Neuroplasty or Epidural Adhesiolysis / Neurolysis

Epidural injections are a very common treatment for neck, back and extremity pain.

Back problems have become one of the most common medical conditions in our society today. Approximately 80 percent of adults will experience back pain at some point in their lives. Often back pain results in lost or low work productivity, loss of ones active lifestyle, and it can ultimately lead to chronic pain and disability. Conservative therapy (Medication, Physical Therapy, Chiropractic, Acupuncture and Trigger Point injections) may help to relieve your pain, but some patients continue with severe pain that requires the care of a Pain Management Specialist.

Epidural injections are effective because, the Epidural space is an area of the spine where the nerves from the spinal cord pass through on the way to their place in the body (ex., thigh, shin, toe etc.) If you have Disc Disease, Spinal Stenosis, Epidural Fibrosis, Epidural inflammation, Post-Laminectomy Syndrome, Neuralgia, Neuropathy, Radiculitis or other specific diagnosis of problems in the Epidural space, then you may respond to epidural injections.

The Epidural Neuroplasty Catheter Procedure is more specific, targeted pain management technique for those patients with severe or localized pain in the low back and legs. Epidural injections via the Epidural Neuroplasty Catheter Procedure, uses a state-of-the-art catheter, which can be directed onto, around or near the suspected pain generators, such as the nerve roots.

RACZ Caudal Neurolysis is a non-surgical injection treatment for managing lower back pain and leg pain oftentimes caused by narrowing of the opening (neural foramen) from where the nerve exits the bony spine after discs collapse, or from scarring, often from a previous back surgery.

How is Neuroplasty or Epidural Adhesiolysis Performed?

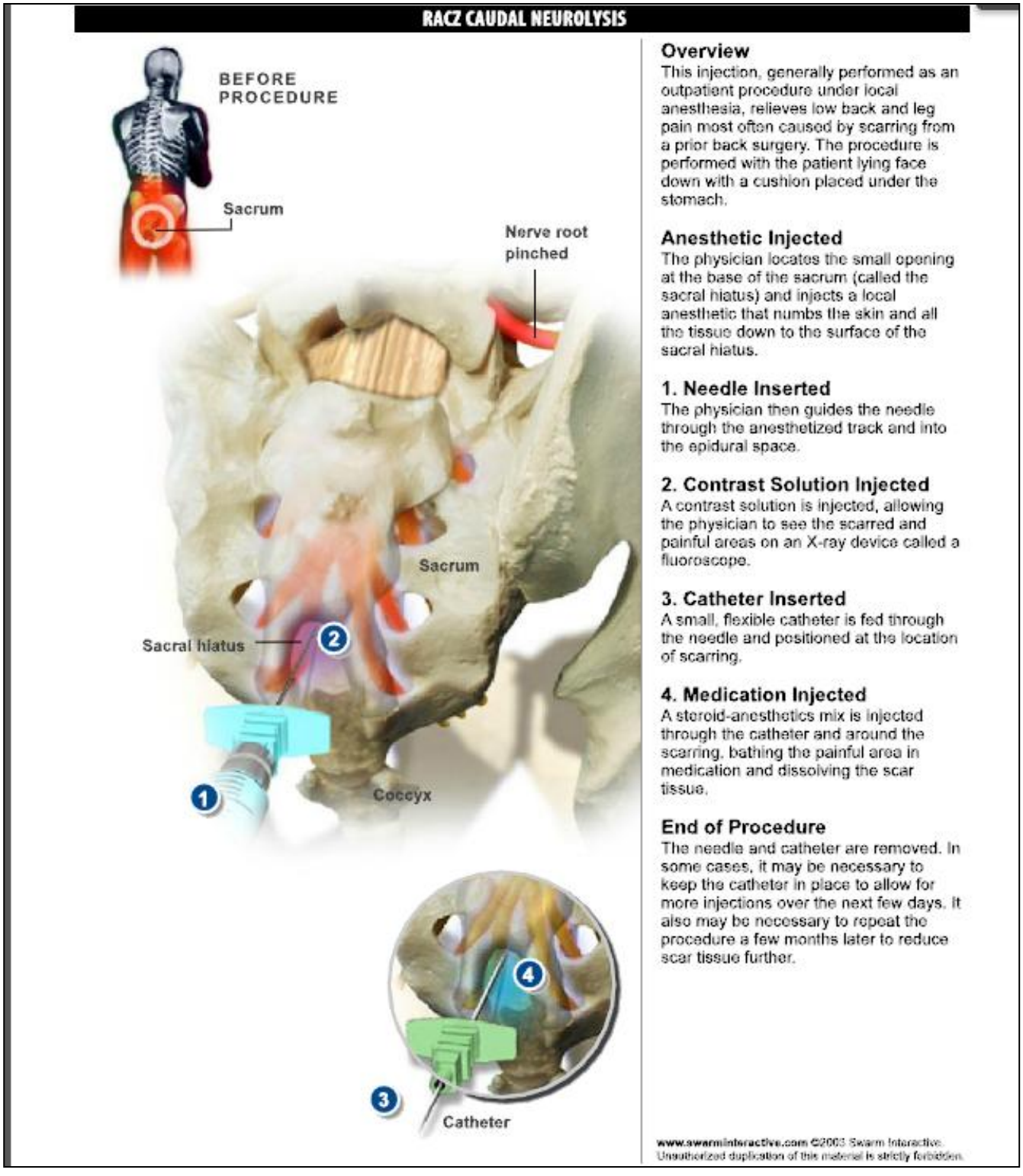
Neuroplasty (Epidural Adesiolysis) is either a day surgery procedure or an overnight if performed after lunchtime. Neuroplasty is similar to the ballooning of blocked heart vessels done on patients with heart problems. You will be asked to lay on your stomach for the procedure. You will be given local anesthesia with mild sedation and the skin will be carefully numbed at the area of injection for your comfort. The site is usually low down between your buttocks, but sometimes it is also done higher up on your back to the side or where your back meets your neck.

The pain doctor will perform the procedure under x-ray guidance that provides a look into the spine. Following that, contrast dye will be injected to highlight the area affected by the scar tissue. A tube (catheter) will then be inserted, from which a mixture of medicine will be administered to decrease the swelling and relieve the pain. If necessary, a balloon may be inserted to create more space around the compressed nerves. The physician may also use pulsed radiofrequency to encourage nerve regeneration if needed. You may also be asked to move your legs or neck to assist in the breakdown of scar tissue. The initial procedure to site the catheter, is done in a theatre with x-ray guidance. If an active tip neuroplasty is performed, sensory & motor testing determines the most affected nerves and then medication is delivered through the catheter to the levels identified. You may be asked to move your legs or neck to help mechanically release some scar tissue around your nerve roots. Following this in some cases we perform a bi-polar radiofrequency treatment across the affected nerve's entry processing site "the dorsal root ganglion". After placement, the catheter is retained and strapped carefully under sterile dressings. On your arrival in the ward the physio team will be called. They will take you through a series of exercises to get maximal scar tissue clearance from you nerve roots, under cover of the local anaesthetic given in theatre. This is repeated 3 - 4 times over the next 24 hours. Approximately 12 hours after the initial procedure the same scar tissue breaking down solutions are redelivered through the cannula using a sterile technique. You again go through intensive physio exercises designed to help mechanically break down the scar tissue around the affected nerve roots. Following this the cannula is removed and sterile plaster applied. The removal of the catheter is painless.

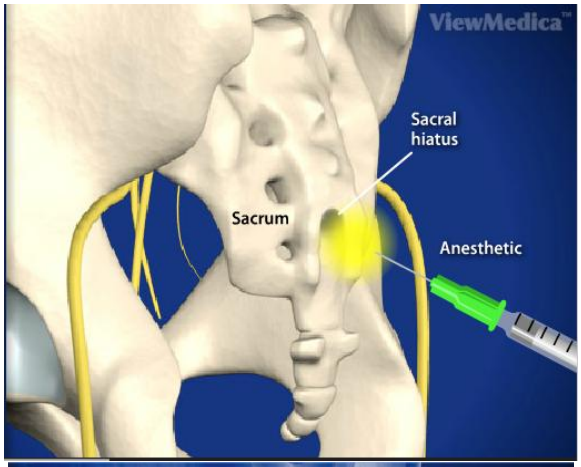
Neuroplasty or Epidural Adhesiolysis / Neurolysis

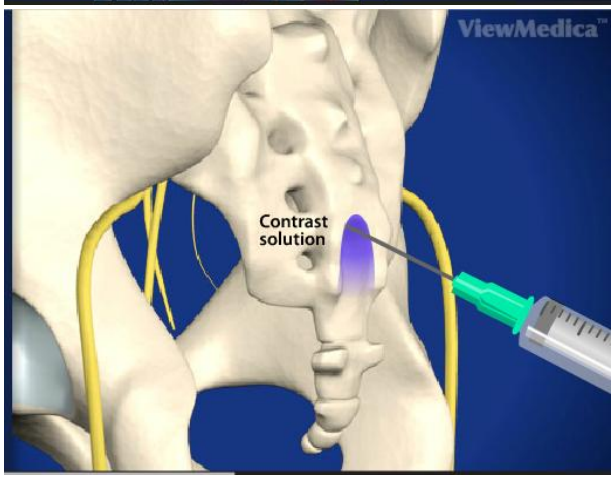
Who will Benefit from Neuroplasty?

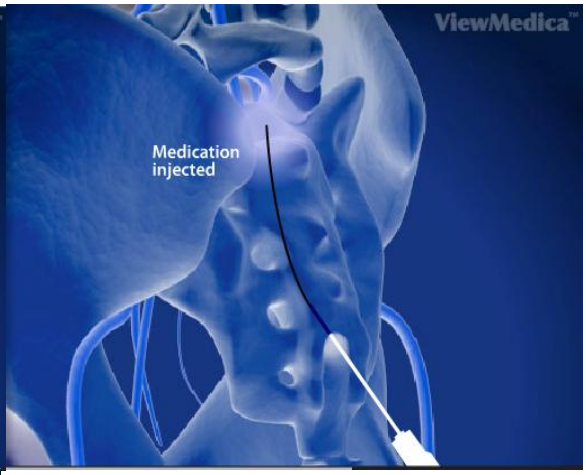
- Chronic lower back and leg pain
- Spinal stenosis
- Patients who had prior back/ neck surgery but still have persistent pain
- Patients with herniated disc that is not surgically correctable
- Patients who do not want surgery
- Patients with high surgery risk
-

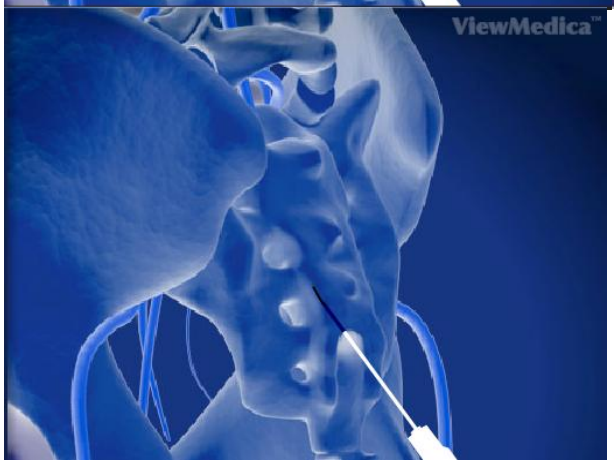


Neuroplasty or Epidural Adhesiolysis / Neurolysis









RACZ Neuroplasty

Neuroplasty or Epidural Adhesiolysis / Neurolysis

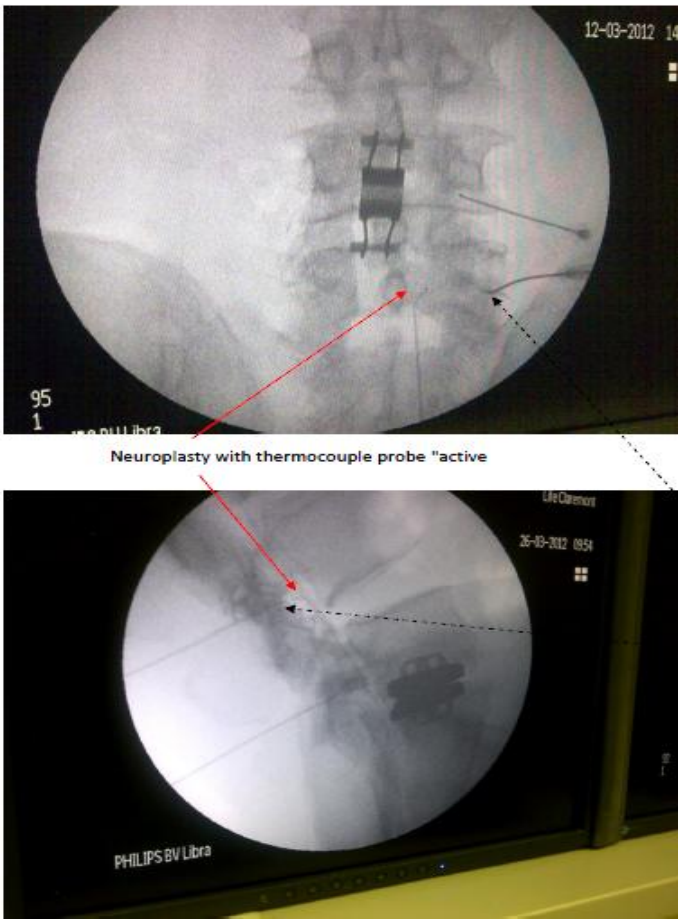
"Active tip" neuroplasty combines neurolysis and pulsed radio frequency treatment

Diagnostic phase

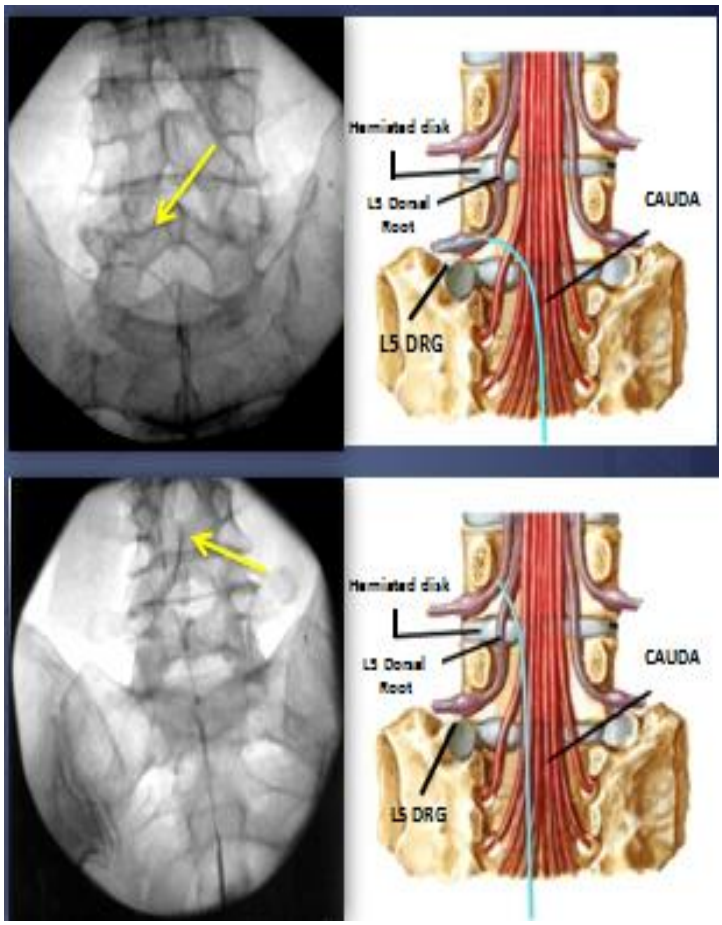
1. Nerve level involvement is measurement with sensory & motor testing from the dorsal root entry zone down to the individual spinal nerve.
2. Highly selective nerve root blocks are accurately delivered at much lower injection volumes than other approaches

Treatment phase

1. Neurolysis. Enzymatic, chemical and mechanical scar tissue breakdown is combined with on-table manipulation of the nerve roots. (Hyalase & Hypertonic saline)
2. Inflammation treatment. Infusion of solutions to remove pain & inflammation. (Triamcinolone, ketamine. clonidine, bupivicaine / ropivacaine)
3. Intense physical therapy post procedure in the ward on the day of and following day.
4. Repeat of treatment phase 1 & 2 on post procedure day in the ward prior to discharge.

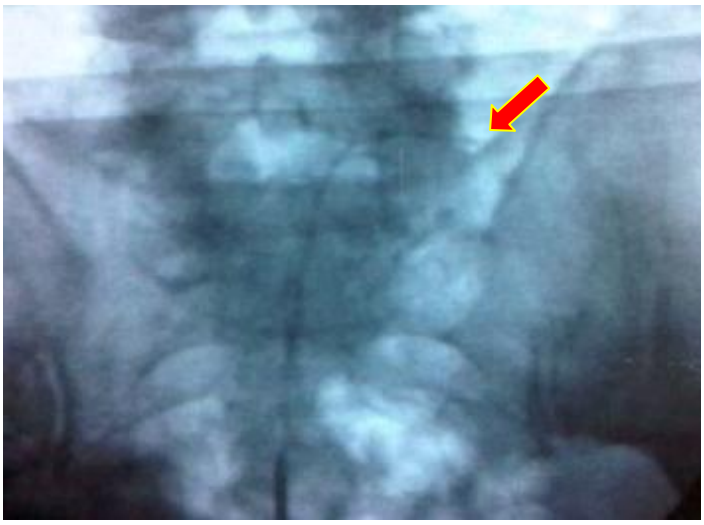


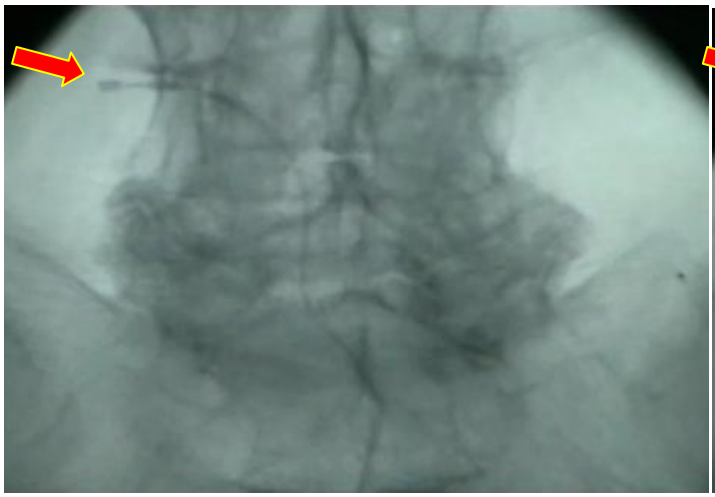
Neuroplasty with thermocouple probe "active

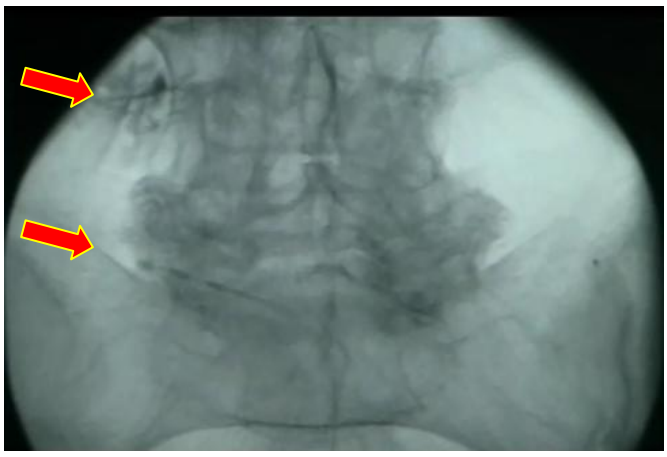
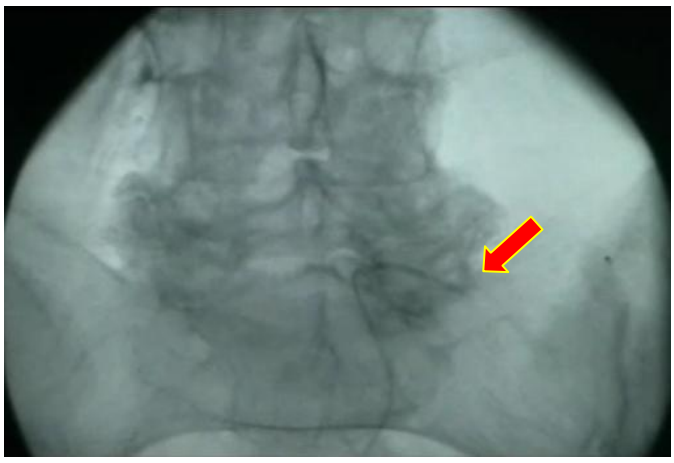


Bi-polar DRG modulation using a RACZ neuroplasty canula with an extended temperature monitored probe, arc connection is with a traditional percutaneous RF needle and probe.

An alternative approach is to use a directional canula like “Microsteer”.in place of a RACZ canula, or an integrated tri-polar active tip canula like “Pulsetrode” which reduces the use of percutaneous needles to complete the arc.





What is Recovery Like?

Occasionally leg numbness may occur & sometimes lasts between 3 and 24 hours. You will only be permitted to stand and walk when you have been checked by the physio, nurse or doctor and are able to feel your feet and legs adequately. Once the anaesthesia wears off, the patient may feel a different type of ache. The original pain may disappear immediately or goes off in a few weeks. It is similar to having a dental procedure. After the procedure, the initial recovery phase involves graduated stretching exercises followed from about three weeks; by gradually increasing intensity of rehabilitation work and strengthen the surrounding muscles. Medication to relieve the surgical site discomfort and to reduce the risk of nerve inflammation is prescribed. Unless specifically discussed and stopped for a sound medical reason, this medication is very important to be taken for the duration of the initial recovery. This reduces the discomfort but most importantly, reduces the occurrence of "central sensitisation", which is a normal

response to pain. Sensitisation is the spinal cord and brains response to pain causing long term changes to how your body processes and manages pain.

Is the pain relief permanent?
We aim to achieve manageable or tolerable pain which means that you can get on with life. Some people have clinical conditions which will remain painful despite our best efforts. It is not possible to predict who will or will not benefit in complex situations. What we can promise however is that no matter the complexity, we will not give up trying to find the best way to manage your pain.

Most of the patients would have relief of up to 3 years (-1.5 to +2). It is important to remember that the underlying degeneration and wear and tear will continue, and new areas of pain can occur either in a different part or the same part of the nerve, spine or area. Rehabilitation followed by maintenance exercise & stretching is very important to achieve the best possible results. You may need medication every now and then.

Neuroplasty & Epidural Steroid Injections: Risks and Side Effects
Please ensure you have gone through the check list we provide to capture most potential problems and answer most questions patients most frequently ask us. It is essential that you disclose all your prior medical history to your treating doctor team. This includes all medications , operations, family inherited diseases or any other physical, psychological or social problem. Patients who are on a blood thinning medication (such as Coumadin®), or have an active infection, may not be able to have this procedure, and these situations should be discussed with the treating physician. Patients should also let their doctor know of any allergies they have to medications that may be used for the procedure. If your medical team knows the risk we can plan accordingly for the safest and best treatment available for you.
The procedures are done under the vision of the X-ray, which delineates the safe and unsafe zones to avoid any risk of paralysis. There is less than 0.5% chance of nerve injury, infection or bleeding. The procedure is much less invasive than the traditional open surgical approach.

As with all invasive medical procedures, there are potential risks and complications associated with them. However, in general the risk is low, and complications are rare. Potential risks and or complications that may occur:

- Allergic reaction. Usually an allergy to x-ray contrast or steroid; rarely to local anesthetic.
- Bleeding. A rare complication, bleeding is more common for patients with underlying bleeding disorders.
- Infection. Minor infections occur in less than 0.01% to 2% of all injections. Severe infections are rare, occurring in 0.1% to 0.01% of injections.
- Worsening of pain symptoms
- Discomfort at the point of the injection
- Nerve or spinal cord damage or paralysis. While very rare, damage can occur from direct trauma from the needle, or secondarily from infection, bleeding resulting in compression, or injection into an artery causing blockage.
- Dural puncture ("wet tap"). A dural puncture occurs in 0.5% of injections. It may cause a post-dural puncture headache (also called a spinal headache) that usually improves within a few days. Although infrequent, a blood patch may be necessary to alleviate the headache. A blood patch is a simple, quick procedure that involves obtaining a small amount of blood from a patient from an arm vein and immediately injecting it into the epidural space to allow it to clot around the spinal sac and stop the leak.

In addition to risks from the injection, some patients will experience side effects from the steroid medication, such as:
- Localized increase in pain
- Fever the night of injection
- Non-positional headaches resolving within 24 hours
- Transient facial flushing with a feeling of warmth (‘hot flashes’) for several days
- Fluid retention, weight gain, or increased appetite
- Elevated blood pressure
- Mood swings, irritability, anxiety, insomnia

- High blood sugar—diabetic patients should inform their primary care physicians about the injection prior to their appointment
- A transient decrease in immunity because of the suppressive effect of the steroid
- Severe arthritis of the hips or shoulders (avascular necrosis)—a rare result of excessive and/or prolonged steroid usage
- Cataracts—a rare result of excessive and/or prolonged steroid usage
- Stomach ulcers
- Severe arthritis of the hips (avascular necrosis)

There are several risks associated with epidural injections, and although they are all relatively rare it is worth discussing each with the professional who will be conducting the procedure to determine the incidence of prevalence in their practice.

When to Report Epidural Side Effects to a Doctor

- *Experiencing a painful headache while sitting up or standing that feels better after lying down, which may indicate a dural puncture*
- *Having a fever for more than 24 hours, which may be indicative of infection*
- *Losing function or feeling in the legs or arms*
- *Loss of bowel or bladder control (meaning either the inability to produce or hold urine or stools) after the local anesthetic and temporary numbness wear off*
- *Severe pain not controlled by over-the-counter pain medication or other measures used in the past*

All of these symptoms are atypical effects, and need to be assessed and addressed immediately by a professional. In general, epidural steroid injections are a low risk, useful, non-surgical tool to combat lower back pain and sciatica (radicular pain) caused by inflammation. A conservative analysis of patient outcomes suggests that **most patients will experience pain relief**, although the exact degree of relief enjoyed depends on a number of factors. Their relative safety and efficacy makes epidural steroid injections an integral part of the non-surgical treatment of low back and radicular pain.

Please note !

- Everyone is different - expected results are the averages of the best and worst responders.
- If you have concerns - raise them with your treating doctor
- If you are not sure - dont proceed with the proposed procedure
- If you dont understand the procedure - do not sign consent and dont proceed with the proposed procedure

Please read this article if you would like more information > http://www.asipp.org/PDF/010810A/40REF94.pdf