

# Nucleoplasty ( Percutaneous Disc Decompression)

## **Introduction**

By definition, percutaneous disc decompression is a minimally invasive surgery designed to relieve pressure of a small-herniated disc on surrounding spinal structures. It does not require a surgical incision but rather is performed through a needle. This is a well-established procedure and has been performed for the past 20 years. Over the years, different techniques have been used to remove the pressure exerted by small disc herniations including chemical, mechanical and laser decompression.

Most recently, this procedure was performed utilizing mechanical or thermal removal of the disc material. Mechanical removal of the disc is accomplished with Dekompressor - specially designed percutaneous discectomy probe with threads. Thermal procedure (Coblation Nucleoplasty) utilizes so-called Coblation technology. During Coblation Nucleoplasty radiofrequency energy is applied to the nucleus of the disc causing low-heat, molecular dissociation and vaporization of the part of nuclear tissue. This, in turn is expected to reduce disc herniation. It's not really clear at this time whether one procedure has an advantage over the other. However, with the use of Dekompressor the removed disc material can actually be visualized.

## **How is it done?**

The procedure is performed in X-Ray suite. Intravenous sedation is available for the procedure and is recommended. A nurse who also monitors your vital signs does this. The level of sedation is titrated to your comfort but an attempt is made to avoid very heavy sedation since feedback from you is important for a safety of a procedure.

Firstly, sterile conditions are achieved and then local anesthetic is used to numb your skin and deeper tissues.

Secondly, introducer needle is placed into the herniated disc and then special probe is advanced through the needle under the X-Ray guidance. Further technique depends on the actual procedure being performed. With the use of Dekompressor once an appropriate probe position is confirmed the device is turned on and turning threads of the Dekompressor mechanically remove the disc tissue. In case of Coblation Nucleoplasty the generator delivering the radiofrequency energy is activated. The Coblation effect is achieved at temperatures of approximately 40-70 degrees C . The wand is used to create several channels within the nucleus and then removed. The therapy usually takes 10-20 minutes.

## **What is the recovery like?**

Most patients tolerate this procedure fairly well . However, you may experience an increase in your typical pain (back, back and leg) after procedure. It usually subsides over the first 1-14 days. The improvement in your symptoms may or may not be fast. If only one disc was treated you should expect to feel the results within 1-2 weeks. Two disc treatments can take longer, 2-4 weeks. The pain medication may be prescribed to you to help with postoperative discomfort.

At this time there are no special guidelines for activity restrictions following this procedure. Rather, activities need to be structured to tolerance with gradual return to baseline level of function over 1-4 weeks. It's recommended to stay off work 2-3 days for those with desk-like job. Patients who are expected to return to heavy physical exertion environment may need to be off work longer, up to 1-2 weeks. Between 2-4 weeks, depending on your comfort level, you may start physical therapy program.

## **Benefit Vs Risks**

Efficacy of this procedure is still being evaluated but according to published reports and interpersonal physician's communications approximately 70% of the patients are satisfied with their outcome at 6-month follow-up. Majority of those patients' report an improvement in general overall activity levels: sitting, standing, walking etc.

In general Percutaneous Disc Decompression is a safe, minimally invasive therapy providing the physician with a definitive approach to addressing pain from the small herniated disc. However, you have to be aware of the potential risks of this procedure so you can make an informed decision.

As discussed above temporary worsening of pain can occur and can sometimes last for longer than usual 2 weeks. Infection of the disc is a significant complication though very rare. You will be given intravenous and intradiscal antibiotics to prevent it. But any intense unusual pain in the back, fever and /or chills should be reported immediately. Other potential but rare complications include infection and /or bleeding in the spinal space sometimes even requiring surgery, trauma of the nerve roots exiting spinal cord.

The alternative to this procedure is surgery, usually discectomy. Whether you are a good candidate for this should be discussed with our surgeon. Herniation, it's not really clear at this time whether one procedure has an advantage over the other. However, with the use of Dekompressor the removed disc material can actually be visualized.