

What causes facet joint pain?

A lifetime of walking, standing, lifting, and twisting causes significant back pain for nearly 80% of all adults.¹ For many, the facet joints are often the primary source of their suffering.²⁻⁴ Facet joints are common sources of chronic back and neck pain.^{2, 3, 6-17} Each vertebral body in your spine has three main points of movement: the intervertebral disc and the two facet joints. These facet joints are small, stabilizing joints located on either side of each vertebra and consist of bony knobs coated with a slippery cartilage. As a disc thins with ageing and from daily wear and tear, the space between two spinal vertebrae shrinks, eroding the cartilage and causing painful friction. Fractures, torn ligaments, and disc problems can all cause abnormal movement and alignment, putting extra stress on the facet joints.

What are the symptoms?

Facet joint pain can occur in any area of your spine.^{2,3} Most often it affects the lower back and neck.¹⁸ Symptoms can include the following:

- Pain or tenderness in the lower back
- Pain that increases with twisting at the waist or bending backward and extending the lower back
- Pain that moves to the buttocks and hips or the back of the thighs—usually a deep, dull ache
- Stiffness or difficulty with certain movement, such as standing up straight or getting up out of a chair
- Difficulty rotating the head
- Neck pain
- Headaches
- Shoulder pain

How is it diagnosed?

The diagnosis for determining your pain is made by an accurate history, clinical examination, xrays or MRI/CT scans, and in some cases a medial branch "test-block".¹⁹ This involves injecting local anaesthetic into or very near the nerves that supply the facet joint. If there is a significant decrease in pain (80% or more), it confirms that the joint is causing the pain. Test blocks have only temporary effect and the medication wears off within 48hrs to a week.

Treatment Options

Facet joint problems are usually treated with a combination of conservative methods, including pain medication, exercise and physical therapy, posture correction, activity modification, and steroid injections. If your pain doesn't improve, you may be helped by an outpatient procedure called radiofrequency neurotomy or rhizotomy. This approach uses a minimally invasive technique in which local anaesthetic numbs the skin, through which needles are positioned under x-ray guidance to the source of the pain after which the sensory nerve is injected or lesioned with heat or medication. This completes the continuum of care for back pain sufferers who want a minimally invasive alternative to surgery.²⁰

About Radiofrequency Neurotomy

This approach, also called radiofrequency lesioning, involves applying heat to certain nerve pathways to "shut off" the transmission of pain signals to the brain. Multiple clinical studies show that radiofrequency neurotomy significantly reduces pain severity and frequency for up to 3 years (-1.5 to +2) years in the majority of patients, depending on severity, compliance to rehabilitation and other factors.

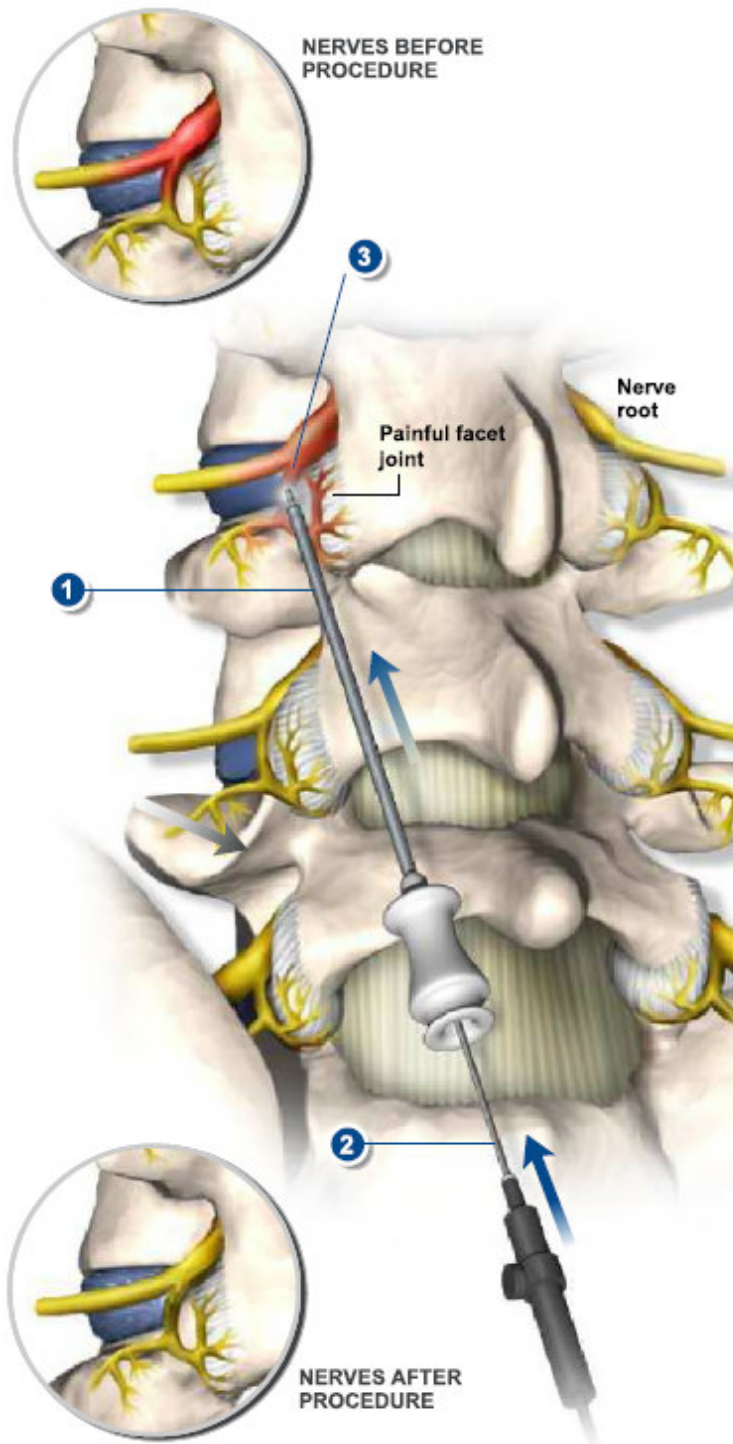
If you are a good candidate, your doctor will ask you to disclose very important information:

- Current medications, including herbal supplements, and their dosages, age, height in meters, weight in kg
- Drug, iodine, or latex allergies
- Current health conditions

Your physician or the healthcare staff will also request that you:

- Do not take aspirin, ASA-containing products (including Alka-Seltzer® or Pepto-Bismol®) or herbal remedies for 5 days before your procedure
- Do not use ibuprofen or other non-steroidal anti-inflammatory drugs (NSAIDS) for 3 days before your procedure
- Do not eat or drink anything for at least 6 hours before your procedure, except necessary medications with sips of water
- Arrange for someone to drive you home after the procedure

LUMBAR RADIOFREQUENCY NEUROTOMY



Overview

This minimally-invasive procedure, also called radiofrequency (RF) rhizotomy, reduces or eliminates the pain of damaged facet joints by disrupting the medial branch nerves that carry the pain signals. This procedure is performed with local anesthetic.

1. Cannula Inserted

A needle-like tube called a cannula is inserted and positioned near the irritated medial branch nerves. An X-ray or fluoroscope is used to help position the cannula properly.

2. Electrode Inserted

A radiofrequency electrode is inserted through the cannula. The surgeon tests the electrode's position by administering a weak electric jolt. If the stimulation recreates the pain without any other muscular effects, the electrode is positioned correctly.

3. Nerve Treated

The surgeon uses the electrode to heat and cauterize the nerve. This disrupts its ability to communicate with the brain, blocking the pain signals. The surgeon may treat multiple nerves if needed.

End of Procedure

After the procedure, the electrode and cannula are removed. Although pain may increase for the first week after the procedure, the patient usually has full relief from pain within a month. Successful RF neurotomy can last longer than steroid block injections.

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Benefits of radiofrequency ablation include:

- Pain relief for up to 3 years (-1.5 to +2) years in the majority of patients, depending on severity, compliance to rehabilitation and other factors.^{[9][10][11][12][13][14][15]}
- Significant and longer lasting pain relief compared to steroid injections^[13]
- Low complication and morbidity rates^{[9][12][13][14][16]}
- Appreciable pain relief compared to surgery: Nearly half of back pain sufferers are not helped by surgery^[15]
- Greater range of motion^{[9][12][16]}
- Lower use of analgesics^{[9][12]}
- Improved quality of life^[9]
- Short recovery time

Before the procedure

In the days before a patient is to receive a facet joint injection, they are advised to avoid doing any strenuous activities that may alter or extend your mechanical back ache.

How the procedure is performed

Radiofrequency neurotomy is performed typically with you lying on your stomach while you are awake but sedated (conscious sedation) under the care of an anesthetist. Your back or neck is then exposed, cleaned with sterilising solutions, sterile drapes cover most of you except the area we need to work through. To begin, the area to be treated is numbed with a local anesthetic. Using x-ray guidance, your doctor will insert a needle and electrode through the numbed skin, into the treatment location. After confirming correct placement, by scanning xrays, instrument electronic measurements and interacting with you, a high-frequency electrical current is passed through the electrode, either blocking (Test Blocks) or heating up and lesioning the nerve. Once the procedure is complete, the needle and electrode are removed. Local anesthetic and anti-inflammatory medicine will also be injected at the site of the nerve treated to reduce the post procedure discomfort and reduce the risk of secondary neuritis.

Facet Joint Injection Results and Follow-up

Typically patients go home within 1 to 3 hours. The patient should not drive the day of the injection unless approved by the treating physician. If sedation was used, the patient should not drive for 24 hours after the procedure. In the immediate 48 hrs following the procedure it is important to not do too much. The local anaesthetic may mask the effects of activity that would normally cause pain and damage. You may experience some initial discomfort immediately after the procedure from the skin puncture sites or small localised reaction to the needle entry site, but most patients are able to return to work and their light daily activities within 72 hours.

You can expect pain relief lasting 48 hrs - several weeks for test blocks and up to 3 years for RF lesioning. (-1.5 to +2).^{[18][19][20][21][22][23][24]} If a facet block procedure is effective in alleviating the patient's back pain, it generally qualifies the patient to proceed to RF neurolysis of the nerve.^[25] Following RF neurolysis the nerves typically regenerate over 18 - 36 months and your pain may return. The RF procedure can be safely repeated with similar results.

If the facet joints that were treated are the source of the pain, the patient may begin to notice pain relief starting two to five days after the injection. Patients may notice a slight increase in pain lasting for several days as the numbing medicine wears off and before the cortisone starts to take effect. If the area is uncomfortable in the first two to three days after the injection, carefully applying ice or a cold pack to the general area of the injection site will typically provide pain relief. After a few days, you should notice a marked decrease in pain and continued improvement over the next several weeks. When the post procedure medication wears off it is not unusual to have a period of intermittent pain, "some days better- some days worse" - listen to your body and don't do too much!

Negative test bloc results

If no improvement occurs within ten days after the test blocks (or RF), then the patient is unlikely to gain any pain relief from the injection and further diagnostic tests may be needed to review the diagnosis of the patient's pain. These tests may be further specialised blood tests or imaging such as CT/MRI/SPECT or ultrasound. Why are they not done initially? We perform investigations to include or exclude or clarify diagnoses made by clinical examination and history. We order tests sufficient to make clinical decisions, but not necessarily every test possible because of the additional value may not be sufficiently beneficial or potential enormous expense of these tests, or because your medical insurance fund will not authorise or pay for them.

Medication

- Patients may continue to take their regular pain medicine after the procedure, with the exception of limiting pain medicine within the first four to six hours after the injection so that the diagnostic information obtained is accurate.
- Taking the medication we prescribe on discharge largely reduces post procedural pain.

Physiotherapy & Rehabilitation

Patients may be referred for physical therapy or manual therapy after the injection while the numbing medicine is effective and/or over the next several weeks while the cortisone is working. When the pain is improved, it is advisable to start regular exercise and activities in moderation. Even if the pain relief is significant, it is still important to increase activities gradually over one to two weeks to avoid recurrence of pain. You will be provided with information on rehabilitation and a referral to a physiotherapist experienced in the post procedure care and rehabilitation of pain patients.

Potential Risks and Complications of Medial Branch Nerve Blocks & RF treatments

As with all invasive medical procedures, there are potential risks and complications associated with medial branch blocks. However, in general the risk is low, and complications are rare. Potential risks and or complications that may occur from a medial branch injection include:

- Allergic reaction. Usually an allergy to x-ray contrast and rarely to local anesthetic.
- Bleeding. A rare complication, bleeding is more common for patients with underlying bleeding disorders.
- Infection. Minor infections occur in less than 1% to 2% of all injections. Severe infections are rare, occurring in 0.01% to 0.1% of injections.
- Worsening of pain symptoms.
- Discomfort at the point of the injection.
- Nerve or spinal cord damage or paralysis. While very rare, damage can occur from direct trauma from the needle, or secondarily from infection, bleeding resulting in compression, or injection into an artery causing blockage.
- Patients who are on a blood thinning medication (such as Coumadin®), or have an active infection, may not be able to have this procedure, and these situations should be discussed with the treating physician. Patients should also let their doctor know of any allergies they have to medications that may be used for the procedure.

Please note !

- Test blocks are expected to wear off within 48 hrs and only *sometimes* up to a few weeks.
- Everyone is different - expected results are the averages of the best and worst responders.
- If you have concerns - raise them with your treating doctor
- If you are not sure - dont proceed with the proposed procedure
- If you dont understand the procedure - do not sign consent and dont proceed with the proposed procedure

1. ^Nath S, Nath CA, Pettersson K. Percutaneous lumbar zygapophysial (facet) joint neurotomy using radiofrequency current, in the management of chronic low back pain. A randomized double-blind trial. Spine. 2008 May 20;33(12):1291-7; discussion 1298.
2. ^International Spine Intervention Society. Practice Guidelines for Spinal Diagnostic and Treatment Procedures. Percutaneous radiofrequency lumbar medial branch neurotomy. pp188-218.
3. ^Fenton DS, Czervionke LF. Chapter 3 Facet Denervation. Image-Guided Spine Intervention 1st Ed. Saunders 2002; p 51-71.
4. ^Burnham RS, Yasui Y. An alternate method of radiofrequency neurotomy of the sacroiliac joint: a pilot study of the effect on pain, function, and satisfaction. Reg Anesth Pain Med. 2007 Jan-Feb;32(1):12-9.
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6. ^Dreyfuss P, Halbrook B, Pauza K, Joshi A, McLarty J, Bogduk N. Efficacy and validity of radiofrequency neurotomy for chronic lumbar zygapophysial joint pain. Spine. 2000 May 15;25(10):1270-7.
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9. ^Nath S, Nath CA, Pettersson K. Percutaneous lumbar zygapophysial (facet) joint neurotomy using radiofrequency current, in the management of chronic low back pain. A randomized double-blind trial. Spine. 2008 May 20;33(12):1291-7; discussion 1298.
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26. <http://helpingbacks.com/facet-joint-pain/diagnosis=treatment/radiofrequency-ablation>

Radiofrequency Ablation (RFA) For Chronic Neck, Upper and Lower Back Pain

WHAT ARE FACET JOINTS?

Facet joints connect the vertebrae, the bones of the spine, in neck, upper back and lower back.



They help guide your spine when you move. Facet joints are found on both sides of the spine. Each is about the size of a thumbnail. Facet joints are named for the vertebrae they connect and the side of the spine where they are found. The right L4-5 facet joint, for example, joins the 4th and 5th lumbar vertebrae on the right side.

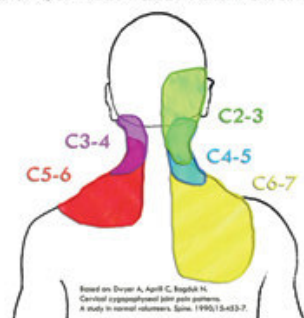
Medial branch nerves are found near facet joints. They communicate pain from the facet joint. They tell the brain when facet joints have been injured. Each facet joint has two or three medial branch nerves that communicate pain.

WHAT IS FACET JOINT PAIN?

You may feel pain if a facet joint is injured. Sometimes it feels like simple muscle tension. Other times it can be severe pain.

The cartilage inside the joint may be injured.

C2-7 Cervical Facet Pain Patterns



Other times only connecting ligaments surrounding the joint are injured.

Facet pain also depends on which joint is affected. The diagrams show areas of pain usually associated with facet injuries.

HOW DO I KNOW IF I HAVE FACET PAIN?

If you have pain in one or more of these areas, and it has lasted longer than two months, you may have facet pain.

Common tests such as x-rays or MRIs may not show if a facet joint is causing pain. The best way to diagnose facet pain is to block the pain signal in a medial branch nerve.

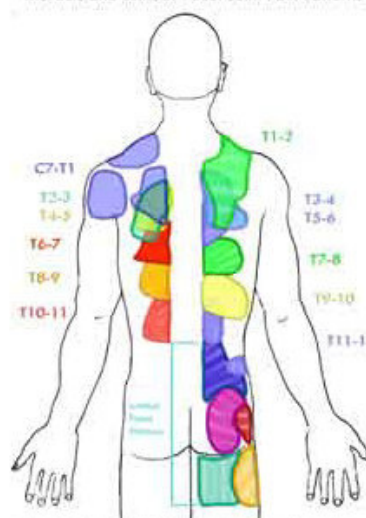
WHAT IS AN RFA?

An RFA uses radiofrequency energy to disrupt nerve function.

When this is done to a medial branch nerve, the nerve can no longer transmit pain from an injured facet joint.



Thoracic and Lumbar Facet Joint Pain Patterns



Based on Fukui S, Okada K, Shinozaki M, Okada K, Kurosawa H, Nagamura Y. Distribution of Referred Pain from the Lumbar Zygapophysial Joints and Dorsal Root. The Clinical Journal of Pain. 1997; 13: 303-307.

WHAT HAPPENS DURING AN RFA?

An RFA may start with an IV (medicine given intravenously) to help you relax. A local anesthetic may be used to numb your skin.

The doctor will then insert a thin needle near the facet joint. Fluoroscopy, a type of x-ray, will be used to position the needle.

The doctor will then check to make sure it is at the correct nerve by stimulating it. This may cause muscle twitching and provoke some of your pain.



Once the needle is properly placed, the area will be numbed. Radiofrequency energy will then be used to disrupt the medial branch nerve. This is often performed at more than one level of the spine.

WHAT HAPPENS AFTER AN RFA?

You will be monitored after the RFA. When you are ready to leave, the clinic will give you discharge instructions. You may also be given a pain diary. It is important to fill this out because it helps your doctor know how the RFA is working. Take it easy for the rest of the day.

You may feel sore for one to four days. This is normal. It may be due to muscle and nerve irritation. Your back may feel numb, weak, or itchy for a couple weeks. Full pain relief normally comes in two to three weeks.

HOW LONG CAN I EXPECT PAIN RELIEF?

Nerves regenerate after an RFA, but how long this takes varies. Your pain may or may not return when the nerves regenerate. If it does, another RFA can be done.

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