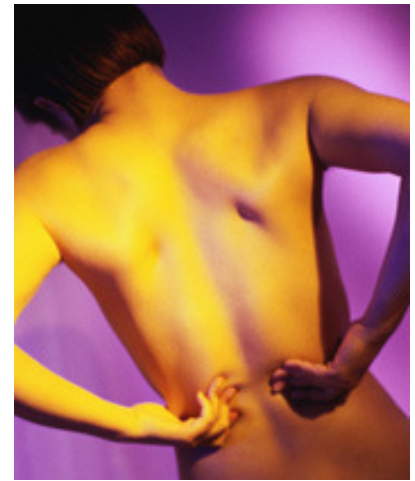


# Mechanical Back Pain

## OVERVIEW

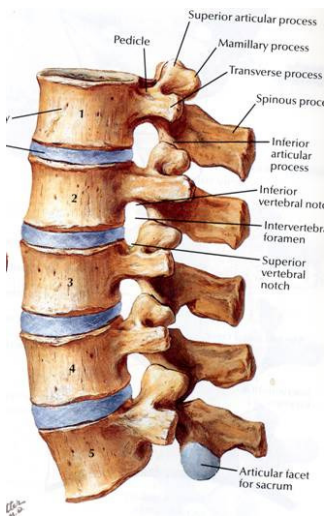
Back pain is one of the most common medical problems, which seems to occur at least once in 85% of adults less than 50 years of age. Of these patients, only 20% can be given a precise diagnosis. There are many known causes for back pain including fractures, degenerative joint disease, disk herniation, and nerve compression. These identifiable problems have unique symptoms (like focal weakness causing a foot drop) or a specific injury (like a car accident causing a fracture) which differentiate these problems from the more common mechanical back pain.



The most common form of back pain is referred to as mechanical back pain. Scientists have not been able to exactly locate the origin of pain. It seems to be pain within the muscles, tendons, ligaments, and joints. Expensive and sometimes painful tests including Xrays, MRI scans, blood test, nerve tests, show no structural abnormalities in these structures, but it is clear that there are functional problems with pain, spasms, and motion limitations.

## CAUSES

Most of the time, it is not clear why people get back pain. Some times, an injury related to a fall or sports can initiate the problem. Other times, there is no specific injury. When you consider the tremendous forces which act on the back even in normal situations, it is not surprising that our backs get aggravated and sore at times. Lifting and carrying, especially with poor posture, can put hundreds of pounds of force on the posterior muscles and joints. If you spent 5 hours raking leaves, it is not surprising that your arms and back are sore. If you don't normally spend all day standing, running, and getting bounced around at high speeds, a day of riding roller coasters at



the amusement park may make you sore. Most of the time this soreness improves within a day or two and we return to normal activities. While these examples are obvious, our backs get overloaded in other ways too. Mechanical back pain develops when these episodes of soreness start adding up and they occur with less activity, with more severe pain, that lasts longer. The natural response when your back is sore or aggravated is to take it easy and let the muscles recover with rest. When we rest muscles, they naturally get weaker and stiffer. Quite often we go back to the same activities that caused the initial aggravation in the first place, and it should not be surprising that the aggravation occurs again. Again, we rest the muscles and they get weaker and stiffer and more prone to aggravation. This can become a downward cycle that leaves the back weak, stiff, and with chronic pain and aggravation.

## DIAGNOSIS

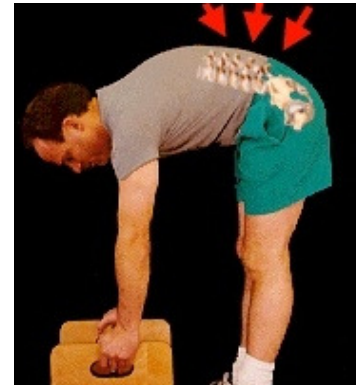
Your doctor has done taken a history and performed a physical examination to arrive at a diagnosis of mechanical back pain. The examination included an assessment of motion and flexibility. The neurologic examination did not show any abnormalities in peripheral nerve function, including strength, sensation, and deep tendon reflexes. One goal of the examination was to make sure there were not signs of the less common causes of back pain, such as disk or nerve problems.

Spine xrays are expensive and require a lot more radiation than a chest x-ray and unfortunately, rarely provide information of benefit in directing therapy, particularly among patients younger than 50 years of age. Xrays should be obtained only for significant injury or suspicion of malignancy or infection. Other imaging modalities, including bone scans, CT scans, MRI scans, myelograms, etc. are indicated to investigate specific causes of back pain. These tests are generally reserved for symptoms that don't respond to conservative treatment methods.

## INITIAL TREATMENT

Treatment for mechanical back pain must be individualized based on your pain, your schedule, and your activities. The best program for you has 3 main components.

**LEARN ABOUT BACK MECHANICS** - Everyone's activities are different and the demands placed on our backs vary greatly. So, it is important to learn about your back mechanics, including aspects of lifting, posture, seating support, sleeping, etc. Once you understand how activities but stress on your back, you can learn to avoid activities that make your back worse. It is not possible to make your back feel better if every day your activities are aggravating your back and making the muscles, ligaments, and joints more inflamed and more painful. It is important to analyze activities and figure out which activities contribute to or help with the pain. Important points to keep track of include "when is it good?", "when it is bad?", 'what makes it better?', and 'what makes it worse/'. It is only when you have an understanding of how your activities influence your back that you can start to avoid injuries and re-aggravations and you can make progress toward healing and recovery.



**PHYSICAL THERAPY:** Working with a knowledgeable physical therapist is the best way to get your back feeling better as soon as possible. The therapists will spend time with you assessing your back and helping you work through the pain and rebuild the flexibility and strength of your back. Just like any program to build flexibility and strength, the object is not what the therapist says or does, but what the therapist can teach you to do. The therapist will teach you a set of stretches to do at home every day. As the stretching gets easier and your back starts feeling better, some of the stretches will be replaced with exercises to rebuild your strength.

The initial focus will be on stretching the muscles in your lower back and legs. Stretches should be done carefully and in ways that do not significantly aggravate your back. To stretch a tight muscle it must be relaxed (that is not contracting) and it must be pulled beyond its resting length. This should be done gently without bouncing or forcing it. As your back starts feeling better, the therapist will replace some of the stretching exercises with strengthening exercises. These exercises are best done slowly with short arc motions or without motion (ie tightening your muscles without moving). The goal is to build up your strength without re-aggravating your back.

There is no one set of stretches/exercises that work for everybody, so the therapist will work with you to find out what works best for you. If you find your set of exercises is too easy, talk to the therapist about advancing your program. On the other hand, if therapy is painful or seems to make you worse, it is important to tell the therapist and to take a step back with the program and find stretches and exercises that do work for you. There is no substitute for stretches and exercises - there is no way that rest, massage, whirlpool, ultrasound, or any other modality is going to improve your flexibility and strength. It is only when you have improved your flexibility and strength that your back will start feeling better and be less prone to re-aggravations.

**SYMPTOM MANAGEMENT:** There are a number of things that may make your back feel better, and it is valuable to use these things. Unfortunately these things do not change the underlying mechanical problem. Pain medications can clearly reduce your pain, but must be used wisely. If a pain killer is used and you feel good enough to go play tackle football, you will end up making your back worse. Narcotic pain medications and muscle relaxants may be used for a few days in the acute phase for severe pain and muscles spasms, but they do not help in the recovery phase. Anti-inflammatory medications like ibuprofen (Motrin) and naproxen (Aleve) have relatively low risk and do help to reduce pain to a tolerable level. Other useful tools for symptoms relief include whirlpool, massage, vibrating pillows, heating pads, ice packs, magnetic therapy, etc. If they help you, by all means use them. Unfortunately, none of these things is proven to make a difference in isolation and your insurance may or may not pay for them. Your physical therapist may have some of these tools and can review how they work and when to make the best use of them.

### **STRETCHING EXAMPLES**

**Chair Stretch:** To stretch the lumbar spine in flexion and the hamstrings, put one leg on a chair. Keep the knee and lower back straight. Bend forward at your hips keeping your lower back stiff until you feel tightness in the back of your leg. Take a deep breath to relax the muscle and then bend forward a little more and hold for 10 seconds. Repeat on each side 3 times.



**Pelvic Tilt:** Lie down on the ground with your knees bent. Push with your feet and roll your hips up to flatten the lower part of your back to floor. Do this slowly and feel your back stretch. Go as far as you can comfortably and then hold the position for ten seconds. Repeat this five times.

## **FOLLOW UP TREATMENT**

**PITFALLS:** It is important to know that there are no shortcuts to stretching and strengthening weak and tight muscles. It takes daily participation with all 3 components of the program with avoidance of re-injury, the stretching program, and the symptomatic management. It is a slow process to make progress and patients need to stick with it and hope for 20-30% improvement after 6 weeks with continued gradual improvement with continued participation. It is also important to recognize that setbacks are common and should be expected. When something happens to increase pain or limitations, it is important to analyze the cause of the setback and learn to avoid it the next time. If the pain gets real bad, you should rest the back for 2-3 days and then get back to the program as laid out above. You may need to take a step back respect to the stretching and strengthening, but it is critical to continue with it if you want to make progress toward recovery.

**PROGRESS:** Once the back is feeling better, it is okay to resume more and more usual activities. If your back gets sore, it is important to recognize causes and make adjustments. Being smart about lifting and back mechanics will hopefully minimize re-aggravations. If the back gets sore, it is appropriate to take it easy for a few days and do the stretching exercise until the back feels better. The best way to minimize re-aggravations is to continue with the stretches and exercises as taught by the physical therapists.

**PROBLEMS:** If the back pain does not improve after 6-12 weeks of appropriate therapy, your doctor will review your symptoms and re-examine your back. It may be necessary to do xrays or other tests to look for other problems.

## **EXPECTED OUTCOMES**

Prognosis is quite good for most patients presenting with mechanical back pain. Overall, 70% of patients feel better in 1 week, 80% in 2 weeks, and 90% in 1 month. Only 10% of all patients with low back pain have long-term problems. It is important to continue with smart back and body mechanics to avoid reinjury

## **MORE INFORMATION**

Further information can be obtained on the internet. Your local public library can help you explore these sources if you are interested. Two good sites for expert and peer reviewed information are the American Academy of Orthopedic Surgeons at [www.aaos.org](http://www.aaos.org) and the Pediatric Orthopedic Society of North America at [www.orthokids.org](http://www.orthokids.org).