

## Facet Joint Syndrome / Arthritis

### Overview

Facet joint syndrome is an arthritis-like condition of the spine that can be a significant source of back and neck pain. It is caused by degenerative changes to the joints between the spine bones. The cartilage inside the facet joint can break down and become inflamed, triggering pain signals in nearby nerve endings. Medication, physical therapy, joint injections, nerve blocks, and nerve ablations may be used to manage symptoms. Chronic symptoms may require surgery to fuse the joint.

### Anatomy of the facet joints

The spine is made of a column of moveable bones called vertebrae that connect to one another. Each vertebra functions as a three-joint complex with a large disc in the front and two facet joints in the back. This tripod design is strong — keeping the bones linked together while allowing our spine to bend and twist. Facets are synovial joints that are lined with cartilage, lubricated in synovial fluid and covered by a joint capsule. Healthy facet joints glide and slide as the back moves, but prevent over-twisting.

### What is facet joint syndrome?

Pain that comes from one or more facet joints is called facet joint syndrome or facet arthropathy. Degenerative changes in the spine may cause body weight to shift unevenly to the facet joints. This extra burden causes wear and tear on the joint and changes it over time: the joint capsule thins, smooth cartilage breaks down and becomes irregular like a cobblestone street, and bone spurs may form (Fig. 1). Similar to arthritis of the knee joint, these changes make it difficult for the joint to move fluidly and it reacts by becoming inflamed and irritated. The irritated joint sends pain signals to the brain via small nerves in the capsule called medial branch sensory nerves (Fig. 2). In turn, the muscles in the area can stiffen and spasm.

### What are the symptoms?

Facet joint degeneration can be painless until an event triggers symptoms. There are several symptoms that indicate a person's pain is coming from the facet joints. The pain is often a diffuse, dull ache in the low back directly over the spine that can spread to the buttocks. In the neck it can be felt in the shoulders and back of the skull.

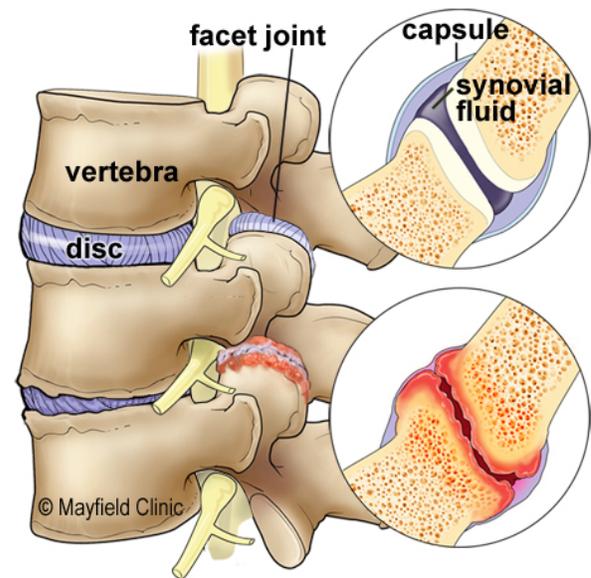


Figure 1. Side view of the spine shows a normal disc and facet joint (top). Wear and tear to the disc and facet joint can cause arthritic pain, swelling and stiffness (bottom).

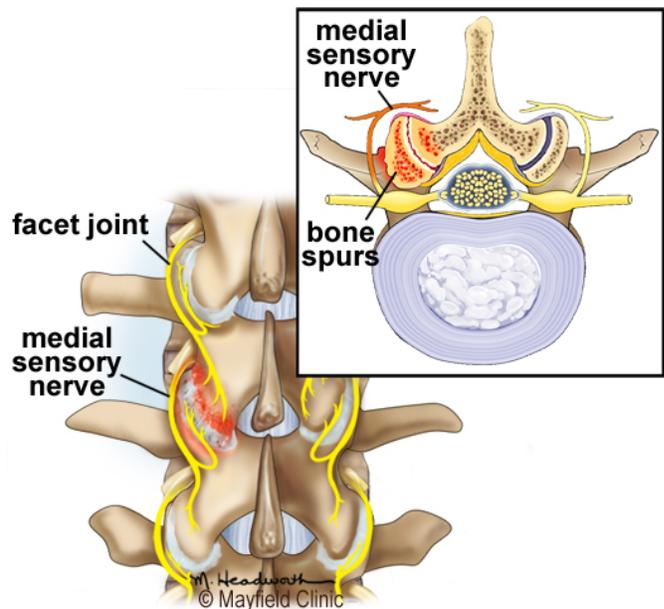


Figure 2. Back view of the spine shows the medial branch sensory nerves that send pain signals from the inflamed facet joint to the brain. Inset shows top view of enlarged facet with bone spurs.

Movements such as bending backwards or twisting sideways towards the affected joint will cause pain. Standing or periods of inactivity may worsen the pain. Activities that take the weight off the joint such as sitting, leaning forward, or changing positions may ease the pain. Facet joint symptoms may also mimic the pain of a disc herniation. Pain may be felt down the arms or legs if bone spurs form and press on the spinal nerves. The pain may be chronic, or come in periodic flare-ups.

### What are the causes?

As we get older, cartilage in our joints wears down. An injury, repetitive movements, obesity, poor posture and other spine conditions that change the way the facet joints align and move can cause pain.

Changes in the facet joints can begin with the deterioration of a vertebral disc. As the load of the body weight shifts to the facet joint, the cartilage breaks down, the joint space narrows, and the bones rub together.

### Who is affected?

Facet joint syndrome occurs in both men and women. It is most common between the ages of 40 and 70 and in those prone to arthritis. It also may develop in people who've had a spine injury.

### How is a diagnosis made?

Facet pain can be similar to other spine conditions. An accurate diagnosis is important to determine whether the facet joint is the source of your pain. Evaluation includes a medical history and physical exam. The doctor will consider all the information provided, including any history of injury, location of your pain, and problems standing or sleeping.

You may be asked to stand or move in different positions and point to where you feel pain. The doctor may manipulate your joints or feel for tenderness over the spine.

Imaging studies, such as X-ray, CT, or MRI, may be ordered to help in the diagnosis and to check for other spine and hip related problems.

A diagnostic facet joint injection is often performed to confirm the cause of pain. The facet joint is injected with a local anesthetic and corticosteroid medication (Fig. 3). The injection is given using X-ray fluoroscopy to ensure accurate needle placement in the facet joint. Your pain level is evaluated before and 20-30 minutes after injection, and monitored over the next week. Facet joint involvement is confirmed if your pain level decreases by more than 75%. If your pain level does not change after the injection, it is unlikely that the facet joint is the cause of your pain.

### What treatments are available?

While facet joint arthritis can't be reversed, there is evidence that exercise, lifestyle changes and careful management of your back pain can contribute to better quality of life. If conservative therapies fail to help you manage and control the pain, your doctor may recommend injections, ablations or surgery.

**Self care:** Using correct posture and keeping your spine in alignment are important things you can do to prevent painful episodes. You may need to make adjustments to your daily standing, sitting, and sleeping habits. Losing weight can reduce the load on the facet joints and alleviate pain.

**Physical therapy.** Exercise is very helpful for a painful facet joint, and it can help you heal faster. Physical therapists can instruct you on proper lifting and walking techniques, and they'll work with you to strengthen and stretch your lower back, leg, and stomach muscles (see Coping with Back Pain). Although a physical therapist may show you strengthening and stretching exercises, it's your responsibility to follow them.

**Medications:** Some patients may require oral anti-inflammatory medications or topical patches, creams, salves or mechanical bracing. Sometimes muscle relaxers are prescribed for muscle spasms.

**Steroid joint injections:** A facet joint injection is a minimally invasive procedure that involves an injection of a corticosteroid and an analgesic-numbing agent into the painful joint (Fig. 3). Steroids can reduce the swelling and inflammation of the nerves. The pain relief can last from days to years, allowing your condition to improve with physical therapy and an exercise program. If you experience a recurrence of pain, the procedure can be repeated.

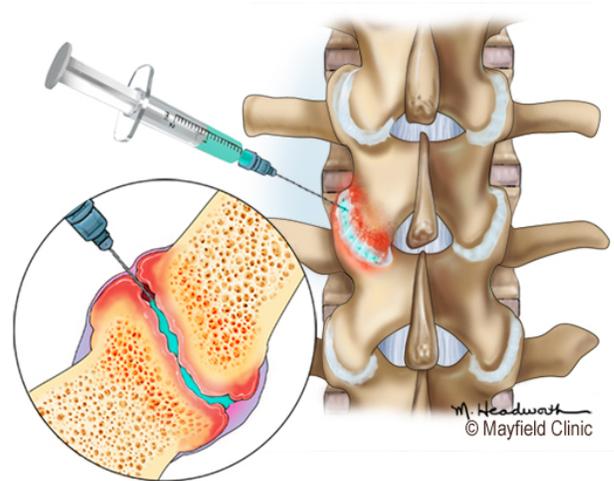


Figure 3. A steroid joint injection. Anesthetic and corticosteroid mixture (green) is injected directly into the inflamed facet joint.

**Nerve radiofrequency ablation:** If steroid joint injections are successful but pain recurs frequently, an ablation procedure to burn the small nerves of the joint capsule may be recommended. First, a diagnostic **nerve block test** is performed to determine which nerves are to be treated. Anesthetic is injected along the nerve to “block” pain (Fig. 4). If the block is successful, a radiofrequency ablation will likely provide more lasting pain relief.

A nerve ablation procedure is performed similar to the nerve blocks. Once the needle is in place, an electrode is inserted and a radiofrequency current destroys some of the medial branch nerve fibers carrying pain signals in the joint (Fig. 5). Pain relief may last from 9 months to more than 2 years. It is possible the nerve will regrow through the burned lesion that was created.

**Surgery:** If all other treatments do not provide pain relief, spine fusion surgery may be an option. This usually occurs when there is nerve root compression from enlarged facet joints, degenerative disc disease, or spinal instability.

### Recovery and prevention

It is important to remember that injections and radiofrequency ablations may help symptoms, but do not change the underlying degeneration of the spine.

Regular stretching, strengthening and cardiovascular exercise may slow the degeneration process and reduce stress to the facet joints by improving the overall strength and condition of the back and lowering inflammation in the body.

### Sources & links

If you have more questions, please contact the Rock Creek Neurosurgery at 801-609-9310.

### Links

<http://www.spineuniverse.com>

<http://www.spine-health.com>

### Glossary

**anesthetic:** an agent that causes loss of sensation with or without the loss of consciousness.

**corticosteroid:** a hormone produced by the adrenal gland or synthetically. Regulates salt and water balance and has an anti-inflammatory effect.

**facet joints:** joints located on the top and bottom of each vertebra that connect the vertebrae to each other and permit back motion.

**joint capsule:** a sac surrounding a synovial joint.

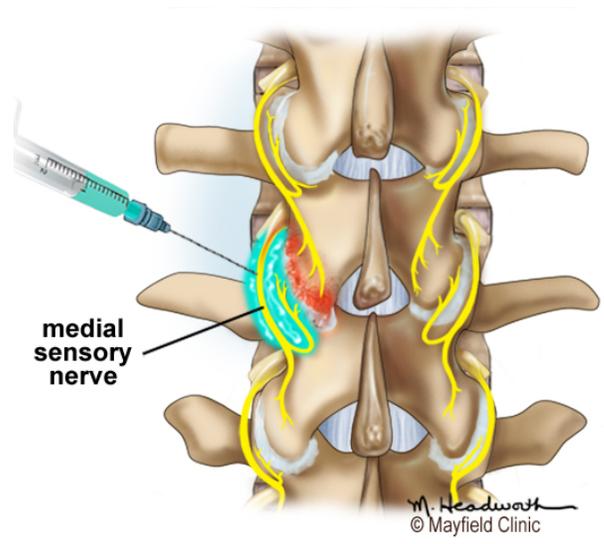


Figure 4. Nerve block injection test. Anesthetic (green) is injected along the nerve to block pain receptors near the facet joint.

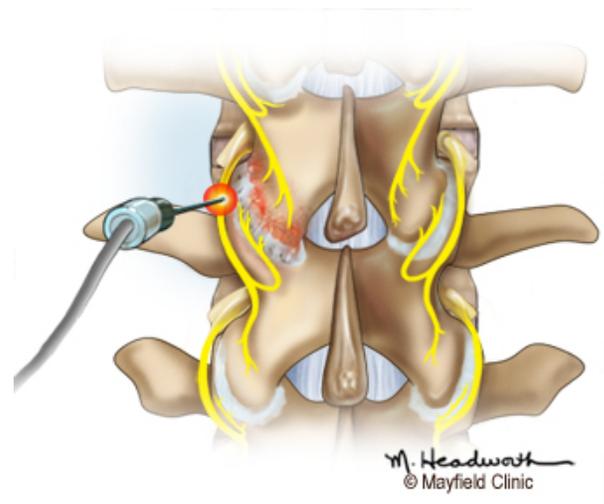


Figure 5. Radiofrequency ablation of the medial branch sensory nerve. A heating current is passed through an electrode to destroy the medial branch of the sensory nerve to block the transmission of pain signals.

**nerve block injection test:** is an injection of anesthetic on or near the nerve/pain receptor connected to a specific nerve or joint.

**radiofrequency ablation:** a procedure that uses a radiofrequency current to deaden the nerves surrounding the facet joint and prevent pain signals from reaching the brain; also called facet rhizotomy.



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reviewed by > Robert Whitten, MD and Marc Orlando, MD, Mayfield Clinic, Cincinnati, Ohio

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