury is often caused by forward bending of the spine and poor lifting technique. A spinal disc that is squeezed by the vertebrae above and below it can bulge or break open (herniated disc), causing back and leg pain and numbness (sciatica) and occasionally bowel and bladder problems.
- Vertebrae can become damaged during awkward lifting.

Test Your Knowledge

1. Poor lifting technique can cause an injury to the muscle, spinal discs, or bone.

a. True

This answer is correct.

The back is a complex system of bone and connective tissue, any or all of which can be injured by poor lifting practices.

b. False

This answer is incorrect.

The back is a complex system of bone and connective tissue, any or all of which can be injured by poor lifting practices.

How can I lift without hurting my back?

Follow these basic rules to protect your back while lifting:

- **Keep a wide base of support.** Your feet should be shoulder-width apart, with one foot slightly ahead of the other (karate stance).
- **Squat** down, bending at the hips and knees only. If necessary, put one knee to the floor and your other knee in front of you, bent at a right angle (half kneeling).
- **Maintain good posture.** Look straight ahead, and keep your back straight, your chest out, and your shoulders back. This helps keep your upper back straight while maintaining a slight arch in your lower back.
- **Slowly lift** by straightening your hips and knees (not your back). Keep your back straight, and don't twist as you lift.
- **Hold** the load as close to your body as possible, at the level of your belly button.
- **Use your feet** to change direction, taking small steps.
- **Lead with your hips** as you change direction. Keep your shoulders in line with your hips as you move.
- **Set down** your load carefully, squatting with the knees and hips only.

See a picture of proper lifting technique (See figure 3 in appendix).

Test Your Knowledge

1. Safe lifting is intuitive—we do it without thinking about it.

a. True

This answer is incorrect.

People tend to lean over and lift with their backs. However easy it may be to do, this can lead to injury. Take time for conscious thought to stop, plan, and lift safely.

b. False

This answer is correct.

People tend to lean over and lift with their backs. However easy it may be to do, this can lead to injury. Take time for conscious thought to stop, plan, and lift safely.

Where can I get more information about healthy back body mechanics?

If you need information specific to your daily activities, you can consult with:

- A physical therapist.
- An occupational therapist.
- An ergonomic specialist.
- Your doctor.

You can find more information in the following topics:

Low Back Pain
Herniated Disc
Office Ergonomics

Credits for Low Back Pain

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Last Revised February 3, 2010



Low back pain: Exercises to reduce pain

Key points

- Low back pain is very common among adults and is often caused by overuse and muscle strain or injury. Treatment can help you stay as active as possible. And it will help you understand that some continued or repeated back pain is not surprising or dangerous.
- Most low back pain can get better if you stay active, avoid positions and activities that may increase or cause back pain, use ice, and take nonprescription pain relievers when you need them.
- When you no longer have acute pain, you may be ready for gentle strengthening exercises for your stomach, back, and legs, and perhaps for some stretching exercises. Exercise may not only help decrease low back pain, but it may also help you recover faster, prevent reinjury to your back, and reduce the risk of disability from back pain.
- Exercises to reduce low back pain are not complicated and can be done at home without any special equipment.
- It's important that you don't let fear of pain keep you from trying gentle activity. You should try to be active soon after noticing pain and gradually increase your activity level. Too little activity can lead to loss of flexibility, strength, and endurance, and then to more pain.



What exercises may reduce low back pain?



Why is it important to do exercises for low back pain?



How do I exercise to reduce low back pain?



Where can I learn more about exercises to reduce low back pain?

More information about low back pain:



What exercises may reduce low back pain?

Exercises that may help reduce or prevent low back pain include:

- **Aerobic exercise**, to condition your heart and other muscles, maintain health, and speed recovery.
- **Strengthening exercises**, focusing on your back, stomach, and leg muscles.
- **Stretching exercises**, to keep your muscles and other supporting tissues flexible and less prone to injury.

Some exercises can aggravate back pain. If you have low back pain, avoid:

- Straight leg sit-ups.
- Bent leg sit-ups or partial sit-ups (curl-ups) when you have acute back pain.
- Lifting both legs while lying on your back (leg lifts).
- Lifting heavy weights above the waist (standing military press or bicep curls).
- Toe touches while standing.

Test Your Knowledge

1. Do not exercise if you have low back pain.

a. True

This answer is incorrect.

If you have low back pain, doing aerobic, strengthening, and gentle stretching exercises may help you gain or maintain good health, strength, and flexibility. Certain exercises may reduce your low back pain.

b. False

This answer is correct.

If you have low back pain, doing aerobic, strengthening, and gentle stretching exercises may help you gain or maintain good health, strength, and flexibility. Certain exercises may reduce your low back pain.



Why is it important to do exercises for low back pain?

Exercise and staying active may relieve low back pain and can help speed your recovery. Stretching and strengthening your stomach, back, and leg muscles helps make them less susceptible to injury that can cause back pain. Strong stomach, back, and leg muscles also better support your spine, reducing pressure on your spinal discs. This may help prevent disc injury.

Aerobic exercises—such as walking, swimming, or walking in waist-deep water—also help you maintain a healthy back. Aerobic exercise makes your heart and other muscles use oxygen more efficiently. Muscles that frequently receive oxygen-rich blood stay healthier.

Test Your Knowledge

1. Exercise and activity may help reduce the risk of disability from back pain.

a. True

This answer is correct.

Exercises stretch and strengthen your back, stomach, and legs. When these muscles are flexible and strong, they can help reduce the risk of disability from back pain.

b. False

This answer is incorrect.

Exercises stretch and strengthen your back, stomach, and legs. When these muscles are flexible and strong, they can help reduce the risk of disability from back pain.



How do I exercise to reduce low back pain?

Most people who have back pain naturally feel better by doing certain motions. Some feel better sitting (their back and hips are flexed), while others feel better standing (back and hips are extended). Exercise that moves you toward your more comfortable position is usually more successful in treating your back pain.¹ For example, if you are more comfortable sitting down, exercises that bend you forward—such as partial sit-ups (curl-ups) and knee-to-chest exercises—may help you.

Talk to your doctor before you start an exercise program, and **only do exercises that do not increase your symptoms.**

The most effective exercise programs for chronic low back pain are designed specifically for you and are supervised.² For example, a physical therapist might instruct you in a home exercise program. Then you would see the therapist every so often to check on your progress and advance your program.

- Talk to your doctor or physical therapist if you are unsure how to do these exercises or if you feel any pain as you are doing the exercises.
- Try to exercise a little bit every day.
 - Get some type of aerobic exercise, such as walking, every day. Even a couple of minutes will be helpful, and you can gradually increase your time.
 - Choose a couple of stretching and strengthening exercises that you enjoy doing, or vary them from day to day.

Ask your doctor or physical therapist whether there are additional exercises that will work best for you.

Stretching and strengthening exercises include:

- Extension exercises, which stretch tissues along the front of the spine, strengthen the back muscles, and may reduce pain caused by a herniated disc. These generally are a good choice for people whose back pain is eased by standing and walking.
 - Press-up back extension (See figure 7 in appendix)
 - Alternate arm and leg (bird dog) exercise (See figure 8 in appendix)
- Flexion exercises, which strengthen stomach and other muscles, and stretch the muscles and ligaments in the back. These are generally a good choice for people whose back pain is eased by sitting down.
 - Knee-to-chest exercise (See figure 9 in appendix)

- Curl-ups (See figure 10 in appendix)
- Additional strengthening and stretching exercises.
 - Prone buttocks squeeze
 - Pelvic tilts (See figure 11 in appendix)
 - Bridging (See figure 12 in appendix)
 - Hamstring stretch (See figure 13 in appendix)
 - Hip flexor stretch (See figure 14 in appendix)
 - Wall sit (See figure 15 in appendix)

Aerobic exercise includes walking, swimming, running, and biking. Non–weight-bearing exercise, such as swimming, tends to be a better choice if you have back pain. Walking in water up to your waist or chest is also good aerobic exercise.

- You should keep taking easy, short walks when you have low back pain. You can likely start more intense aerobic exercise 1 or 2 weeks after symptoms of back pain start.
- Start slowly so that you don't overdo it. For example, begin with 10 minutes a day. Build up your exercise program bit by bit. And aim for at least 2½ hours a week of moderate exercise.³ It's fine to be active in blocks of 10 minutes or more throughout your day and week.

Test Your Knowledge

1. Exercises to reduce low back pain take a long time and are difficult to do.

a. True

This answer is incorrect.

Even 10 minutes of stretching and strengthening exercises each day can condition the muscles of the back, stomach, and legs, and may relieve low back pain. The exercises listed above do not involve complicated steps and can be done indoors without special equipment.

b. False

This answer is correct.

Even 10 minutes of stretching and strengthening exercises each day can condition the muscles of the back, stomach, and legs, and may relieve low back pain. The exercises listed above do not involve complicated steps and can be done indoors without special equipment.



Where can I learn more about exercises to reduce low back pain?

For more information about exercises to reduce low back pain, talk to:

- Your doctor.
- A physical therapist.

If you would like more information on exercises to reduce low back pain, the following organizations can provide information:

Organization

American Academy of Orthopaedic Surgeons (AAOS)

6300 North River Road

Rosemont, IL 60018-4262

Phone: 1-800-346-AAOS (1-800-346-2267)
(847) 823-7186

Fax: (847) 823-8125

E-mail: pemr@aaos.org

Web Address: www.aaos.org

The American Academy of Orthopaedic Surgeons (AAOS) provides information and education to raise the public's awareness of musculoskeletal conditions, with an emphasis on preventive measures. The AAOS Web site contains information on orthopedic conditions and treatments, injury prevention, and wellness and exercise.

References

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2. Hayden JA, et al. (2005). Systematic review: Strategies for using exercise therapy to improve outcomes in chronic low back pain. *Annals of Internal Medicine*, 142(9): 776–785.
3. U.S. Department of Health and Human Services (2008). *2008 Physical Activity Guidelines for Americans* (ODPHP Publication No. U0036). Washington, DC: U.S. Government Printing Office. Available online: <http://www.health.gov/paguidelines/pdf/paguide.pdf>.

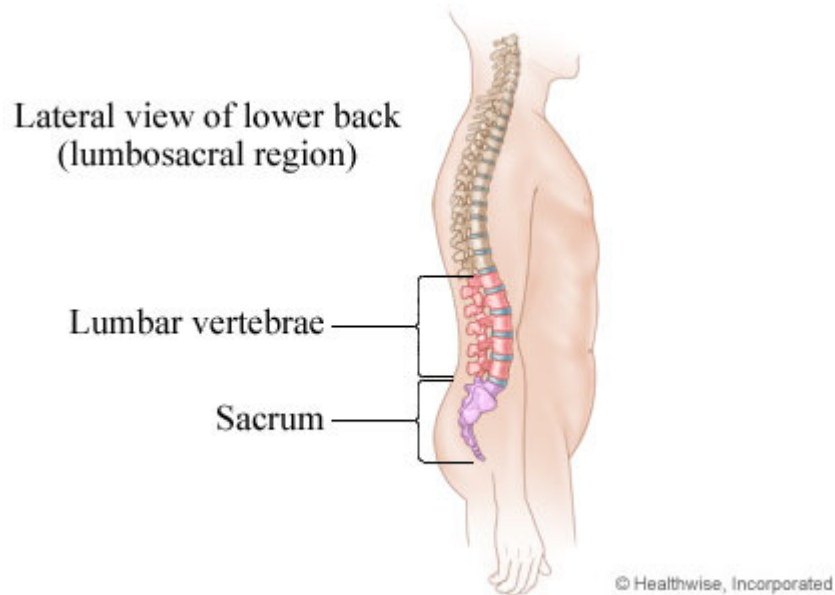
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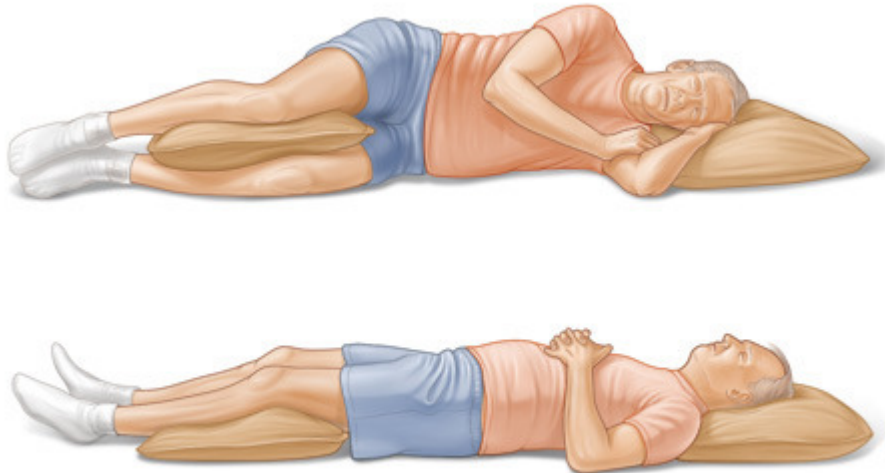
Topic Images

Figure 1

Lumbosacral region of the spine (lower back)



The spine is composed of 33 interlocking bones called vertebrae. The lumbosacral region of the spine consists of 5 lumbar vertebrae and the sacrum (5 bones joined together).

Figure 2**Sleeping positions for people with low back pain**

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General guidelines for sleeping:

- Sleep so that your back is in a neutral position. The neutral position keeps the back in its natural three front-to-back curves that give the spine an "S" shape.
- Place a pillow under your knees when sleeping on your back. You may also want to try using a towel roll to support your lower back.
- Place a pillow between your knees when sleeping on your side.

To rise from bed:

- Roll onto your side and bend both knees.
- Drop your feet over the side of the bed as you push with both arms to sit up.
- Scoot to the edge of the bed and position your feet under your buttocks.
- Stand up, keeping your back in the neutral position.

Figure 3

Proper lifting technique



Follow these tips to avoid compressing the spinal discs or straining your lower back when lifting:

- **Keep a wide base of support.** Your feet should be shoulder-width apart, with one foot slightly ahead of the other (karate stance).
- **Squat** down, bending at the hips and knees only. If necessary, put one knee to the floor and your other knee in front of you, bent at a right angle (half kneeling).
- **Maintain good posture.** Look straight ahead, and keep your back straight, your chest out, and your shoulders back. This helps keep your upper back straight while maintaining a slight arch in your lower back.
- **Slowly lift** by straightening your hips and knees (not your back). Keep your back straight, and don't twist as you lift.
- **Hold** the load as close to your body as possible, at the level of your belly button.
- **Use your feet** to change direction, taking small steps.
- **Lead with your hips** as you change direction. Keep your shoulders in line with your hips as you move.
- **Set down** your load carefully, squatting with the knees and hips only.

Keep in mind:

- Do not attempt to lift by bending forward. Bend your hips and knees to squat down to your load, keep it close to your body, and straighten your legs to lift.
- Never lift a heavy object above shoulder level.
- Avoid turning or twisting your body while lifting or holding a heavy object.

Figure 4

Sciatica

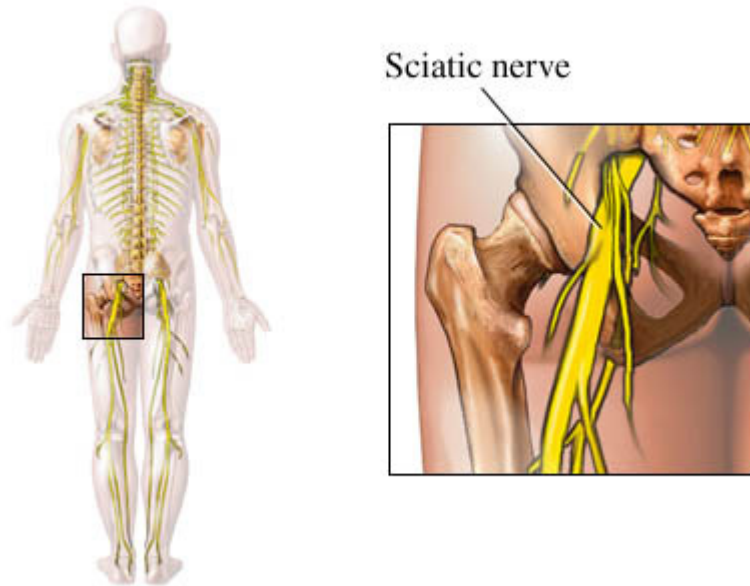


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The sciatic nerve is formed by the nerve roots coming out of the spinal cord into the lower back (lumbar region). Branches of the sciatic nerve extend through the buttocks and down the back of each leg to the ankle and foot.

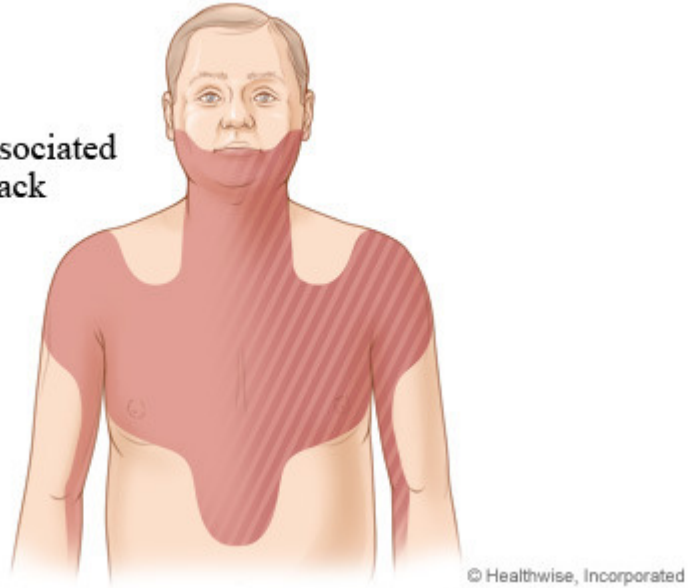
A herniated disc may compress one or more of the nerve roots that form the sciatic nerve. Pressure on one of these nerve roots will often produce distinctive symptoms of **sciatica**, such as pain, numbness, weakness, and tingling in the affected leg.

Although a herniated disc is the most common cause of sciatica, sciatica can also be a symptom of other problems, such as narrowing of the spinal canal (spinal stenosis), nerve root compression resulting from injury, and certain rare tumors.

Figure 5

Chest pain

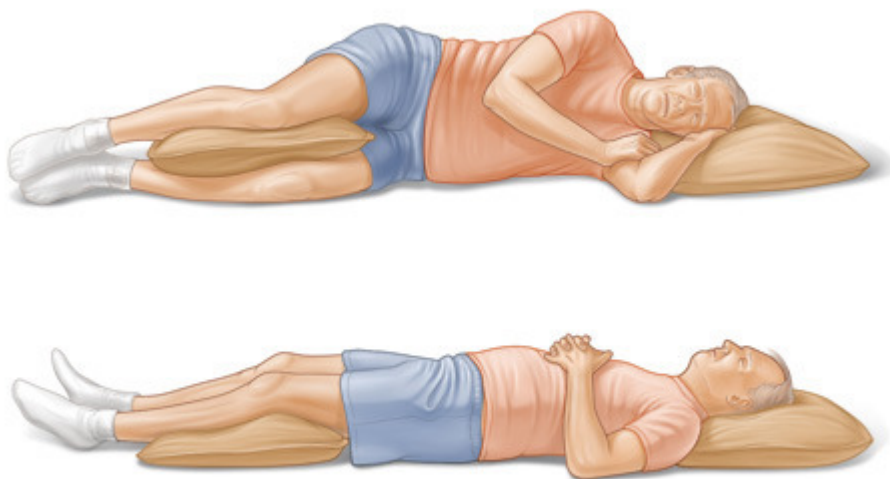
Chest pain associated with heart attack



The dark pink color indicates the area where chest pain may occur.

Figure 6

First aid for low back pain

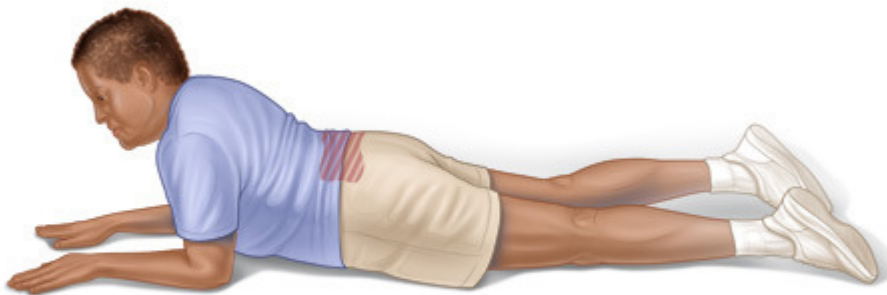


When you first feel back pain, try these steps to avoid or reduce pain:

- **Relax.** Find a comfortable position for rest. Some people are comfortable on the floor or a medium-firm bed with a small pillow under their head and another under their knees. Some people prefer to lie on their side with a pillow between their knees. Don't stay in one position for too long.
- **Walk.** Take a short walk (10 to 20 minutes) on a level surface (no slopes, hills, or stairs) every 2 to 3 hours. Walk only distances you can manage without pain, especially leg pain.
- **Take pain medicine if needed,** such as acetaminophen (Tylenol) or medicines that reduce pain, swelling, and irritation, including ibuprofen (such as Advil or Motrin) or naproxen (such as Aleve or Naprosyn). These medicines usually work best if you take them on a regular schedule instead of waiting until the pain is severe.
- **Try heat or ice.** Try using a heating pad on a low or medium setting for 15 to 20 minutes every 2 to 3 hours. Try a warm shower in place of one session with the heating pad. Or you can buy single-use heat wraps that last up to 8 hours. You can also try an ice pack for 10 to 15 minutes every 2 to 3 hours. You can use an ice pack or a bag of frozen vegetables wrapped in a thin towel. There is not strong evidence that either heat or ice will help, but you can try them to see if they help. You may also want to try switching between heat and cold.

Figure 7

Press-up back extensions



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- Lie on your stomach, supporting your body with your forearms.
- Press your elbows down into the floor to raise your upper back. As you do this, relax your stomach muscles and allow your back to arch without using your

back muscles. As your press up, do not let your hips or pelvis come off the floor.

- Hold for 15 to 30 seconds, then relax.
- Repeat 2 to 4 times.

Figure 8

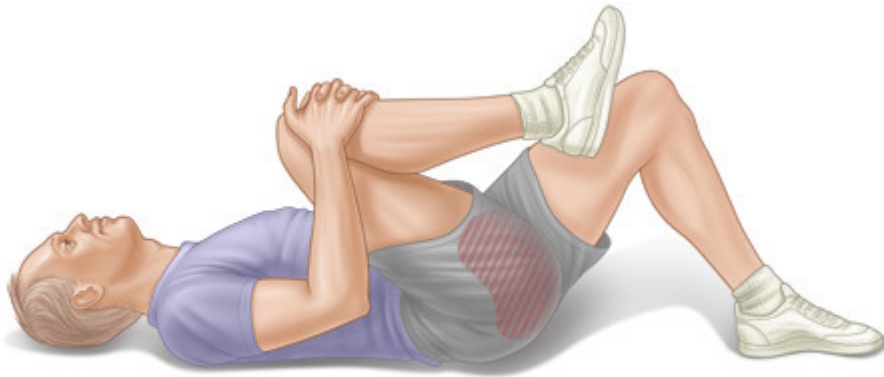
Alternate arm and leg (bird dog)



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Do this exercise slowly. Try to keep your body straight at all times, and don't let one hip drop lower than the other.

- Start on the floor, on your hands and knees.
- Tighten your stomach muscles.
- Raise one leg off the floor and hold it straight out behind you. Be careful not to let your hip drop down, because that will twist your trunk.
- Hold for about 6 seconds, then lower your leg and switch to the other leg.
- Repeat 8 to 12 times on each leg.
- Over time, work up to holding for 10 to 30 seconds each time.
- If you feel stable and secure with your leg raised, try raising the opposite arm straight out in front of you at the same time.

Figure 9**Knee-to-chest exercise**

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Do not do the knee-to-chest exercise if it causes or increases back or leg pain.

- Lie on your back with your knees bent and your feet flat on the floor.
- Bring one knee to your chest, keeping the other foot flat on the floor (or the other leg straight, whichever feels better on your lower back). Keep your lower back pressed to the floor. Hold for at least 15 to 30 seconds.
- Relax and lower the knee to the starting position. Repeat with the other leg.
- Repeat 2 to 4 times with each leg.
- To get more stretch, put your other leg flat on the floor while pulling your knee to your chest.

Figure 10**Curl-ups**

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- Lie on the floor on your back with your knees bent at a 90-degree angle. Your feet should be flat on the floor, about 12 in. (32 cm) from your buttocks.
- Cross your arms over your chest.
- Slowly contract your abdominal muscles and raise your shoulder blades off the floor.
- Keep your head in line with your body—don't press your chin to your chest.
- Hold this position for 1 or 2 seconds, then slowly lower yourself back down to the floor. Repeat 8 to 12 times.

Figure 11**Pelvic tilt exercise**

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- Lie on your back with your knees bent.
- "Brace" your stomach—tighten your muscles by pulling in and imagining your belly button moving toward your spine. You should feel like your back is pressing to the floor and your hips and pelvis are rocking back.
- Hold for about 6 seconds while breathing smoothly.
- Repeat 8 to 12 times.

Figure 12

Heel dig bridging



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The heel dig bridging exercise works your hamstrings and the muscles around your hip. Do 8 to 12 repetitions. Do not continue with this exercise if it causes pain.

- Lie on your back with both knees bent and your ankles bent so that only your heels are digging into the floor. At this point, your knees should be bent about 90 degrees.
- From here, push your heels into the floor, squeeze your buttocks, and lift your hips off the floor until your shoulders, hips, and knees are all in a straight line.
- Hold about 6 seconds as you continue to breathe normally, and then slowly lower your hips back down to the floor and rest for up to 10 seconds.

Figure 13

Hamstring stretch in doorway



- Lie on your back in a doorway, with one leg through the open door.
- Slide your leg up the wall to straighten your knee. You should feel a gentle stretch down the back of your leg. Hold the stretch for at least 1 minute. As the days go by, add a little more time until you can relax and let these muscles stretch for as much as 6 minutes for each leg.
 - Do not arch your back.
 - Do not bend either knee.
 - Keep one heel touching the floor and the other heel touching the wall. Do not point your toes.
- Repeat with your other leg.
- Do 2 to 4 times for each leg.

If you do not have a place to do this exercise in a doorway, there is another way to do it:

- Lie on your back and bend the knee of the leg you want to stretch.
- Loop a towel under the ball and toes of that foot, and hold the ends of the towel in your hands.
- Straighten your knee and slowly pull back on the towel. You should feel a gentle stretch down the back of your leg. It is hard to hold this stretch with a towel for a long time, but hold the stretch for at least 15 to 30 seconds. One minute or more is even better.
- Repeat with your other leg.
- Do 2 to 4 times for each leg.

Figure 14**Hip flexor stretch**

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- Kneel on the floor with one knee bent and one leg behind you. Position your forward knee over your foot. Keep your other knee touching the floor.
- Slowly push your hips forward until you feel the stretch in the upper thigh of your rear leg.
- Hold the stretch for at least 15 to 30 seconds. Repeat with your other leg.
- Do 2 to 4 times on each side.

Figure 15**Wall sit**

The wall sit exercise strengthens your back, trunk, and thigh muscles, helping you maintain a healthy lower back.

1. Stand with your back 10 in. (25 cm) to 12 in. (32 cm) away from a wall.
2. Lean into the wall until your back is flat against it.
3. Slowly slide down until your knees are slightly bent, pressing your lower back into the wall.
4. Hold for a count of about 6 seconds. Then slide back up the wall.
5. Repeat 8 to 12 times.

Note: The "printer friendly" document will not contain all the information available in the online document. Some information (e.g. cross-references to other topics, definitions or medical illustrations) is only available in the online version.



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