



***What is nucleoplasty?***

Nucleoplasty is a minimally invasive procedure for treating patients symptomatic with low back and leg pain caused by a herniated disc.

***What is a herniated disc?***

The disc functions as a shock absorber between the vertebra of the spine. A herniated disc has a defect or weakness in the wall, similar to a "blister" in the sidewall of a tire, which can lead to pressure on sensitive nerve roots and pain receptors in the back.

***What does minimally invasive mean?***

It means that there is not an incision as in a surgical operation, but is a procedure that is performed through a thin needle percutaneously.

***What is percutaneously?***

This means through the skin, again as opposed to making a surgical incision.

***Who is a candidate for this procedure?***

Indications include back pain or combined back and leg pain, that have not improved after approximately three months of conservative therapy, such as rest, pain medication, physical therapy. Also:

- Positive MRI for contained disc herniation or bulge
- Positive discogram reproducing patient's symptomatic pain
- Contained disc herniation which measures less than 30% of the diameter of spinal canal)

***Who is not a candidate for this procedure?***

Severe degenerative disc disease, or disc arthritis, with narrowing >25% of disc space. Disc herniation greater than 25 to 30% into the spinal canal. Back pain from other sources, such as bony arthritis, spinal fracture, or tumor.

***How does nucleoplasty work?***

Nucleoplasty works by utilizing a multifunctional device called a SpineWand™. The wand is passed through a thin introducer needle into the center of the disc, called the nucleus. When the proper position is confirmed by x-ray techniques, the SpineWand is used to perform two separate tasks. First, it creates a channel, removing tissue and then it heats and shrinks the tissue through coagulation. This decompresses the disc, reducing the pressure both inside the disc and on nerve roots.

***How long does the nucleoplasty procedure take?***

Approximately one hour.

***Is the nucleoplasty procedure painful?***

No. Nucleoplasty is performed under local anesthesia, with mild intravenous sedation. The procedure itself is virtually painless, and has little to no post-procedure pain.

***Is there a long period of disability after the procedure?***

No. We recommend a standard post-procedure exercise rehabilitation, but it is not mandatory.

***Does one need to wear a back support or brace after nucleoplasty?***

No. There is no requirement for post procedure bracing.

## Nucleoplasty

The nucleoplasty device is a catheter that creates a small, highly localized plasma field. This catheter is percutaneously inserted into the intervertebral disc through a stylet. The location is confirmed using fluoroscopy. The catheter is activated and gentle movements are made to the catheter as it lies within the disc space. In this way, small amounts of disc material may be ablated within the disc space and disc decompression may be effected.

This technique is percutaneous and does not require any incision. It is most useful in patients with nerve root irritation due to smaller disc bulges or contained ruptures.

Nucleoplasty is usually performed on an outpatient basis. Local anesthesia and mild sedation may be used to reduce discomfort during the procedure. You will be awake to provide important feedback to the physician.

With the guidance of x-ray images, your physician will first advance a needle into the disc. A specialized device known as a SpineWand™, will then be introduced through the needle into the disc. Therapy consists of creating a series of channels in your disc and then thermally treating the tissue immediately adjacent to the wand. The process usually takes approximately one hour.



*(Left) Access needle and SpineWand in disc, (Middle) Close-up view; (Right) Illustration of disc with multiple channels created.*

### Who may benefit from nucleoplasty therapy?

Patients with contained disc herniations may benefit from this therapy. Nucleoplasty is a minimally invasive procedure developed for these patients, combining disc decompression with thermal treatment.

