

Conservative options to treat spine problems

Low back pain is the most common disease in the United States. Neck pain is also extremely common. While most spine pain is caused by muscle spasms and can be treated with a few weeks of rest or over the counter anti-inflammatory medications, some people have more persistent symptoms. This can become debilitating to the point that it limits quality of life and ability to function.

The initial treatment of a degenerative spine is still rest and anti-inflammatories (NSAIDs). The goal is to return to a reasonable level of activity as soon as possible, limiting immobility to 2 days or less. However if these initial home remedies do not work, therapy can be useful. Therapy is often the first conservative option pursued, even before obtaining advanced spine imaging like a MRI.

What can therapy do for me?

A skilled therapist can identify the probable cause of back pain and provide techniques to improve the motion of the spine, decrease the impact of degeneration in the joints and improve quality of life. Most people think they already know how to stretch and lift and therefore do not need therapy. Others believe that after 1-2 sessions of therapy they've "learned everything" and more therapy is useless. Therapy is much more than stretching which is why it is too complex to master after a few sessions. Some of these techniques include:

Manual Therapy

Manual therapy is a term that describes any "hands-on" treatment performed with the intent to improve the joint and tissue mobility and thereby improve pain.

Massage- Muscle relaxation through direct manipulation of the muscle relieves pain.

Traction- Traction can slightly pull apart the vertebra and take pressure of the discs and facet joints which may be causing pain. Traction also can open the spaces where the nerves exit the spine to improve extremity pain.

Range of Motion- Active and passive range of motion exercises can stretch deconditioned lumbar muscles and improve pain.

Myofascial Release Therapy- The fascia is a layer of tissue over the muscles. When it is tight it makes the muscle less pliable and essentially tightens the muscle. Myofascial release loosens this tissue relieving the muscle pain.

Strengthening

Back pain could be caused by weak abdominal and lower back muscles. If certain muscles are weak then other structures supporting your spine have to work harder. Developing stronger core muscles avoids the extra stress.

Exercise

A therapist will evaluate your condition and tailor an exercise routine to improve joint mobility, flexibility and strength. This will improve posture, stamina and protect the spine from progressive degeneration.

Hot/Cold Therapy

While hot and cold packs rarely actually heat or cool the deep tissues, they can improve pain. Hot packs can decrease muscle spasms and improve relaxation prior to stretching. Cold packs constrict superficial blood vessels and decrease swelling. Cold also potentially slows the painful nerve impulses.

Dry Needling

Dry needling involves the insertion of a thin filament into a muscle or tendon to elicit a healing response. Tight and painful muscles often need a “reset” button to change how the muscle contracts. Dry needling has been proven to decrease muscle tension and pain.

TENS units

Trancutaneous electrical stimulation used electrodes to stimulate nerves on the skin that somehow blocks pain signals to the brain (Gate control theory). This may also stimulate the body to produce natural pain killers called endorphins.

Iontophoresis

Penetration of an anti-inflammatory medication to the local tissues may be improved by administering a low direct current. The electric current itself may also block pain fibers going to the brain (Gate control theory- similar to TENS).

Nerve Glides

When a nerve, such as the sciatic nerve, is trapped by surrounding muscles and bones, it potentially becomes inflamed and stops moving smoothly. Nerve gliding exercises help pull the sciatic nerve through this tissue without the inflammation and pain.

Gait analysis

Poor posture, weight distribution and asymmetric gait patterns add extra stress to the

muscles and joints in the low back. Improving the coordination of symmetric gait reduces pain.

Shoe Lifts

Certain studies suggest that $\frac{3}{4}$ of patient with chronic back pain have a leg length inequality of 5mm or more. The longer leg carries more weight and is subject to more stress from walking or running. Shoe lifts can diminish leg length discrepancy and reduce the extra stress on one leg thereby decreasing low back pain.

If therapy fails to improve symptoms after 4-6 weeks, advanced imaging, such as a MRI of the spine is performed.

If there is nerve compression on the MRI, injections may be useful.

What is a Spinal Injection?

A spinal injection involves placing a needle around the spine and injection a medication that can relieve the pain. The injection is performed by a pain physician, physiatrist, anesthesiologist or radiologist. Unlike some injections that can be placed in an orthopedic office, spine injections are deep and around the nerves so they must be placed using a special xray call fluoroscopy at a hospital or surgery center. The injection usually contains a steroid and an anesthetic which is thought to relieve the pain by reducing the inflammation. A recent trial in the New England Journal of Medicine in 2014 compared injections using a steroid and injections with just an anesthetic and found no differences 6 weeks following the injection. This argues that the effect from injections may not truly be anti-inflammatory. Numerous techniques for injecting the medications also exist. These can be caudal blocks (injecting at the bottom of the spine and allowing the medication to migrate upwards), interlaminar injections (injecting focally between the bones), transforaminal injections (injecting focally around one nerve) and facet injections (injecting in the joints of the spine). Depending on the suspected cause of pain, transforaminal injections are thought to be most effective in relieving pain in the lumbar spine. Newer data suggests that transforaminal cervical injections can be a little more dangerous, so sometimes cervical interlaminar injections are preferred.

How long will an injection last?

Injections are thought to be a temporary treatment of pain. No matter what the cause of the pain (disc herniation, narrowing of the spinal canal, bone spurs, slippage of the bones...) the injection does not resolve the primary problem. As such, some people consider an injection a "band-aid", but this is not exactly true either. While the injection does not change the structural problem causing the pain and while the injection is not



9218 Kimmer Drive
Suite 107
Lone Tree, CO 80124
P: 303-471-4690
F: 303-471-4697
www.rmbsi.org

meant to provide long-term pain relief, the injection can temporarily relieve pain while the body fixes itself. However if the body does not heal itself, other treatments such as surgery are recommended. Overall, injections do not alter the need for surgery in the long-term.

Pain medications

While undergoing therapy and injections, patients often ask about more potent medications for pain, such as opioids or muscle relaxants. We try to avoid these medications at all costs.

Understanding Opioids

Opioid medications can be used to treat pain. Their abundant use for both acute and chronic pain has led to an epidemic in the United States, which more recently has become publicized. It's extremely important to know what opioid medications are and how to safely use them.

What are opioid medications?

Common prescription opioid medications are:

- Hydrocodone (Norco and Vicodin)
- Oxycodone (Oxycontin and Percocet)
- Oxymorphone (Opana)
- Hydromorphone (Dilaudid)
- Tramadol
- Morphine
- Fentanyl
- Codeine
- Methadone

Common nonprescription opioids are:

- Heroin

Are opioid medications safe?

Opioid medications are natural and synthetic chemicals that can reduce pain but also have side effects such as euphoria which can very easily lead to addiction and abuse. Use of these medications short-term for pain control can be beneficial, especially in the setting of recent surgery. However its very easy and dangerous to continue to using



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them once the pain improves due to the euphoric feeling and tolerance to the medications. Even after once initial dose of an opioid, your body becomes used to the medication and you require more to achieve the same effect, which is called tolerance. In its worst form, tolerance leads to increased sensitivity to pain. Additionally, it's easy to start using the medications to just feel better, improve depressive symptoms or sleep. When patients start using the opioid medications for symptoms other than pain control, even unintentionally, they become extremely dangerous and harmful.

Opioid medications have numerous side effects which can be harmful. These include constipation, increased sensitivity to pain, nausea and vomiting, sleepiness, confusion, depression, lower sex drive, itching and sweating.

What is the best way to use an opioid?

It is best to use opioids in the least amount possible. It's recommended to try any other form of pain control first, and quickly switch to these other forms as soon as possible in an opioid is started. Opioids should only be used in the acute setting after surgery and an immediate plan to wean from the opioids should be constructed. Chronic opioid use should rarely be considered and only in the exception of active cancer treatment, palliative or end of life care.

If you are prescribed opioids, only take them as directed and never in greater amounts than prescribed. Avoid using with alcohol, benzodiazepines or sleep medications. Never share these medications with friends or family, even if they happen to be on the same medication or amount. If you still have pills after you no longer need them, safely dispose of unused pills by bringing them back to your pharmacy. You cannot simply throw them away in the trash or flush them down the toilet. Never store extra pain medications thinking you can take them for another indication in the future.

What are some alternatives to opioids?

Acetaminophen (Tylenol)- This is a good pain reliever. Excessive use can affect the liver. Do not take Tylenol in addition to Norco, Vicodin or Percocet as these medications also contain Tylenol. As this medication does not have any anti-inflammatory effect, it can be taken following fusion spine procedures.

Nonsteroidal anti-inflammatories (NSAIDs- Ibuprofen, Advil, Aleve, Mobic, Aspirin). This is a good pain reliever and anti-inflammatory. Excessive use can affect the stomach and kidneys. This medication should not be taken following spine fusion procedures unless your surgeon has approved the usage.

Cognitive behavior therapy.



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Physical therapy and exercise

Yoga

Acupuncture

Oral steroids and injections.

Nerve medications such as Gabapentin (Neuontin) and Lyrica.

Why is my physician hesitant to prescribe opioids?

As more information about opioids is being discovered, both patient and physicians are learning more. Unfortunately, most physicians previously mistakenly thought opioids were pretty safe. It's now abundantly clear that they are not. The Centers of Disease Control (CDC) is now forming new recommendations for prescribing opiates, which includes routine urine screening and pain contracts with patients. As most physicians, including surgeons, do not have the ability to test their patient's urine and closely monitor use, opioid management may best be managed by specially trained pain physicians. Sometimes, primary care providers are willing to provide this service, but most surgeons are logistically unable. Again, physicians do not assume all of their patients are "drug addicts" or wish for their patients to "suffer" without medication. And even very intelligent and careful patients can accidentally misuse these medications. As a result, people are dying from opiate misuse and therefore a more organized program is required in prescribing. Additionally, physicians are now losing their licenses and even going to prison on murder charges due to incorrect prescribing and patient misuse.

When is surgery considered an option?

Surgery on the spine is usually the last option once time, therapy and possibly injections have been tried. Consultation with a surgeon, even before completing conservative options, may be a good idea to discuss your individualized care and set a point at which surgery may be considered. In the setting of weakness, numbness or impending neurologic injury, spine surgery may be pursued earlier than later.