



Homoeopathy Clinic

# Prolapsed Intervertebral Disc (PIVD)

Health & Illnesses/General  
Information PIVD

January 2003

## Introduction

The human spine consists of 33 vertebrae, but some of them grow together in adults. There are 7 cervical (neck), 12 thoracic (chest region), 5 lumbar (lower back), 5 sacral (hip region), and 4 coccygeal (tailbone region) vertebrae. The vertebrae are held in place by muscles and strong connective tissue called ligaments. Most vertebrae have fibrous intervertebral disks between them to absorb shock and enable the spine to bend.

The intervertebral discs are a prevalent source of lower back pain as they are one of the most frequently injured spinal structures. The discs connect adjacent spinal vertebrae together and provide a degree of shock absorption in the torso.

As people get older, the inner part of an intervertebral disk, the tissue that lies between the vertebrae, is likely to stick out through the outer part and presses on nerves. This is called a slipped disk. A slipped disk in the lower back may pinch nerves, causing lumbago (low back pain) or sciatica (pain shooting down the leg). Though all lumbar discs are prone to prolapse the most common are L5-S1 and L4-L5.

There are various lesions that can occur in an intervertebral disc. The most common are **protrusion** and **extrusion**. Intervertebral discs undergo the aging process like spondylosis; condition in which there are degenerative changes in the intervertebral joints between the bodies and the discs.

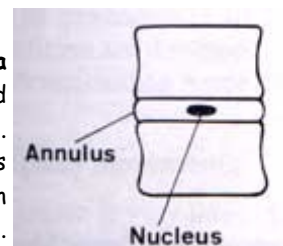


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### Structure of Disc

Each disc has two basic components- a **central nucleus pulposus** & a **surrounding annulus fibrosis**. The nucleus pulposus is a semi fluid gel, containing cartilage cells & irregularly arranged collagen fibers. As it is fluid it cannot be compressed but transmits force as well as dissipating it all around. The annulus fibrosis is a series of collagen layers with fibers running obliquely at right angles to each others. These layers control the direct movement at a vertebral level; all the fibers in one lamella are parallel with each other.



### Functions of the Disc

1. Allows movement between the vertebra
2. Transmits load
3. Provides height to the vertebral column

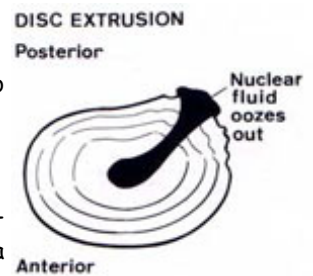
## Pathology

### Extrusion

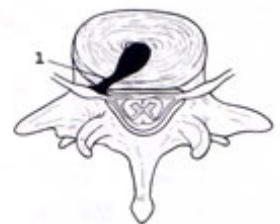
A split occurs in the annulus fibrosis and since the nucleus is under tension the fluid moves into split.

#### Direction of movement of nuclear fluid

1. The nucleus may extrude upwards into the vertebral body above, through holes in the cartilage end plate covering the inferior surface. This causes Schmorl's nodes and can be seen on a radiograph. This tends to occur in 15-18 years olds but is often symptom less until later when degenerative changes cause problems.
2. The nucleus may extrude centrally backwards but tends to be limited by the posterior longitudinal ligament. This ligament is narrowest over L4-5, L5-S1 and so the nucleus may extrude backwards at these sites.
3. The nucleus extrudes posteriolaterally into the spinal canal. If the spine is forcefully flexed the nucleus fluid can bust through the annulus with resultant damage to nerve roots (See figure), dura matter and possibly ligaments.



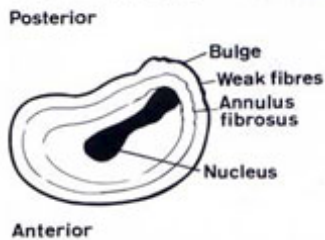
Disc Extrusion



1. Nuclear Gel Impinging on nerve root

### Protrusion

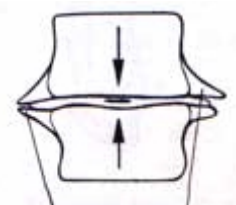
#### DISC PROTRUSION



Disc Protrusion

The annulus may become weakened, the nuclear fluid then bulges into annulus posteriolaterally or laterally (occasionally anteriorly) and causes a bulge. This alters the mechanics of the segment (two vertebra plus disc between). Two consequences of this may be:

1. A sudden burst in the annulus so that the nucleus extrudes
2. Formation of osteophytes at the margins of the vertebral bodies, the annulus pulls on the periosteal attachments around the vertebral body margin and osteoblasts lay down bone at the traction sites



Osteophyte Formation

## Clinical Features of Lumbar Disc Lesions

### History

#### Pain

The pain pattern varies greatly. Sharp pain in the back can arise suddenly as a result of a bending, twisting and lifting stress. Clinically the patient is unable to straighten up and is "stuck" - often having heard or felt "something go". Sometimes it appears gradually after several minor episodes of exercise or unaccustomed activity. In this case it starts as a niggles until gradually the patient becomes very aware of increasingly constant pain. A long journey can result in central backache and the patient cannot straighten up. The site of the pain may be

1. Central in the back
2. Diffused over the lumbo-sacral area
3. Referred down one or both legs

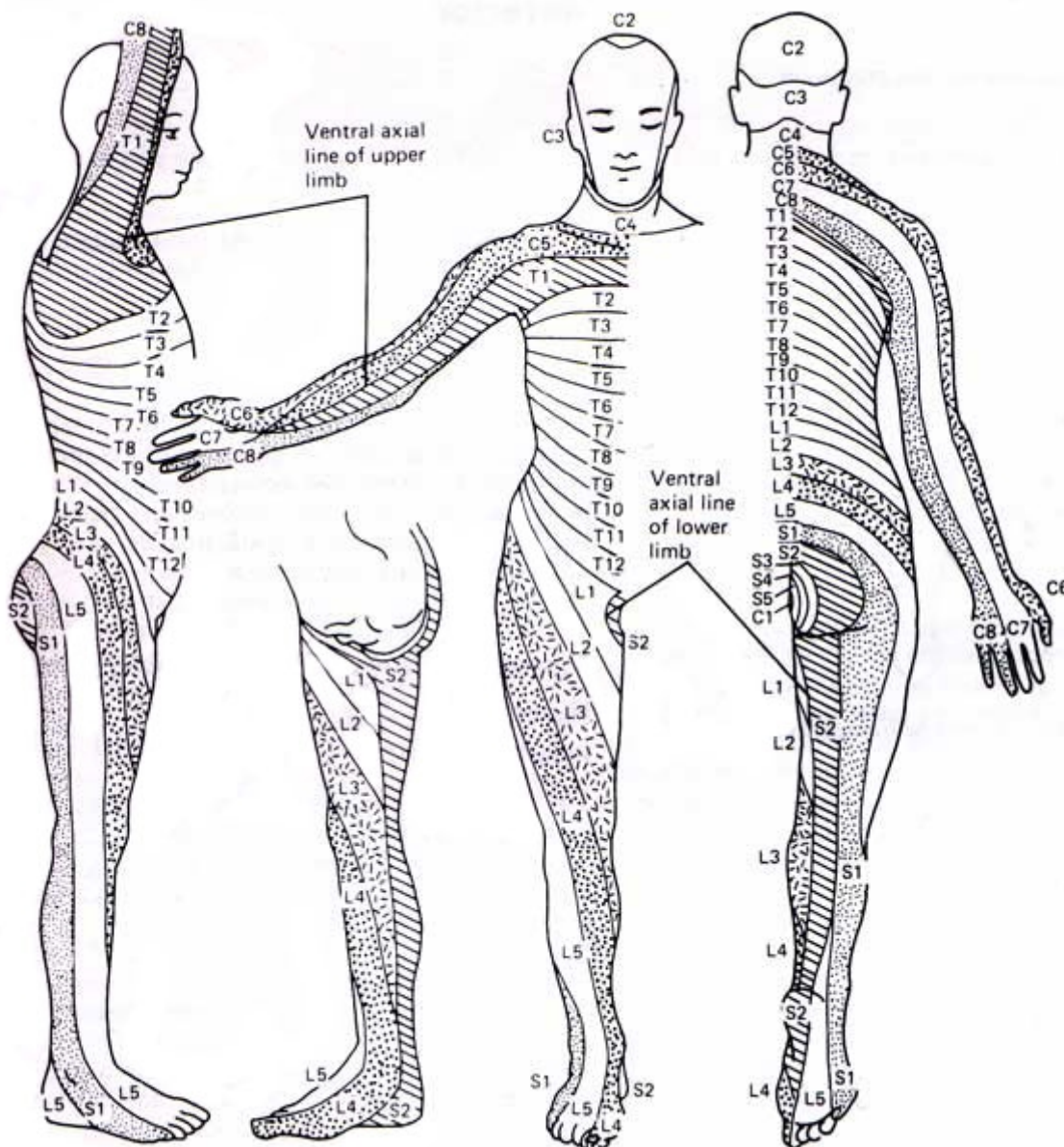
## Clinical Features of Lumbar Disc Lesions

The referred pain is mainly of two types:

1. Dull, poorly defined ache over the back, sacroiliac joint, buttock and thigh. This is thought to be due to pressure or stress on ligaments, muscles, and fascia.
2. Searing, sharp, stabbing pain shooting down the leg, thought to be due to irritation of inner root (see figure). Generally the pain aggravated by movements, especially flexion/extension and eased by lying down.

### Paraesthesia or Numbness

Pains and needles may be felt in a nerve root distribution (dermatome) and numbness may be detected when tested by touch, pin prick or temperature test tubes. There may be feeling of weakness. These are considered to be due to nerve root compression or irritation.



**Dermatome  
Distribution of  
pain &  
paraesthesia**



## Clinical Features of Lumbar Disc Lesions

### Muscle Weakness

Compression of a nerve root that interrupts impulse transmission results in weakness of the muscles supplied by that nerve (see figure).

### Myotome Distribution of Muscle Weakness

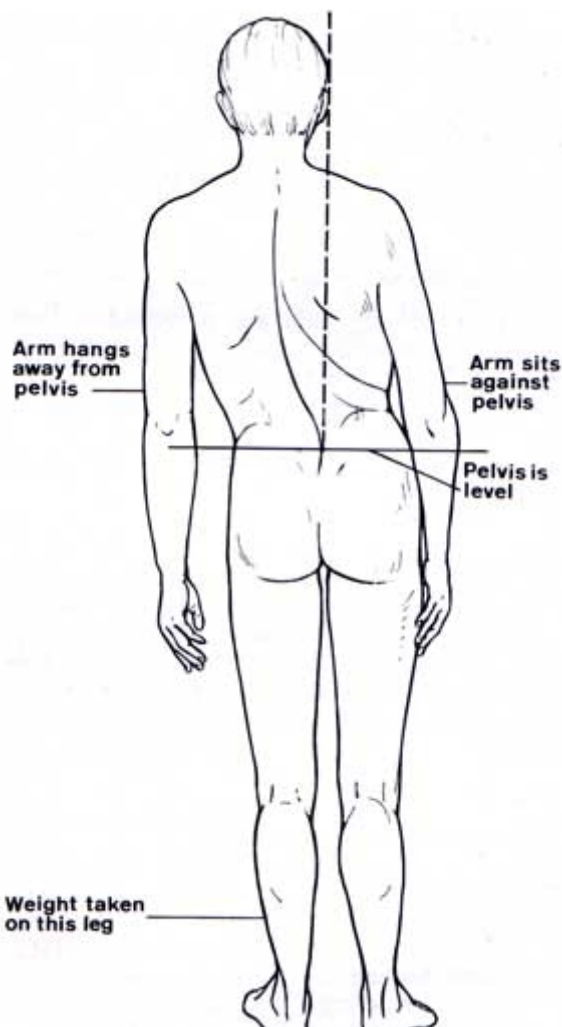
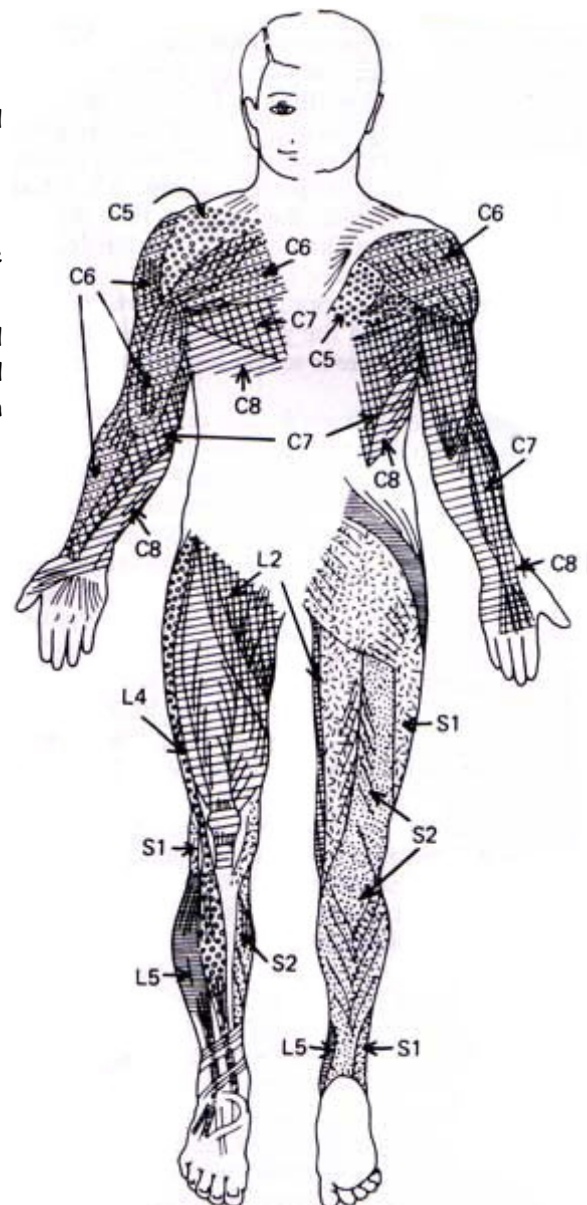
### Tendon Reflex Changes

The quadriceps (L3-L4) and tendocalcaneal (L5-S1) reflexes are diminished when there is pressure in the corresponding nerve root.

### Spinal Movements

Flexion is very limited, erector spinae stands out in spasm and the movement that occur usually deviates to one side.

Side-flexion is generally free to one side with some discomfort and restricted to the opposite side. Extension is not possible, beyond straightening of the lumbar spine, especially where there is a protrusion that cannot be compressed.



### Standing Posture

The spine is held rigid and in a scoliosis (see left figure). This is termed an antalgic posture because straightening or correcting the position aggravates the pain in the leg. Eighty to ninety percent of the body pain is taken on the non painful leg.

## Clinical Features of Lumbar Disc Lesions

### Sitting

The patient does not like to sit and on trying to do so take the weight of the trunk by pushing up on the fists. Standing up from sitting takes time and the patient "walks the hands up the thighs".

### Lying

The patient likes to lie flat and the spine straightens out. A hard mattress usually provides the best relief.

### Sleep

This is reasonably uninterrupted but the patient is stiff on waking and has to struggle to get moving.

### Walking

There is a limp because the patient cannot take a normal stance phase on the affected leg. The pace is slow with no normal arm swing.

### Sciatic nerve stretch (straight leg raising with foot dorsiflexion)

This is often slightly reduced on the unaffected leg and very limited on the affected leg.

### Passive neck flexion (patient is lying)

This may aggravate the back pain and may aggravate the leg pain as well.

### Coughing and Sneezing

Back pain and leg are provoked by both coughing and sneezing. The later is more painful because it is involuntary whereas the patient can often prepare to cough. The pain is related to the raised abdominal pressure moving the affected segment and tending to force the nucleus backwards.

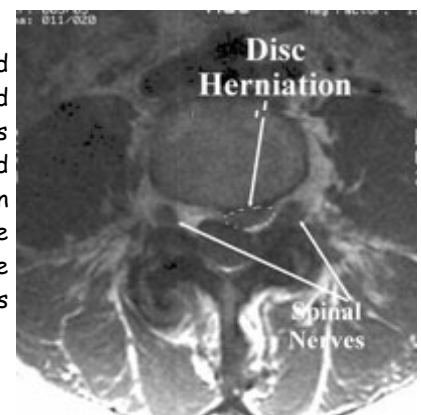
### Tenderness

Palpation over the lumbar spine provokes tenderness and when pressure is applied can increase spasm. The skin may be slightly warmer and moist over the site of lesion. In patients with repeated back problems, the skin may be thickened and tethered.

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## Diagnosis

A diagnosis of intervertebral disc disease is based on physical signs, neurologic tests, and radiography. Plain X-ray of lumbosacral spine in AP and lateral view provides first hand information with regard to PIVD. Confirmatory results are obtained with MRI which has the ability to demonstrate damage to the intervertebral disc, including anular tears and edema in the adjacent end plates. MRI can also reveal bulging and degenerative discs in asymptomatic persons; therefore, any management decisions should be based on the clinical findings corroborated by diagnostic test results. Recent advances in MRI have brought about oblique images, which provide better views of certain anatomic structures that were not available with conventional methods.



**MRI showing disc herniation  
at L4-L5**

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## Homoeopathy Treatment

Most Frequently used homoeopathy medicines with all the necessary symptoms in PIVD cases includes the following:

**Agaricus M:** Crick in back. Violent shooting, burning pains, deep in spine. Painful pulsation in spinal anal. Backaches disturbing sleep at night; cannot find a position to lie in, with heat. Pain in back, as after continued stooping. Pain along spinal column, < when stooping. Every motion, every turn of body, causes pain in spin. Great weakness in muscles of back, can hardly sit straight when stooping, spine pains as if too weak to support. Sensation of ants creeping along spine. Burning, biting on back. Violent pains in first and second lumbar vertebrae when turning. Pain in first two lumbar vertebrae, with sense of coldness in glutei muscles, spreading down legs, and formication in feet. Spinal column sensitive to pressure of a hot sponge in region of second and third lumbar vertebrae. Pain in lumbar region and sacrum, especially during exertion in daytime and while sitting; pain, sore aching; back not sensitive to touch. Pressure in sacrum like a heavy load, as if it would burst. Pain in sacrum: a sort of crick in back; extends along spine to nape of neck; < in evening, or goes into lower limbs. Pain in back and sacrum so violent that he has to keep in bed, some palpitation, no appetite, no stool, but frequent discharge of pale yellow urine. As if beaten in sacrum, or dislocated feeling. Feels palpitation even in os coccyx. Dry feeling in os coccyx. Pains in legs, especially in region of right hip joint, like from fatigue. Violent pains in limbs, especially left hip under gluteal muscles. In left buttock violent tearing with sensation of coldness, wakening him out of sleep. Twitching of gluteal muscles. Icy coldness from glutei down to feet, most in big toes, with numbness and twitches. Crossing legs causes pain in thighs. Thighs pain as after a long journey on foot. Painful weariness and heaviness in thighs. Electric stitches or spasmodic pain in anterior part of thigh.

**Ammon Mur:** Backache, especially at night. Pain in small of back, as if bruised or crushed, during rest or motion, also at night, in bed; could neither lie on back nor side. Stiffness in small of back & severe pain in lumbo sacral region. Pain in left hip, as if tendons were too short, must limp when walking. Hamstrings painful when walking, as if too short. Cramp like contraction in lower part of left leg.

**Arnica Montana:** Great soreness of back. Fullness and pressure in lumbar region. Sensation of a great weight across lower parts of loins, and feeling of being drawn in, as if a cord was tightly drawn across. Tingling in back. Spine pains, as if not capable of carrying body. Pain in region of lumbar vertebrae. Small of back pains; stitches when coughing, breathing deeply, or walking. A peculiar painful sensation extending down back, as comes sometimes from continued stooping in hard work, in rising from bed in morning. Drawing pressing pains in left hip joint, thigh being extended, when sitting. Hips pain as if sprained. Boring, tearing pains shifting from right hip joint to various parts; worse at night, cannot find an easy position; bearable during day, and during motion. After a sprain. Formication; lame feeling; must often change position; bed or chair seems so hard. After exertion, long marches, etc. This is very useful remedy for sciatica due to over-exertion. The acute pains are followed by a sensation as if bruised. Pain in thighs when walking, as from a blow, or contusion.

Thighs livid, with blue yellow marks, as if black and blue. Blue spots appeared on thighs, which felt as if bruised when touched; these spots were more numerous after mental emotion or exertion. Intense burning at a small spot on outside of left tibia. Pain in calf of right leg, as from a blow, with lassitude of legs. The right lower limb cannot be used as usual. Tingling in legs. Violent burning in feet.

**Ars .Alb:** Backache after hard work. Insupportable backache towards evening and on rising from a seat. Burning pain in back while lying quietly upon it. Stiffness in spinal column, beginning in region of os coccygis. Pain back of great trochanter, extending down thigh, posteriorly, then towards knee; anteriorly, embracing patella, down tibia to ankle; pain relieved somewhat by flexion of knee. Sciatica brought on by staying in damp, cold cellar. Tearing and shooting in hip, thigh and groin.

**Bryonia Alb:** Suits lumbago of a quiet type, with great aggravation on moving. Bryonia has shooting pains worse from motion and relieved by hard pressure. Dull aching in lumbar muscles. Stiffness, tearing and tenderness in joints and muscles of lumbar region, prevent motion and stooping; most when standing or sitting, > when lying. In lumbar and sacral region, pain as if beaten. Stitches in sacral region and back. Pain in small of back, which makes walking or turning difficult; as if bruised, when lying on it. Painful stiffness in small of back, compelling him to walk and sit crookedly. Pain in small of back, like a painful stiffness, not allowing one to stand erect.

## Homoeopathy Treatment

Pressive drawing pain in small of back and loins, which makes turning very difficult; it awoke him from sleep. Pain in small of back; < by every motion Sciatica: pains < sitting up, by moving, and late in evening; lies best on painful side; often < by cold water. A few large stitches, like knife stitches in hips. Great painfulness of r. thigh; pain comes from head of femur, extends along anterior surface of thigh to knee. Great weariness in thighs, he can scarcely go up steps; less when going down steps.

**Calcarea Carb:** Rheumatism of lumbar vertebrae, with violent boring, tearing, burning pain, extending downward, with inclination to move. Pain starting from small of back; spinal bones affected. Ischias.

Weakness in small of back. Pain in sacral region, back and neck, after over lifting, or feeling as if wrenched. Heat around coccyx. Drawing and tearing pinching in coccyx. Painful stiffness in back, making change of posture very difficult. Inflammation of spinal cord. Spine curved laterally. Spina bifida. Scoliosis of spine. Weariness and a feeling of stiffness in anterior muscles of thigh, in morning, on beginning to walk. Painful weariness of lower limbs, especially of thighs and feet.

Lifeless, "gone asleep" sensation in muscles of thighs. Emaciation of thighs and paralysis of extensor muscles (compression on nerve root, stenosis). Sciatic pains caused by working in water. Pain extends down into limbs and keeps them in constant uneasiness.

This medicine can be used as constitutional remedy for both male and female.

**Colocynth:** Severe stitching pain in small of back, < from motion. Sciatica. Sensation of a heavy weight in lumbo-dorsal region > by lying on left side, with increase of temperature and sensibility of parts affected. Pain in back and small of back, which finally locates itself in upper part of thigh and buttock, pain seems confined to a small spot covering an area of about an inch, making him limp; the pain finally becomes so severe as the disease progresses that he can neither stand nor walk. Lumbago. Stitching pains in small of back, so severe upon motion that he gets upon arms and knees in order to obtain relief, pains unendurable in any other position; stitching and cutting pain in right hip, extending down leg to joint, when it becomes a severe tearing pain; upon remission of pain limb is numb and seems without sensation. Continuous drawing pains in right, also in left hip; lying, sitting, standing and walking are all painful; she can find no comfortable position, especially at night and in bed; walking difficult, partly on account of paralytic state of leg, and partly on account of pain. Shooting pains in sacral region, so that he must keep perfectly quiet, < from every motion. Violent, continuous tearing, sticking, burning pains, from sacrum along course of sciatic nerve, behind great trochanter of right leg, down as far as knee, can neither lie, sit nor walk; < from warmth of bed. Sciatica. Severe pain in right leg, compelling him to lie quietly in one place; slightest attempt at motion causes great pain, which is accompanied by a sensation as if marrow of bone was being crushed; want of sensation along course of sciatic nerve.

**Dioscorea:** Dull pain in lumbar region, < bending spine; sharp, extending to testicles. Lameness of back, cannot sit up without support. Painful affection of right hip completely impairing use of right leg; pain only during motion, rest bringing complete relief. Sciatica. Pain about region of exit and along course of sciatic nerve down right leg; pain only when moving limbs, or on sitting up; entire relief when lying still. Cramping pain in back side of legs; dull pain whole length of right leg posteriorly < at buttock and heel.

**Kali Carb:** Burning tearing near right side of spine, above small of back. Drawing pain in small of back. Pain in small of back < after standing or walking. Pain in small of back after a fall. Feeling in morning as if small of back was pressed in ward from both sides. Hard pressure in small of back. Sharp pains in small of back, with very acute labor like pains running through to front at intervals of a few minutes, occasionally shooting down to glutei muscles. Backache; while walking, she feels as if she must give up and lie down. Bruised pain in back, during rest. Sharp, stitching pains awaken him 3 A. M., he must get up and walk about; pains shoot from loins into nates; pulse weak, soft. Backache extending down to the left side of leg (Sciatica). Stitching and shooting pains in back, shooting down into gluteal region or hips. Back aches as if broken. Pains in right leg, gluteo femoral fold almost obliterated; very weak, cannot stand alone, has not taken a step for eight months; spine curved; every change of position causes a pitiable cry. Left lower extremity, gluteo femoral crease obliterated; knees slightly flexed as if ankylosed, permitting neither flexion nor extension of leg. Feeling of numbness and great inclination of whole right leg to fall asleep.



## Homoeopathy Treatment

**Lycopodium:** Violent pain in small of back in morning on raising from bed, so that she was unable to move. Pain in small of back, while lying on back, with great weariness, going down to feet; violent while sitting, not allowing to straighten one's self. Pain and stiffness in small of back (at night). Stitches in small of back, especially when rising from stooping. Pain in small of back, extending into thighs. Pain in sacral region, worse rising from a seat. Pains in left hip joint on motion. Sciatica: chronic cases; burning and stinging pains, with complete intermissions; stiffness and weakness of affected limbs; worse by rest and slightly better by motion; painful muscular twitching. Every four days: pain in leg from hip to foot, causing limping. Limbs go to sleep easily.

This should be used as constitutional medicine especially in male patients though can be used in females if symptoms agree.

**Rhus Tox:** The greatest characteristic of Rhus Tox is violent pain in the back, as if broken. Better from motion. It is especially suitable to affections of the deeper muscles of the back. There is dull, bruised pain on attempting to rise, showing, thus, the aggravation on commencing motion. It is more suitable to the chronic forms of lumbago. The backache is better from pressure, but worse in bed. The patient likes to lie on sometime hard. The backache radiates to sciatic nerve especially of Right side. The Sciatic pains are tearing and burning, worse during rest, alleviated a short time only during motion. There is lameness and a disposition to muscular twitching; bowels are constipated. It is rheumatic sciatica, the fibrous sheath of the nerve being involved. It is the best remedy for a combination of lumbago and sciatica. Sciatica arising from over-exposure to wet or from lifting, wrenching and over-exertion. Great relief from warmth.

In the beginning this can be used as pain killer.

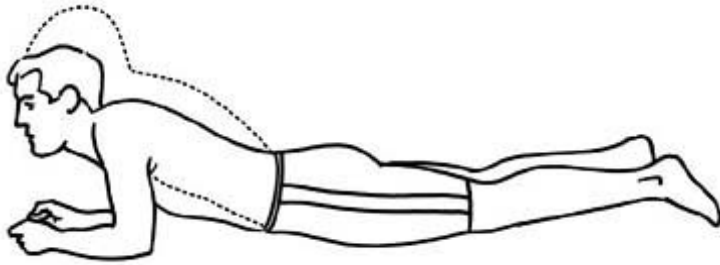
**Ruta:** This remedy also has shooting pains down the back, down the sciatic nerve on first moving or on rising after sitting; the patient is obliged to walk about constantly during the paroxysms of pain. It is worse during damp or cold weather and from cold applications. Drawing, bruised pain in spine, frequently taking away breath. Pain as if beaten and lame in spine. Pressive drawing, very acute pain in right side of spine. Severe pressure in small of back, from within outward, as if bruised; pain appears 5 o'clock in morning, and is > By moving about and by passage of flatus. Stitches in small of back when sitting, stooping or walking; > By pressure and when lying down. Stitches in spine while sitting; is suddenly overcome by anxiety. Rheumatic pains in back, < in morning before rising. Pain as if bruised in lumbar vertebrae. Weakness in lumbar region. Pain in back or coccyx, as from a blow or fall, or as if bruised. Sciatica; pain deep-seated as if in marrow of bone, or as if bone were broken; obliged to walk about constantly during paroxysms; pain < sitting or lying down; constantly complaining about his sufferings; burning, corrosive pains, < in damp or cold weather, or from cold applications. Shooting pains from back down outside of left thigh, sometimes down sciatic nerve on first moving or on rising after sitting; hamstrings, chiefly outer, feel shortened and sore. Ischias arising from injuries and contusions. Anterior surface of thigh feels bruised and painful to touch. Whenever he stretches out the limbs, even a little; the thighs are painful, as if beaten. Hamstrings feel shortened and weak, knees give way going up or down stairs. Posterior portion of thigh above knee seems bruised. Pain and lameness in ankles after a sprain or dislocation. Throbbing and hacking pain as if there were an ulcer on anterior portion of left ankle. He dare not step heavily upon feet, on account of pains in bones of feet, with a sensation of heat. Burning and biting pains in bones of feet during rest.

Gnaphalium is sometime required to palliate radiating pain in both the sides. Vibronic medicines like Skeletal 200 and Injury Balance are also very effective in PIVD cases.



## Exercise

At the onset of PIVD complete bed rest of minimum 2 weeks is required and no exercise should be advised. Once the pain starts diminishing the most commonly advised exercises are shown below that should be performed for a minimum period of 5 minutes a day. Where there is stiffness of lumbar segment rotational mobilization exercises should be performed. An orthopedic surgeon and professional physiotherapist should always be consulted for back pain or spine problem.



1. The low back is gently placed into extension by lying on the stomach (prone position) and propping the upper body up on the elbows, keeping hips on the floor. This should be started slowly, since some patients can not tolerate this position initially.

This position is typically held from five to 30 seconds per repetition, for 10 repetitions.

2. From the prone position, press up on the hands while the pelvis remains in contact with the floor. This position is typically held for 1 second, repeated 10 times.



3. In the prone position with the head and chest lowered to the floor, lightly raise arm and opposite leg slowly, with the knee locked, 2-3 inches from the floor. Please note that there should not be any knee bend. Keep doing it alternately by counting 1-10; with both legs starting with 5 minutes daily and then slowly progressing maximum 10 minutes daily.

**This is the most effective exercise among all.**

## Recurrence Prevention

The predisposing factors in the life style of patient must be identified. If prolonged sitting is necessary then a lumbar roll should be used to maintain the lower lordosis. The lumbar spine should be extended after every 20 to 30 minutes. For example, standing (hands on back above pelvis)- bend back or prone lying-pushup on hands keeping pelvis and legs steady. Everyday spine should be moved in full length in every direction.

Lifting techniques must be corrective and commonsense applied to make sure the patient knows how much lifting to attempt and when to seek help. Bicycling and swimming are suitable activities. Excess weight cause excessive stress especially on discs of L5-S1 and L4-5. Therefore diet control is important. Protection with a **lumbar belt** demanding physical activities is helpful. The back must be kept warm-wearing a west in winter or a woolen band covering T12-S2.

## Surgery

The indication for surgery in case of PIVD are:

1. Severe pain which is causing disability such as to destroy the patient life style for several months.
2. Developing neurological signs i.e. root signs or cord signs.  
Root signs are: Loss of muscle tone and power, loss of tendon reflex and objective loss of sensation in dermatome distribution.  
Cord signs are: Hypertonia of muscles, exaggerated tendon reflexes and altered sensations not in a dermatomal distribution.
3. Bladder or bowel disturbances which may be treated as a surgical emergency.

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## References

1. Tidy's Physiotherapy 12th edition
2. MRI photograph SpineOnline.com
3. Exercise photographs courtesy of [www.spine-health.com](http://www.spine-health.com) and Mosby's Medical Encyclopedia
4. Materia Medica & Repertory by Dr. Kent & Herring

Additional Information can be found out at:

1. Spine Health.com <http://www.spine-health.com/topics/conserv/sciaex/sciaex01.html>
  2. [http://www.energycenter.com/grav\\_f/anatomy.html](http://www.energycenter.com/grav_f/anatomy.html)
  3. <http://www.spineonline.com/topics/intervertebral.html>
  4. <http://americanspine.com>
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