

INTRODUCTION

The epidural lysis of adhesions procedure has provided significant relief for numerous individuals who cope with pain. The medical procedure performed by your doctor is just one step in the process towards pain relief. After proper diagnosis, the first stage of treatment involves site-specific injection of medications through a unique, steerable catheter which calms the painful nerve by inflammation reduction and dissipation of scar tissue. Physical therapy is the next critical component to further ensure improved, lasting recovery. This pamphlet will highlight the importance of physical therapy following medical intervention and instruct you on proper technique.

Healthy nerves should move freely within the body to ensure proper blood supply, fluid exchange, and nutrition. A helpful and effective method of renourishment is routine stretching and exercise.

The movement of healthy nerves within the spine should not hurt, but pain is often felt when they are restricted, swollen or "angry". Nerves can become irritated and swollen when they are compressed, such as by a bulging disc or an osteophyte. Restrictions can also be caused by the presence of scar tissue. As individual nerve roots exit the vertebrae, they pass through an opening called the neural foramen. During movement of the lower extremity, the nerves will move slightly in and out of the foramen. When nerve movement is compromised, this normal sliding movement is no longer possible. The lysis procedure is designed to release tension on the nerve, restore mobility and thereby reduce the radiating pain.

The following three simple exercises are designed to compliment the clinical procedure. They help to regain and maintain the movement of the nerves in and out of the spinal canal. This type of exercise-induced nerve root movement is referred to as Neural Flossing™.

Although results may not occur immediately, continued practice of these stretching exercises produces the best long-term outcome. Increased flexibility and strength may emerge after one month. It is important to perform each individual exercise, or stretch, with increasing duration from 20-30 seconds. The exercises should be carried out 2-3 or more times a day with each session lasting no longer than 3 to 5 minutes. For chronic pain sufferers, these exercises should be continued indefinitely to prevent the restriction of affected nerve roots and the resulting return of pain.

Before initiating any of the exercises, one should dress in comfortable, non-restrictive clothing. This will allow the stretching to be correctly performed and provide the patient with full benefits of the Neural Flossing™ technique. A soft yet firm surface, such as an exercise mat, will allow for a safe and comfortable experience.

It is important to note that during the exercises, the patient's head should be flat on the floor without a pillow. Raising the head draws the spinal cord and attached nerves upward and can place a slight resistance inside the spinal canal. This resistance can further prevent the nerves from moving freely. Therefore, the three exercises are carried out in the fully flat, supine position.

NOTE FROM PHYSICIAN

Neural Flossing Exercises by flexion rotation, after a Neuroplasty procedure of the neck, thoracic spine or lumbosacral area, increases safety and efficacy by the run-off of injected fluids from the spinal canal. The same exercise can be helpful if you are experiencing post-procedure pain, numbness, weakness, or the inability to void. In the event of a visit to the emergency room or other hospital facilities, you must call your doctor or designate. The hospital staff must understand the potential consequences of fluid loculation accumulation which can cause spinal canal dysfunctions by compression of blood supply and secondary ischemia. It is important to continue the flexion rotation as long as the post-procedure pain, numbness, or weakness persists.



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*References:

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2. Gilbert K, Brismée J, Collins D, James C, Shah R, Sawyer S, Sizer P. 2006 Young Investigator Award Winner: Lumbosacral Nerve Root Displacement and Strain, Part 2. A Comparison of 2 Straight Leg Raise Conditions in Unembalmed Cadavers. *SPINE* 2007;Volume 32;Number 14:1521-1525
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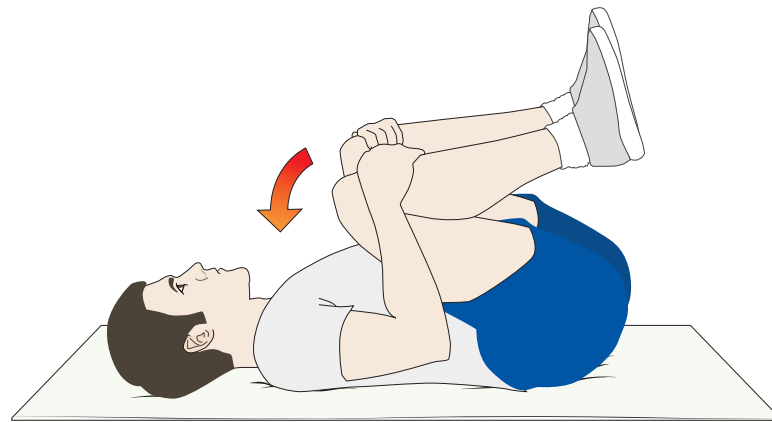
Disclaimer: This brochure is intended for general education only. Please ask your physician about specific questions pertaining to your condition. Before initiating any of these stretches, you should discuss this technique with your physician.

LOWER LUMBAR NEURAL FLOSSING™

Post Lumbar Lysis of Adhesions Physical Rehabilitation Guide*

1

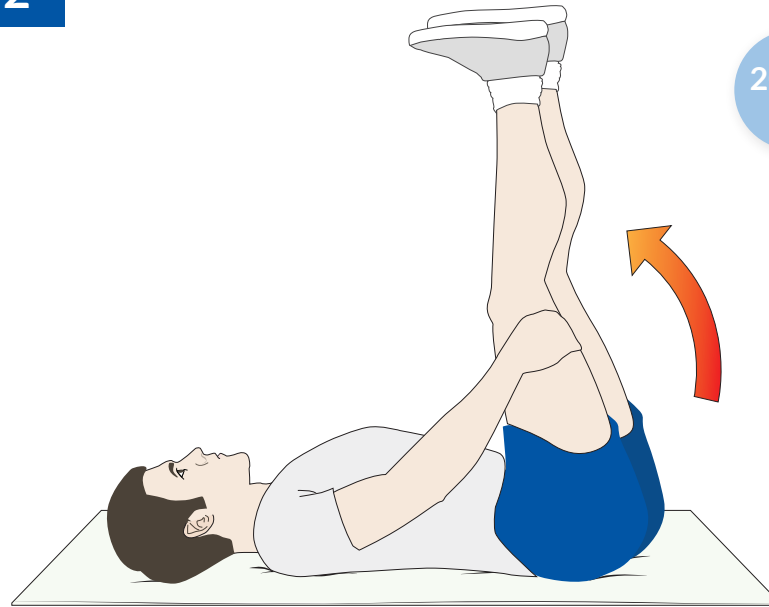
20-30 sec



Lay down with your face up (supine) on the exercise mat without a pillow. Slowly, bring both knees close to the chest with bent legs and hold this position for 20-30 seconds. Release and assume a neutral position to rest briefly.

2

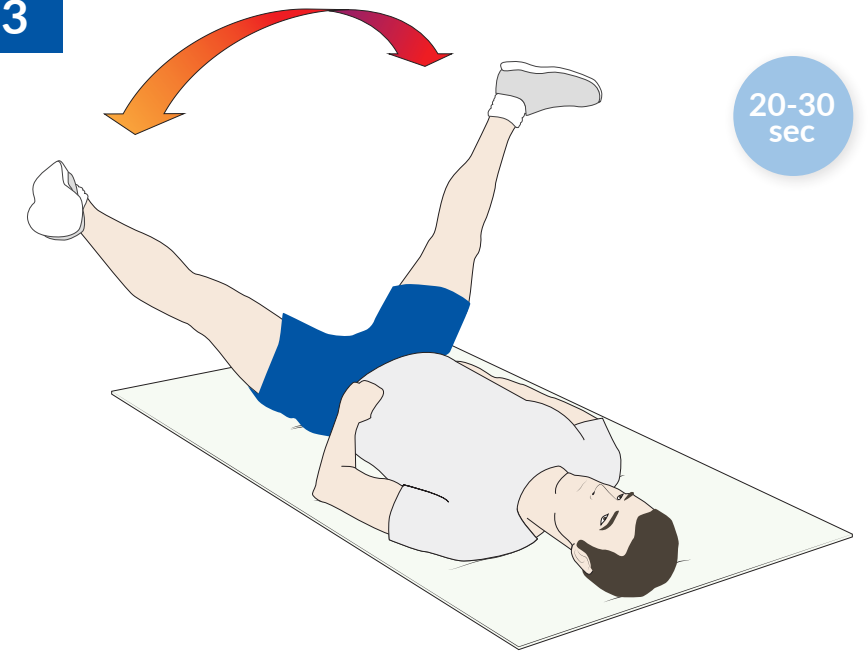
20-30 sec



Again, in the supine position, both legs are raised to a 90° straight-up position, with knees straight while laying flat on the firm surface. This position is held for 20-30 seconds. Assume a neutral position and rest briefly before the third and final stretching exercise.

3

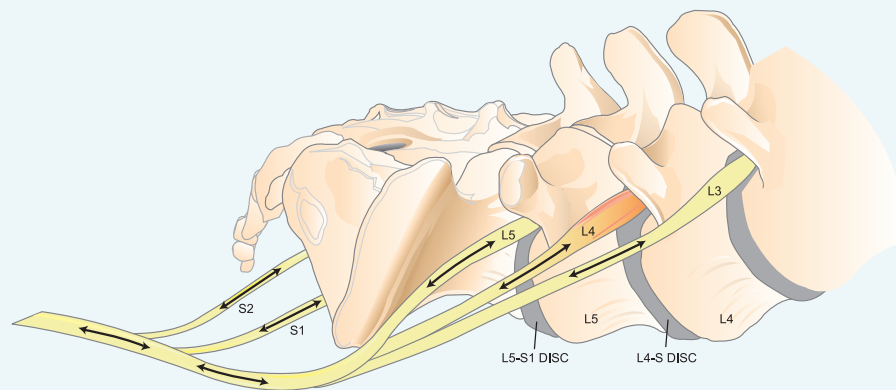
20-30 sec



Similar to exercise 2, both legs are brought straight-up to a 90° position, while lying supine. Slowly spread the legs in a "V" shape, as much as is comfortably possible, and hold this position for 20-30 seconds. This exercise is extremely important because it reduces stress on the sciatic nerve.

NOTE

Additional endurance exercises (such as walking) are beneficial. Over time, extended exercise (brisk walking with increased distance) will help to maintain muscle tone and enhance cardiovascular status.



The arrows in this picture indicate the back and forth movement of the lumbar nerve roots while performing this exercise.

Patients with leg pain in the upper thigh, particularly in the front, are more likely to have physical abnormalities in the upper lumbar nerve roots. This type of pain should be addressed with additional exercises focused on the femoral nerve, which involves pathological processes similar to the sciatic nerves outlined above. These stretching exercises outlined above may not address pain involving the upper thigh and the femoral nerve.

It is not uncommon for patients with disc or facet joint-related back pain to require additional procedures which are focused on those affected areas. Typically, disc-generated pain will be mainly identifiable in the midline area. Facet pain is reproduced when leaning backwards, to the left or right side. If you have such pain, your physician should be consulted.

ABOUT THE PROCEDURE

During the epidural lysis of adhesions procedure, your physician will first place a needle through the sacral canal injecting contrast to outline scarring around the pain-generating nerve root. Your physician will then introduce an Epimed steerable spring-guided catheter under x-ray control to the source of the pain. Medications are then injected to open up the affected region by the fluid pressure-volume consequence. These medications (steroid and a hyper-osmolar solution in some instances) will also calm the swollen "angry" nerve root.

Patients requiring the epidural lysis of adhesions procedure will often experience significant pain reduction. Pain relief is possible when nerves are less swollen, uncompressed and unrestricted. If pain returns, the lysis procedure can be repeated within several months or later. However, the exercises detailed in this pamphlet are designed to maintain pain relief or, at least, reduce the need or frequency of repeat procedures.