Noninvasive Treatments for Low Back Pain

A Summary of the Research for Adults

AHRQ
Agency for Healthcare Research and Quality
Effective Health Care Program

Is This Information Right for Me?

This information is right for you if:

- You have low back pain.
- Your low back pain is *not* caused by:
  - Injury or pressure on the nerve roots in the spine (radiculopathy)
  - A high-speed injury (such as from a car accident)
  - Pregnancy
  - Cancer, an infection, problems with your nervous system, a broken bone, or certain types of arthritis
- You are age 18 or older. This information is from research on adults.

What will this summary tell me?

This summary will answer these questions:

- What is low back pain?
- How is low back pain treated?
  - Medicines
  - Nonmedicine treatments such as heat, exercise, and massage
- What have researchers found about treatments for low back pain?
- What are possible side effects of medicines to treat low back pain?
- What should I discuss with my health care professional* about treating my low back pain?

* Your health care professional may include your primary care doctor, nurse practitioner, physician assistant, bone specialist (orthopedist), nerve specialist (neurologist), a physical medicine and rehabilitation specialist (physiatrist), physical therapist, or other therapist.

Note: This summary only covers noninvasive treatments for low back pain. It does not discuss invasive treatments such as surgery or shots given into your back (epidural injections).

What is the source of this information?

This information comes from a research report that was funded by the Agency for Healthcare Research and Quality, a Federal Government agency.

Researchers looked at 156 research studies on noninvasive treatments for low back pain. The studies were published before April 2015. Health care professionals, researchers, experts, and the public gave feedback on the report before it was published.

You can read the full report at *www.effectivehealthcare.ahrq.gov/low-back-pain*.

Understanding Your Condition

What is low back pain?

Low back pain may be dull and aching or sharp and stabbing. The pain may be mild or severe, and you may feel tingling or burning. You may also have pain in your legs.

You may feel stiff, and it may be hard to stand up straight or move your lower back. Low back pain can make it hard to do your daily activities.

- Acute low back pain lasts for 4 weeks or less.
- Subacute low back pain lasts between 4 weeks and 12 weeks.
- Chronic low back pain lasts for 12 weeks or longer.

Often, it is hard to know the exact cause of low back pain. There are many possible causes. One possible cause is a strain or tear in the muscles or ligaments that support your back. Low back pain can also be caused by a muscle spasm in your back.

Your health care professional may talk with you about your history of low back pain and may do a physical exam. Both can help rule out any serious conditions that may be causing your low back pain (such as cancer or an infection of the spine or kidneys).

Low back pain is a common problem. Out of every 10 people in the United States, at least 8 will have low back pain at some time in their lives.

Understanding Your Options

How is low back pain treated?

There are many treatment options for acute, subacute, and chronic low back pain.

- **Medicine:** Your health care professional may suggest a medicine to reduce pain and swelling or to relax your muscles.
  - » Most medicines are taken by mouth, but some are given as a shot or through an IV (intravenous) tube in your arm.
  - » Some medicines are available over the counter, and for some you need a prescription.
- **Nonmedicine treatments:** Your health care professional may also suggest nonmedicine treatments such as heat, exercise, or massage.

Low back pain often improves in 4 weeks or less. In some cases, it may take 12 weeks or more for low back pain to improve. For many people, low back pain improves without specific treatment.

The tables below list some treatments for acute low back pain (lasts for 4 weeks or less) and subacute low back pain (lasts between 4 weeks and 12 weeks). The tables also list what researchers have found about how well the treatments work to reduce pain. For some (but not all) of the treatments, there is also research on how well the treatments help you return to your daily activities.

Nonmedicine Treatments for Acute and Subacute Low Back Pain

Treatment	About the treatment:	Researchers found:
Heat	■ A hot pack or heat wrap that you put on your back	■ Heat helps to reduce pain and helps you return to your daily activities.
Massage	■ A trained therapist rubs your back using different movements and strokes	■ Massage appears to reduce pain and help you return to your daily activities, but more research is needed to know this for sure.

Medicines for Acute and Subacute Low Back Pain

Type of Medicine	About the medicine:	Researchers found:
NSAIDs (nonsteroidal anti-inflammatory drugs) Examples include celecoxib (Celebrex®), diclofenac (Zorvolex®), ibuprofen (Advil®, Motrin®), meloxicam (Mobic®), naproxen (Aleve®), and piroxicam (Feldene®)	■ A type of medicine to reduce pain and swelling	■ NSAIDs help *a little* to reduce pain.
Muscle Relaxants Examples include baclofen (Lioresal®), carisoprodol (Soma®), and cyclobenzaprine (Amrix®, Flexeril®)	■ A type of medicine to relax muscles and reduce pain	■ Muscle relaxants help to reduce pain.
Pain Relievers Acetaminophen (Tylenol®)	■ A type of medicine to reduce pain **Note:** Acetaminophen (Tylenol®) is different from NSAIDs in that it only reduces pain and does not reduce swelling.	■ Acetaminophen (Tylenol®) *does not* appear to reduce pain, but more research is needed to know this for sure.

The tables that follow list some treatments for chronic low back pain (lasts for more than 12 weeks). The tables also list what researchers have found about how well the treatments work to reduce pain. For some (but not all) of the treatments, there is also research on how well the treatments help you return to your daily activities.

Nonmedicine Treatments for Chronic Low Back Pain

Treatment	About the treatment:	Researchers found:
Acupuncture	■ A trained therapist inserts thin needles into your skin at certain points	■ Acupuncture helps to reduce pain and helps you return to your daily activities.
Multidisciplinary rehabilitation	■ A program that involves both physical treatment (such as physical therapy) and psychosocial treatment (such as talking with a trained therapist)	■ Multidisciplinary rehabilitation helps to reduce pain and may help you return to your daily activities.
Exercise	■ Specific types of exercises, such as those that help make your heart beat fast (such as jogging), increase muscle strength, or stretch your muscles	■ Exercise helps *a little* to reduce pain and may help you return to your daily activities.
Spinal manipulation	■ A trained therapist (such as a chiropractor) or other health care professional uses his or her hands or a device to apply pressure to your back and adjust your spine	■ Spinal manipulation works as well as exercise to reduce pain and help you return to your daily activities.
Yoga	■ An activity in which you hold certain postures, do breathing exercises, and may also meditate	■ Yoga appears to reduce pain and help you return to your daily activities, but more research is needed to know this for sure.
Tai chi	■ An activity that involves certain postures, gentle movements, focusing your mind, breathing, and relaxation	■ Tai chi appears to reduce pain and help you return to daily activities, but more research is needed to know this for sure.
Progressive relaxation	■ A type of therapy in which you tense and relax specific groups of muscles until all the muscles are relaxed	■ Progressive relaxation appears to reduce pain, but more research is needed to know this for sure.
EMG (electromyography) biofeedback	■ A type of therapy in which a machine tracks how you tense the muscles in your back so you can learn how to relax them	■ EMG biofeedback appears to reduce pain, but more research is needed to know this for sure.
Cognitive behavioral therapy	■ A type of therapy in which a trained therapist helps you learn ways to cope better with pain	■ Cognitive behavioral therapy appears to reduce pain, but more research is needed to know this for sure.

Medicines for Chronic Low Back Pain

Type of Medicine	About the medicine:	Researchers found:
NSAIDs (nonsteroidal anti-inflammatory drugs) Examples include celecoxib (Celebrex®), diclofenac (Zorvolex®), ibuprofen (Advil®, Motrin®), meloxicam (Mobic®), naproxen (Aleve®), and piroxicam (Feldene®)	■ A type of medicine to reduce pain and swelling	■ NSAIDs help to reduce pain.
Antidepressants **SNRI (serotonin and norepinepherine reuptake inhibitor) antidepressants** ■ Duloxetine (Cymbalta®) **Tricyclic antidepressants** ■ Examples include amitriptyline (no brand name), desipramine (Norpramin®), imipramine (Tofranil®), and nortriptyline (Aventyl®, Pamelor®)	■ A type of medicine made to treat depression but also sometimes used to treat pain **Note:** Some antidepressants may help treat pain. Taking an antidepressant for low back pain does not mean that the problem is in your mind.	■ The SNRI antidepressant duloxetine (Cymbalta®) helps *a little* to reduce pain and may help you return to your daily activities. ■ Tricyclic antidepressants *do not* help to improve pain.
Opioids Examples include tramadol, hydrocodone, hydromorphone, morphine, and oxycodone	■ A type of medicine to treat severe pain **Warning:** Opioids can have serious side effects, such as abuse, addiction, and overdose. Overdose can lead to death.	■ Tramadol helps to reduce pain in the short term (up to 4 months). ■ Other opioids help *a little* to reduce pain in the short term (up to 4 months). ■ Current research does not show that opioids work or are safe in the long term (longer than 4 months).

What about other treatments that are not listed in this summary?
You may hear about other treatments for low back pain than those listed in this summary. If any low back pain treatment interests you, discuss it with your health care professional.

What are possible side effects of medicines to treat low back pain?

The U.S. Food and Drug Administration (FDA) lists the following possible side effects for medicines to treat low back pain. Just because a side effect is possible does not mean you will have it.

Possible Side Effects

NSAIDs (nonsteroidal anti-inflammatory drugs) – Celecoxib (Celebrex®), diclofenac (Zorvolex®), ibuprofen (Advil®, Motrin®), meloxicam (Mobic®), naproxen (Aleve®), and piroxicam (Feldene®)

Possible Side Effects

- Diarrhea
- Constipation
- Upset stomach
- Nausea
- Pain in the belly
- Gas
- Dizziness

Warnings

- NSAIDs can increase the risk of serious stomach problems, such as bleeding or ulcers.
- NSAIDs can increase the chance of having a heart attack or stroke.

Muscle Relaxants – Baclofen (Lioresal®), carisoprodol (Soma®), and cyclobenzaprine (Amrix®, Flexeril®)

Possible Side Effects

- Drowsiness
- Dizziness
- Weakness
- Dry mouth

Warnings

- Carisoprodol has a risk of abuse (taking more of the medicine than your health care professional has prescribed) and dependence (feeling like you have to take the medicine and cannot stop).
- Carisoprodol can cause seizures.
- Elderly people with liver problems should talk with their health care professional before taking cyclobenzaprine.

SNRI (serotonin and norepinephrine reuptake inhibitor) Antidepressant – Duloxetine (Cymbalta®)

Possible Side Effects

- Nausea
- Dry mouth
- Tiredness
- Constipation
- Decreased appetite
- Sweating

Warnings

- Duloxetine can increase the risk of suicidal thoughts and behaviors in young adults (ages 18 to 24).
- It can cause liver damage, seizures, a severe skin reaction, and an increased risk of bleeding.
- It can also cause a life-threatening reaction called serotonin syndrome. Symptoms include shivering, diarrhea, fever, seizures, and stiff muscles.

Opioids – Tramadol, hydrocodone, hydromorphone, morphine, and oxycodone

Possible Side Effects

- Constipation
- Nausea
- Vomiting
- Dizziness
- Tiredness
- Sweating
- Itching
- Dry mouth

Warnings

- Taking opioids often for pain can lead to misuse, abuse, addiction, and overdose. Overdose can lead to death.
- Opioids can cause life-threatening breathing problems. People who have breathing or swallowing problems should talk with their health care professional before taking opioids.
- Taking opioids while pregnant may cause the unborn baby to have a condition called neonatal opioid syndrome. This condition may be life threatening if not treated.
- Some opioids can cause seizures.
- Tramadol can cause a life-threatening reaction called serotonin syndrome. Symptoms include shivering, diarrhea, fever, seizures, and stiff muscles.

Making a Decision

What should I think about when deciding about treatment?

You and your health care professional can discuss what might be best to treat your low back pain. Here are some things to think about. Be sure to share your thoughts with your health care professional.

- How does your low back pain affect your daily life?
- What are your goals for treatment?
- Which treatment feels like the best fit for you?
- Which possible side effects of treatment concern you?
- How might the cost of treatment affect your decision?
- How much time do you have to spend on treatment?

Ask your health care professional

- Which treatment do you think may be best for me? Why?
- What may help my low back pain in the short term?
- What may help my low back pain in the long term?
- Might medicine help my low back pain? If so, which one?
- What side effects should I watch for? When should I tell you about them?
- Might nonmedicine treatments help my low back pain?
- How long might it take for the treatment to start working?
- Is there anything else I can try?

Notes:

Source

The information in this summary comes from the report *Noninvasive Treatments for Low Back Pain*, February 2016. The report was produced by the Pacific Northwest Evidence-based Practice Center through funding by the Agency for Healthcare Research and Quality (AHRQ).

For a copy of the report or for more information about AHRQ go to *www.effectivehealthcare.ahrq.gov/low-back-pain.* Additional information came from the MedlinePlus® Web site, a service of the National Library of Medicine and the National Institutes of Health. The site is available at *www.medlineplus.gov.*

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