

# **Madigan Army Medical Center**

## **Musculoskeletal Treatment Guidelines**

### **LUMBAR DISC SYNDROME**

#### **Diagnosis/Definition**

- A condition of radicular leg pain, sometimes accompanied by low back pain and may be accompanied by motor or sensory deficit.

#### **Initial Diagnosis and Management**

- The initial diagnosis is clinical with the acute or subacute development of low back pain usually with sciatic pain following minimal low back trauma in patients under the age of 50. No x-ray or lab studies are necessary. Over the age of 50, disc abnormalities are possible, but initial lumbar sacral spine series should be considered which might exclude bony structural abnormalities such as severe degenerative changes, osteoporosis with compression or metastatic involvement. MRI and/or CT scan are not necessary to confirm the initial diagnosis of lumbar disc syndrome except when there is failure to respond to conservative therapy or there is development of neurologic deficit (see Indications for Specialty Care Referral below).
- The initial objective of management is to reduce lumbar nerve root tension. Depending upon the severity, bed-rest or reduction of activity level for one to two weeks is indicated. Analgesics and muscle relaxants are usually helpful.

#### **Ongoing Management and Objectives**

- During the acute period, the major consideration is that the sciatic pain is decreasing and overall mobility is increasing. Conservative therapy as described above is indicated.

#### **Indication a profile is needed**

- Any limitations that affect strength, range of motion, and general efficiency of the back.
- Slightly limited mobility of joints, muscular weakness, or other musculo-skeletal defects that may prevent hand-to-hand fighting and disqualifies for prolonged effort.
- Defects or impairments that require significant restriction of use

#### **Specifications for the profile**

- Weeks 1-2
  - Run at own pace and distance
  - No marching greater than 2 miles
  - No sit ups

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- No ruck sacks
- No lifting greater than 15lbs
- No repetitive bending
- Weeks 2-4
  - Gradually return to normal activity

### Patient/Soldier Education or Self care Information

- Demonstrate deficits that exist
  - Describe/show soldier his/her limitations
- Explain injury and treatment methods
  - Use diagram attached to describe injury, location and treatment.
- Instruct and demonstrate rehab techniques
  - Demonstrate rehab exercises as shown in attached guide
  - Warm up before any sports activity
  - Participate in a conditioning program to build muscle strength
  - Do stretching exercises daily
- Ask the patient to demonstrate newly learned techniques and repeat any other instructions.
- Fine tune patient technique
- Correct any incorrect ROM/stretching demonstrations or instructions by repeating and demonstrating information or exercise correctly.
- Encourage questions
  - Ask soldier if he or she has any questions
- Give supplements such as handouts
- Schedule follow up visit
  - If pain persists
  - The pain does not improve as expected
  - Patient is having difficulty after three days of injury
  - Increased pain or swelling after the first three days
- Patient has any questions regarding care

### Indications for referral to Specialty Care

- A. Failure to respond to two to four weeks of conservative therapy.
  - B. Worsening of sciatic pain during adequate conservative therapy.
  - C. Development of neurologic deficit that includes lower extremity motor or sensory deficit and/or loss of bowel or bladder control.
- Condition **A** indicates a routine referral, however, a diagnostic study (MRI) should be obtained at this time by the primary care provider or at MAMC before the neurosurgery consult. Often a telephone consultation (253-968-3106) might

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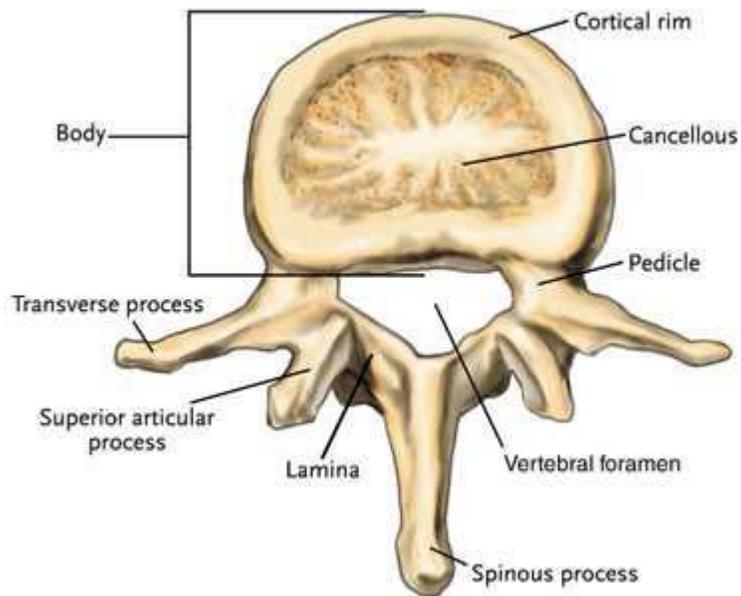
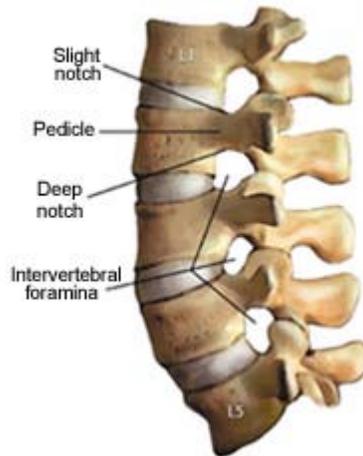
be helpful here in establishing the need for further primary care or arranging more urgent consideration depending upon the case.

- Conditions **B** and **C** often indicate urgency. The patient may need to be seen immediately or possibly within 24 hours. A telephone consultation (253-968-3106) should be obtained to arrange immediate disposition. Imaging study (usually MRI) is indicated urgently.

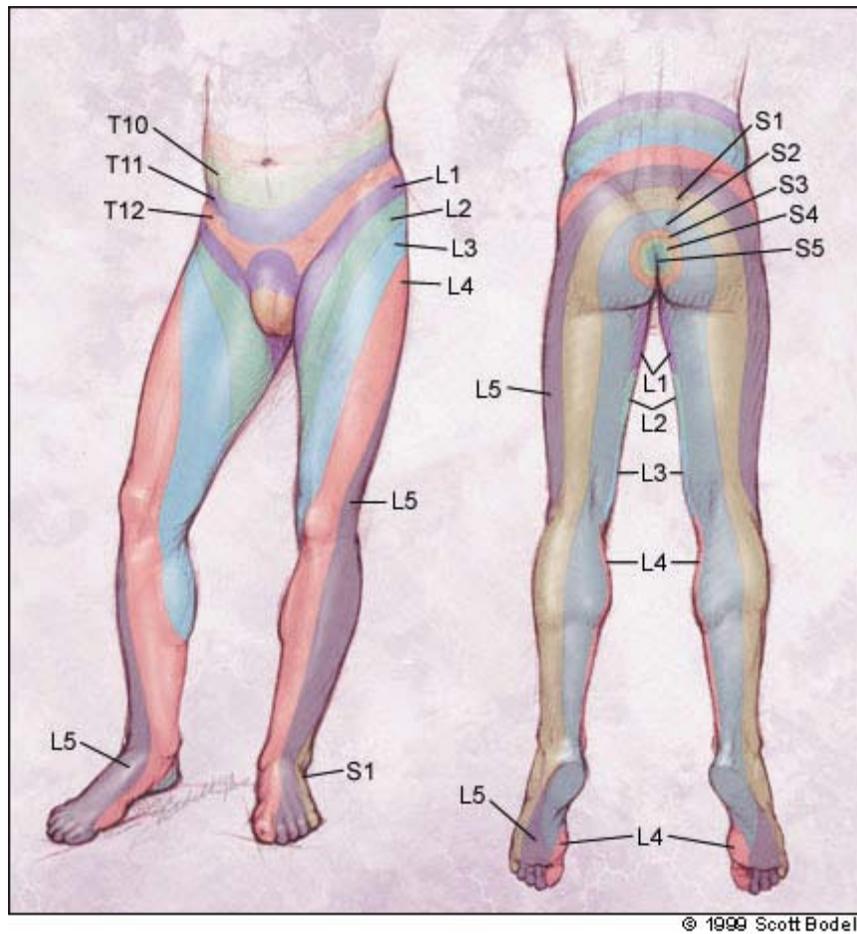
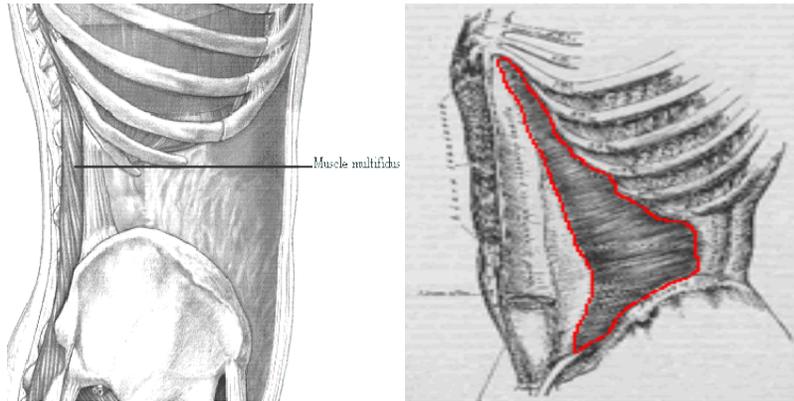
#### **Referral criteria for Return to Primary Care**

- Surgery is not presently indicated and a reasonable course of conservative therapy is defined which can be followed at primary care level.
- Surgery has been performed, condition resolved and usual post-op follow-up is completed.
- These guidelines may not be helpful in every instance. The Neurosurgery Service emphasizes telephone consultation (253-968-3106) as being an efficient and important means of improving provider communication and ultimately patient care.

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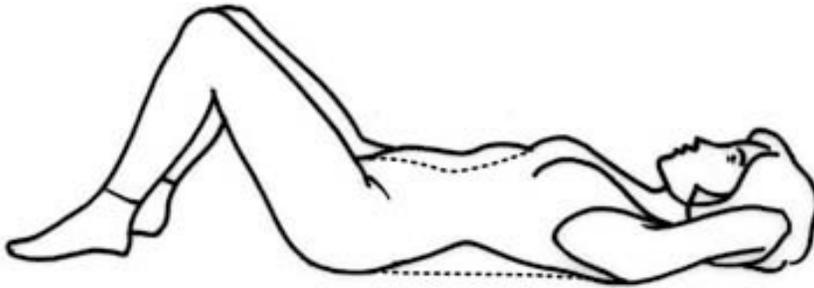
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### Exercises

The initial phase of stabilization training begins with isolated muscle contractions. Stabilization training is initiated with the patient being instructed in the *neutral spine position*. The neutral spine position is where the spine is in ideal alignment and is found by envisioning the face of a clock on the abdomen, with 12:00 at the belly button and 6:00 at the pubic bone. The pelvis is then alternately tilted so that 12:00 rocks toward the floor and then 6:00 rocks toward the floor. This is done repeatedly 10 times in each direction gently and slowly. The neutral position within that range is the point where you identify is the most comfortable. This position is emphasized and should be maintained for all movements performed during stabilization activities as well as all daily activities.



As awareness of the neutral position is demonstrated, isolated transversus abdominus contraction is then initiated. This muscle is trained by simply pulling your navel into your spine, and/or exhaling thoroughly, while maintaining the neutral spine position.

Once these 2 exercises are learned, the following exercises can then be initiated:

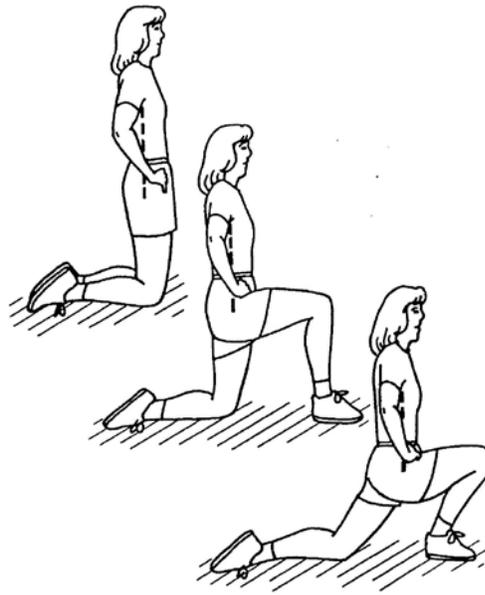
#### **Back Stabilization Exercise 1**

- Lie on back, *left* knee bent. Tighten abdominals and buttocks, keeping back in neutral position. Raise *right* leg 12 inches, knee straight.
- Hold 3 counts
- Lower leg. Repeat 10 times.
- Repeat with *left* leg.
- Progress to making circles and squares with raised leg.

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## Back Stabilization Exercise 2

- Start in kneeling position. Tighten abdominals and buttocks, keeping back in neutral position.
- Hands on hips.
- Raise *right* foot and place on floor in front of you, kneeling on *left* knee.
- Lunge forward, moving at hips.
- Hold 3 counts.
- Return to kneeling.
- Repeat 10 times.
- Repeat with the opposite side.



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<b>PHYSICAL PROFILE</b>			
For use of this form, see AR 40-501, the proponent agency is the Office of The Surgeon General			
1. MEDICAL CONDITION <b>LUMBAR DISC SYNDROME</b>	2.	P	U
		L	H
		E	S
3. ASSIGNMENT LIMITATIONS ARE AS FOLLOWS WEEKS 1-2, RUN AT OWN PACE AND DISTANCE, NO MARCHING GREATER THAN 2 MILES, NO SIT UPS, NO RUCK, NO LIFTING >15LBS. WEEKS 2-4, GRADUAL RETURN TO NORMAL ACTIVITY			CODES
4. THIS PROFILE IS <input type="checkbox"/> PERMANENT <input checked="" type="checkbox"/> TEMPORARY EXPIRATION DATE:			
5. THE ABOVE STATED MEDICAL CONDITION SHOULD NOT PREVENT THE INDIVIDUAL FROM DOING THE FOLLOWING ACTIVITIES			
<input checked="" type="checkbox"/> Groin Stretch	<input checked="" type="checkbox"/> Thigh Stretch	<input type="checkbox"/> Lower Back Stretch	<input checked="" type="checkbox"/> Neck & Shoulder Stretch
<input type="checkbox"/> Hip Raise	<input checked="" type="checkbox"/> Quads Stretch & Bal.	<input checked="" type="checkbox"/> Single Knee to Chest	<input type="checkbox"/> Upper Back Stretch
<input checked="" type="checkbox"/> Knee Bender	<input checked="" type="checkbox"/> Calf Stretch	<input checked="" type="checkbox"/> Straight Leg Raise	<input checked="" type="checkbox"/> Chest Stretch
<input checked="" type="checkbox"/> Side-Straddle Hop	<input type="checkbox"/> Long Sit	<input checked="" type="checkbox"/> Elongation Stretch	<input checked="" type="checkbox"/> One-Arm Side Stretch
<input checked="" type="checkbox"/> High Jump	<input checked="" type="checkbox"/> Hamstring Stretch	<input checked="" type="checkbox"/> Turn and Bounce	<input checked="" type="checkbox"/> Two-Arm Side Stretch
<input checked="" type="checkbox"/> Jogging in Place	<input checked="" type="checkbox"/> Hams. & Calf Stretch	<input type="checkbox"/> Turn and Bend	<input type="checkbox"/> Side Bender
<input type="checkbox"/> Neck Stretch	<input type="checkbox"/> Ankle Stretch	<input type="checkbox"/> Hip Stretch	<input type="checkbox"/> Upper Body Wt Tng
<input type="checkbox"/> Lower Body Wt Tng	<input type="checkbox"/> All		
6. AEROBIC CONDITIONING EXERCISES		7. FUNCTIONAL ACTIVITIES	
<input checked="" type="checkbox"/> Walk at Own Pace and Distance	<input checked="" type="checkbox"/> Run at Own Pace and Distance	<input type="checkbox"/> Wear Backpack (40 Lbs.)	<input checked="" type="checkbox"/> Wear Helmet
<input checked="" type="checkbox"/> Bicycle at Own Pace and Distance	<input checked="" type="checkbox"/> Swim at Own Pace and Distance	<input checked="" type="checkbox"/> Carry Rifle	<input checked="" type="checkbox"/> Fire Rifle
<input checked="" type="checkbox"/> Walk or Run in Pool at Own Pace	<input type="checkbox"/> Unlimited Walking	<input checked="" type="checkbox"/> With Hearing Protection KP/Mopping/Mowing Grass	<input checked="" type="checkbox"/> Marching Up to <u>2</u> Miles
<input checked="" type="checkbox"/> Unlimited Running	<input checked="" type="checkbox"/> Unlimited Bicycling	<input checked="" type="checkbox"/> Lift Up to <u>15</u> Pounds	<input type="checkbox"/> All
<input checked="" type="checkbox"/> Unlimited Swimming	<input type="checkbox"/> Run at Training Heart Rate for ___ Min.	PHYSICAL FITNESS TEST	
<input type="checkbox"/> Bicycle at Training Heart Rate for ___ Min.	<input type="checkbox"/> Swim at Training Heart Rate for ___ Min.	<input checked="" type="checkbox"/> Two Mile Run	<input checked="" type="checkbox"/> Walk
		<input checked="" type="checkbox"/> Push-Ups	<input checked="" type="checkbox"/> Swim
		<input type="checkbox"/> Sit-Ups	<input checked="" type="checkbox"/> Bicycle
		8. TRAINING HEART RATE FORMULA	
		MALES 220      FEMALES 225	
		MINUS (-) AGE	
		MINUS (-) RESTING HEART RATE	
		TIMES (X) % INTENSITY	
		PLUS (+) RESTING HEART RATE	
		50% EXTREMELY POOR CONDITION	
		60% HEALTHY, SEDENTARY INDIVIDUAL	
		70% MODERATELY ACTIVE, MAINTENANCE	
		80% WELL TRAINED INDIVIDUAL	
9. OTHER			
TYPED NAME AND GRADE OF PROFILING OFFICER		SIGNATURE	DATE
TYPED NAME AND GRADE OF PROFILING OFFICER		SIGNATURE	DATE
<b>ACTION BY APPROVING AUTHORITY</b>			
PERMANENT CHANGE OF PROFILE <input type="checkbox"/> APPROVED <input type="checkbox"/> NOT APPROVED			
TYPED NAME, GRADE & TITLE OF APPROVING AUTHORITY		SIGNATURE	DATE
<b>ACTION BY UNIT COMMANDER</b>			
THIS PERMANENT CHANGE IN PROFILE SERIAL <input type="checkbox"/> DOES <input type="checkbox"/> DOES NOT REQUIRE A CHANGE IN MEMBER'S			
<input type="checkbox"/> MILITARY OCCUPATIONAL SPECIALTY <input type="checkbox"/> DUTY ASSIGNMENT BECAUSE:			
TYPED NAME AND GRADE OF UNIT COMMANDER		SIGNATURE	DATE
PATIENT'S IDENTIFICATION (For typed or written entries give: Name (last, first, middle); grade; SSN; hospital or medical facility)		UNIT	
		ISSUING CLINIC AND PHONE NUMBER	
		DISTRIBUTION UNIT COMMANDER - ORIGINAL & 1 COPY HEALTH RECORD JACKET - 1 COPY CLINIC FILE - 1 COPY MILPO - 1 COPY	

DA FORM 3349, MAY 86

REPLACES DA FORM 5302-R (TEST) DATED FEB 84 AND DA FORM 3349 DATED 1 JUN 80, WHICH ARE OBSOLETE

USAPPC V 100

Maintained by the Madigan Army Medical Center - Quality Services Division  
Clinical Practice and Referral Guidelines Administrator

# Madigan Army Medical Center Musculoskeletal Treatment Guidelines

## PATIENT INFORMATION



While a disc herniation may sound serious, most people recover and return to their normal lifestyle within several weeks or months without having surgery. There may still be some symptoms, but most patients can function well.

- Get professional supervision early to so your doctor can prescribe the right regimen of medication, physical therapy, exercise, posture modification and physical activity. Accurate diagnosis and early management may help you recover faster.

Keep the use of pain medications to a minimum. All medications should be taken as directed. Tell your doctor of any changes in your symptoms so treatment can be changed if necessary. Call your doctor immediately if you have loss of bladder or bowel control or numbness in the genital area in addition to your pain.

### What Is A Herniated Disc?

The spine is made up of a series of connected bones called "vertebrae". The disc is a combination of strong connective tissues which hold one vertebra to the next, and acts as a cushion between the vertebrae. The disc is made of a tough outer layer called the "annulus fibrosus" and a gel-like center called the "nucleus pulposus." As you get older, the center of the disc may start to lose water content, making the disc less effective as a cushion. This may cause a displacement of the disc's center (called a herniated or ruptured disc) through a crack in the outer layer. Most disc herniations occur in the bottom two discs of the lumbar spine, at and just below the waist.

A herniated lumbar disc can press on the nerves in the spine and may cause pain, numbness, tingling or weakness of the leg called "sciatica". Sciatica affects about 1-2% of all people, usually between the ages of 30 and 50.

A herniated lumbar disc may also cause back pain, although back pain alone (without leg pain) can have many causes other than a herniated disc.

### What Treatments Are Available?

Most (80-90%) patients with a new or recent acute disc herniation will improve without surgery. The doctor will usually try using non-surgical treatments for the first few weeks. If the pain still keeps you from your normal lifestyle after completing treatment, your doctor might recommend surgery. Although surgery may not return leg strength to normal, it can stop your leg from getting weaker, and relieve leg pain. Surgery is usually recommended for relief of leg pain (>90% success); surgery is less effective in relieving back pain.

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Non-Surgical Treatment - Your doctor may prescribe non-surgical treatments including a short period of rest, anti-inflammatory medications to reduce the swelling, analgesic drugs to control the pain, physical therapy, exercise or epidural steroid injection therapy. If you are told to rest, follow your doctor's directions on how long to stay in bed. Too much bed rest may give you stiff joints and weak muscles, which will make it harder to do activities that could help reduce the pain. Ask your doctor whether you should continue to work while you are being treated.

Your doctor may start treatment and, with the help of a nurse or physical therapist, begin education and training about performing the activities of daily living without placing added stress on your lower back.

The goals of nonsurgical treatment are to reduce the irritation of the nerve and disc and to improve the physical condition of the patient to protect the spine and increase overall function. This can be accomplished in the majority of herniated disc patients with an organized care program that combines a number of treatment methods.

Some of the first treatments your doctor may prescribe include therapies such as ultrasound, electric stimulation, hot packs, cold packs, and manual ("hands on") therapy to reduce your pain and muscle spasm, which will make it easier to start an exercise program. Traction may also provide limited pain relief for some patients. Occasionally, your doctor may ask you to wear a lumbar corset (soft, flexible back brace) at the start of treatment to relieve your back pain, although it doesn't help heal the herniated disc. Manipulation may provide short-term relief from non-specific low back pain, but should be avoided in most cases of herniated disc.

At first, the exercises you learn may be gentle stretches or posture changes to reduce the back pain or leg symptoms. When you have less pain, more vigorous exercises will likely be used to improve flexibility, strength, endurance and the ability to return to a more normal lifestyle. Exercise instruction should start right away and be modified as recovery progresses. Learning and continuing a home exercise and stretching program are important parts of treatment.

**Medication and Management** - Medications used to control pain are called analgesics. Most pain can be treated with non-prescription medications such as aspirin, ibuprofen, naproxen, or acetaminophen. If you have severe persistent pain, your doctor might prescribe narcotics for a short time. Sometimes, but not often, a doctor will prescribe muscle relaxants. However, you want to take only the medication you need because taking more doesn't help you recover faster, might cause unwanted side effects (such as constipation and drowsiness), and can result in dependency. All medication should be taken only as directed. Make sure you tell your doctor about any kind of medication you are taking—even over-the-counter drugs—and if he/she prescribes pain medication, let him/her know how it is working for you.

Nonsteroidal anti-inflammatory medications (NSAIDs) are analgesics and are also used to reduce swelling and inflammation that occur as a result of disc herniation. These

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include aspirin, ibuprofen, naproxen, and a variety of prescription drugs. If your doctor gives you anti-inflammatory medications, you should watch for side effects like stomach upset or bleeding. Chronic use of prescription or over-the-counter NSAIDs should be monitored by your physician for the development of any potential problems.

There are other medications that also have an anti-inflammatory effect. Corticosteroid medications—either orally or by injection—are sometimes prescribed for more severe back and leg pain because of their very powerful anti-inflammatory effect. Corticosteroids, like NSAIDs, can have side effects. Risks and benefits of this medication should be discussed with your physician. Epidural injections or "blocks" may be recommended if you have severe leg pain. These are injections of corticosteroid into the epidural space (the area around the spinal nerves), performed by a doctor with special training in this technique. The initial injection may be followed by one or two more injections at a later date, and should be done as part of a comprehensive rehabilitation and treatment program.

Trigger point injections are injections of local anesthetics (sometimes combined with corticosteroids) directly into painful soft tissue or muscles along the spine or over the back of the pelvis. While occasionally useful for pain control, trigger point injections do not help heal a herniated lumbar disc.

**Surgery** - The goal of surgery is to make the herniated disc stop pressing on and irritating the nerves, causing symptoms of pain and weakness. The most common procedure is called a "discectomy" or "partial discectomy," in which part of the herniated disc is removed. In order to see the disc clearly, sometimes it is necessary to remove a small portion of the lamina, the bone behind the disc. Bone removal may be minimal (hemi-laminotomy) or more extensive (hemi-laminectomy). Some surgeons use an endoscope or microscope in some cases.

Discectomy can be done under either local, spinal or general anesthesia. The patient lays face down on the operating table, generally in a kneeling position. A small incision is made in the skin over the herniated disc and the muscles over the spine are pulled back from the bone. A small amount of bone may be removed so the surgeon can see the compressed nerve. The herniated disc and any loose pieces are removed until they are no longer pressing on the nerve. Any bone spurs (osteophytes) are also taken out to make sure that the nerve is free of pressure. Usually, there is very little bleeding.

### **What Can I Expect After Surgery?**

If your main symptom is leg pain (rather than low back pain), you can expect good results from surgery. Before surgery, your doctor will do an examination and tests to make sure that the herniated disc is pressing on a nerve and causing your pain. Physical examination should show a positive straight leg raise test demonstrating sciatica and possibly muscle weakness numbness or reflex changes. Additional tests can include an imaging test (magnetic resonance image [MRI], computed tomography [CT] or

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myelography) that clearly shows nerve compression. If these tests are all positive for you, and your doctor is sure that you have nerve compression, your chance of significant relief from leg pain after surgery is approximately 90%. Although you should not expect to be pain-free every day, you should be able to keep the pain under control and resume a fairly normal lifestyle.

Most patients will not have complications after discectomy, but it is possible you may have some bleeding, infection, tears of the protective lining of the spinal nerve roots (dura mater), or injury to the nerve. It is also possible that the disc will rupture again and cause symptoms. This occurs in about 5% of patients.

Ask your doctor for recommendations on post-surgical activity restrictions. It is usually a good idea to get out of bed and walk around immediately after recovering from anesthesia. Most patients go home within 24 hours after surgery, often later the same day. Once home, you should avoid driving, prolonged sitting, excessive lifting, and bending forward for the first four weeks. Some patients will benefit from a supervised rehabilitation program after surgery. You should ask your doctor if you can use exercise to strengthen your back to prevent recurrence.

### **How Do I Know If I Need Emergency Surgery?**

Very rarely, a large disc herniation may press on the nerves which control the bladder and bowel, causing loss of bladder or bowel control. This is usually accompanied by numbness and tingling in the groin or genital area, and is one of the few indications that you need surgery immediately for a herniated lumbar disc. Call your doctor at once if this happens.

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## Musculoskeletal Treatment Guidelines

### Input was provided by:

- Occupational Therapy Clinic
- Physical Therapy Clinic
- Orthopedic Clinic
- Family Practice Clinic
- Okubo Clinic
- 555 Engineers
- 1<sup>st</sup> Brigade
- 3<sup>rd</sup> Brigade
- 62<sup>nd</sup> Medical Brigade

### POC:

- Outcome Management

### References:

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- [http://www.mamc.amedd.army.mil/referral/Documents/Common/Lumbar\\_Disk\\_Syndrome.pdf](http://www.mamc.amedd.army.mil/referral/Documents/Common/Lumbar_Disk_Syndrome.pdf)
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