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# Pulsed Radiofrequency Treatment

A Valuable Option for Treating Chronic Nerve-Related Pain



## What is pulsed radiofrequency?

Pulsed radiofrequency is a nondestructive treatment option for helping alleviate chronic neuropathic (nerve) pain, ie sciatica. It is usually offered to those who do not obtain significant benefit from traditional transforaminal epidural steroid injection. This is a simple outpatient procedure performed in an ambulatory surgery center. It uses a specialized needle that can transmit a pulsed, low heat, and nondestructive electrical field near a nerve root. It is important to understand that this procedure is not the same as a radiofrequency ablation (which is destructive). The sensory nerve fibers responsible for transmitting pain signals to the brain are susceptible to pulsed radiofrequency whereas motor nerves (the ones affecting your movement and strength) are not. Sensory nerves are susceptible because they are either only mildly covered or not covered in fat known as myelin. Motor nerves are unaffected because they are heavily coated in myelin, shielding them from the pulsed radio frequency. Although the mechanism of action remains unclear several current theories to why this procedure provides relief include either affecting the cellular protein expression, centralized excitation from pain input, or it selectively affects only the pain fibers.

## Why is pulsed radiofrequency treatment used to treat pain?

Pulsed radiofrequency is used to treat pain for chronic radicular (sciatic) symptoms. These patients include failed back surgery (either fusion or decompression)

resulting in pain secondary to epidural fibrosis (scar tissue) irritating the nerve. Although this procedure is not permanent, it has been demonstrated to provide significant long term relief. This relief has been shown to last anywhere from 3-6 months (or even longer in some cases). The duration of benefit and the amount of improvement varies from individual to individual.

## What happens during the procedure?

If a pulsed radiofrequency treatment is determined to be appropriate for you, an appointment will be made between you and your doctor at an outpatient surgery center. You may be given the option to receive some light sedation to help you relax. If sedation is used, you will be monitored closely with a heart monitor, blood pressure cuff, and blood oxygen sensing device. A local anesthetic will be used prior to the actual injection for maximal comfort. The electrode is placed through the skin in the same way a typical needle would be used. Your doctor uses fluoroscopy (x-rays) to position the electrodes near the affected nerve(s). Once the needle is positioned, a very mild amount of pulsed radiofrequency stimulation is applied to make sure the electrode is in the proper position. This may cause a sensation of tingling, buzzing, or vibrating. 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 does 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 experience mild 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 where you usually feel pain.

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

You may experience numbness or relief from your typical pain immediately 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 and possible side effects. The most common side effects are injection site discomfort and skin bruising or discoloration, which typically resolve with time. Because the intention of the procedure is to have the electrode close to the nerve, 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. As with other injections, there is a potential for infection or other serious complications that could require hospitalization to resolve. Again, it is very unlikely for this to occur.

## When can I resume my normal activity?

You should be able to resume your normal activity as soon as the next day. Your doctor will likely ask you to make an appointment to be seen for a check-up at two weeks after the procedure.