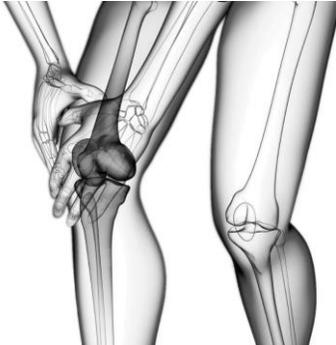


## Osteoarthritis Pain and Treatment



Osteoarthritis pain is challenging to treat, because it is generated through multiple nerve pathways. Recent research has revealed that changes in almost all of the tissues surrounding the joint are part of the spectrum of this disease. Classic degeneration of bone at the joint and the formation of bone spurs are coupled with effects on the spongy bone, synovium, synovial fluid, cartilage, bursae, ligaments and myofascial structures, all of which can be significant. In addition to this, there is growing speculation that changes to the structure and function of spinal and peripheral nerves, as well as pain centers in the brain, also play a part in the chronic pain experienced by osteoarthritis patients.

### Intra-Articular Injection Therapy

The injection of medication directly into the joint space (intra-articular) is a popular method for treating osteoarthritis.

#### What is Injected?

Among the agents traditionally injected (including formalin, glycerin, and lactic acid), corticosteroids provide the most meaningful relief for joint pain. Today, corticosteroid injections (although not without controversy and potential side effects) and viscosupplementation (injections of Sinovisc, Hylogen, Orthovisc and so forth) are common intra-articular procedures performed for relief of painful osteoarthritis symptoms.

#### Guidance Makes all the Difference

It can be technically difficult to direct a needle to the desired location within a painful joint. In general, many practitioners use a blind approach for needle placement, and use an ultrasound or fluoroscope to guide the needle only if



visual confirmation is

desired for added accuracy. In our office, all intra-articular injections are performed with ultrasound guidance. A 2002 study of needle accuracy for intra-articular injections found that the blind injection method was accurate only 32% of the time as opposed to 97% in the ultrasound-guided group.<sup>1</sup> Another study similarly found that needle placement of ultrasound-guided injections was much more accurate for smaller hand and foot joints as well.<sup>2</sup>

*Blind joint injections, “were accurate only 32% of the time.” We perform only ultrasound guided injections, with a demonstrated accuracy rate of 97%.*

### Radiofrequency Treatment for Osteoarthritis

Pulsed radiofrequency (PRF) neuromodulation is a treatment option usually considered for the management of refractory, or treatment resistive, osteoarthritis. This technique uses non-destructive radiofrequency energy to target either the nerves within the joint (intra-articular) or sensory nerves outside the joint (extra-articular).

### **Intra-Articular PRF Treatment**

The intra-articular approach typically targets energy at joint cartilage to reduce pain by changing cellular genetics and metabolism. A medical study documented the use of intra-articular PRF to manage refractory osteoarthritis pain in back, neck, knee, sacroiliac, wrist and shoulder joints. All patients in the study reported reduced pain and an improvement in joint function.<sup>3</sup> Notably, pain was well managed in these cases up to 12 months after the procedure.

*“Notably, pain was well managed in these cases up to 12 months after the procedure.”*

### **Extra-Articular PRF Treatment**

As an alternative, sensory nerves can be targeted extra-articularly (outside the joint) to effectively reduce painful output from arthritic joints. This technique has been frequently documented as a viable option for treatment of arthritis pain in the shoulders and hips.

- In 2002, thirty-seven patients with chronic shoulder pain were treated using PRF of the suprascapular nerve.<sup>4</sup> The patients reported, on average, a 4.5 point reduction on a 10 point pain scale after the procedure.
- Another patient, suffering from adhesive capsulitis and osteoarthritis, received a course of 4 PRF sessions over 16 months and reported exceptionally effective pain relief.<sup>5</sup>

Results of the treatment can last for several months.

- A 2009 study of patients with chronic shoulder pain demonstrated decreased pain and decreased disability index 6 months after radiofrequency treatment of the suprascapular nerve.<sup>6</sup>
- In 2007 Wu and Groner reported several cases of hip pain that were successfully treated with PRF.<sup>7</sup> Patients reported a significant reduction in pain, with improved function for 3-4 months after treatment targeted to the articular branches of the femoral and obturator nerves.

It is important to note that there are several limitations to PRF as a treatment option, including limited insurance coverage. Our staff will be happy to discuss which treatment methods may be best for you.

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<sup>1</sup> Balint PV, Kane D, Hunter J, McInnes IB, Field M, Sturrock RD. Ultrasound guided versus conventional joint and soft tissue fluid aspiration in rheumatology practice: a pilot study. *J Rheumatol.* 2002;29:2209–2213.

<sup>2</sup> Raza K, Lee CY, Pilling D, Heaton S, Situnayake RD, Carruthers DM, Buckley CD, Gordon C, Salmon M. Ultrasound guidance allows accurate needle placement and aspiration from small joints in patients with early inflammatory arthritis. *Rheumatology (Oxford)* 2003;42:976–979.

<sup>3</sup> Sluijter ME, Teixeira A, Serra V, Balogh S, Schianchi P. Intra-articular application of pulsed radiofrequency for arthrogenic pain--report of six cases. *Pain Pract.* 2008;8:57–61.

<sup>4</sup> Rohof OJ. Radiofrequency treatment of peripheral nerves. *Pain Pract.* 2002;2:257–260.

<sup>5</sup> Shah RV, Racz GB. Pulsed mode radiofrequency lesioning of the suprascapular nerve for the treatment of chronic shoulder pain. *Pain Physician.* 2003;6:503–506.

<sup>6</sup> Liliang PC, Lu K, Liang CL, Tsai YD, Hsieh CH, Chen HJ. Pulsed radiofrequency lesioning of the suprascapular nerve for chronic shoulder pain: a preliminary report. *Pain Med.* 2009;10:70–75.

<sup>7</sup> Wu H, Groner J. Pulsed radiofrequency treatment of articular branches of the obturator and femoral nerves for management of hip joint pain. *Pain Pract.* 2007;7:341–344.