



S O U T H W E S T
Spine & Sports

Pulsed Radiofrequency Treatment

What is a pulsed radiofrequency?

Pulsed radiofrequency refers to a technique used for creating a carefully controlled electrical field around an electrode. For its use in treating pain, this electrode is usually built into the shape and size of a needle. It was first used as a pain treatment option in the mid 1990's. This technique is not the same as that used for a radiofrequency ablation procedure. The word "pulsed" means this technique applies energy to the electrode intermittently. This keeps the temperature very low, unlike the higher temperatures required for an ablation.

Why is pulsed radiofrequency treatment used to treat pain?

Scientific studies have demonstrated that the application of pulsed radiofrequency to certain nerves can block some of their ability to transmit pain. What is known thus far is that when a pulsed radiofrequency electrical field is applied to a nerve, it selectively affects only the portion of the nerve responsible for sending pain signals. Pulsed radiofrequency treatment is most effective at treating difficult types of pain that typically originate from either nerve damage or irritated nerves. In fact, many times, it seems that pulsed radiofrequency can offer additional pain relief even after other treatment options have failed, such as regular epidural injections. It is a valuable option for many patients with chronic nerve-related pain.

What happens during the procedure?

If a pulsed radiofrequency treatment is determined to be appropriate for you, an appointment will be made for you and your doctor at an outpatient injection facility. You may be given the option to receive some light sedation intravenously to help you relax. If sedation is used, you will be monitored closely with a heart rhythm monitor, blood pressure cuff, and blood oxygen sensing device. Local anesthetic will be used prior to the actual injection. The electrode is placed through the skin in the same way a typical needle would be used. Your doctor uses fluoroscopy (x-ray) to position the electrode closely to the affected nerve or nerves as they exit the spine. Once the needle is positioned, a very mild amount of pulsed radiofrequency is applied to make sure the electrode is in the proper position. This may or may not cause a sensation of tingling, buzzing, or vibrating in the distribution of your typical pain. With the electrode in the proper position, the pulsed radiofrequency procedure is performed. Usually, after completion of the stimulation, a small amount of corticosteroid is injected along with local anesthetic to decrease any temporary irritation to the nerve. Then, the electrode is removed and a small bandage is placed over the injection site.

How long as the procedure take?

You will typically be at the procedure center for about 2 hours, which includes time to check-in, preparation for the procedure and some time spent immediately after the procedure before you are released home. The procedure itself takes approximately 30 minutes. You will need someone to drive you home.

Is the procedure painful?

The procedure does involve injections, so you may feel some discomfort. The local anesthetic and intravenous medications are given to make you feel as comfortable as possible. As the electrode is positioned you may feel some of your typical symptoms. During the application of the pulsed radiofrequency treatment you may feel some pulsating in your limb or sensory changes in the distribution of your usual pain.

How long does it take for the pain relief to begin?

You may experience numbness or relief from your typical pain for up to 6 hours after the injection. This is due to the use of the local anesthetic. The beneficial effects of the steroid injection usually begin 2-4 days after the injection. Relief from the pulsed radiofrequency treatment may take up to several weeks to demonstrate a full effect, and the onset is usually subtle, becoming progressively better.

Can I receive more than one treatment?

Some studies have demonstrated lasting effects beyond one year. The good news is that other studies have demonstrated beneficial effects after repeat pulsed radiofrequency procedures. You and your doctor can determine if any repeat treatments are warranted.

What are the risks of this procedure?

Generally speaking, this procedure is very safe. However as with any procedure, there are risks, side effects, and the possibility of complications. The most common side effect is pain, which is temporary. There is also occasional bruising or skin discoloration at the injection site. Because the intention is to have the electrode close to the nerve root, this could cause a slight increase in pain with possible symptoms extending into the limb. It is very unlikely, but there could be permanent nerve damage. There is a slight possibility of developing an infection. If this were to occur, it could require the use of antibiotics. Additionally, if the infection were severe, it could require intravenous antibiotics, hospitalization, and possible surgery. Very rare complications may include known problems from repetitive steroid use, reaction to the injected medications causing respiratory or cardiac compromise, as well as seizures. Death is even a possibility, as with any invasive seizure, although this is exceedingly rare. Steroid medications have been associated with certain types of bone damage but this is usually limited to uses of high doses or frequent exposure.