

## Hip and Related Lower Extremity Radiating Pain

ICD-9-CM codes: 355.0 Lesion of sciatic nerve

*ICF codes:* Activities and Participation Domain codes:

**d4153** Maintaining a sitting position (Staying in a seated position, on a seat or the floor, for some time as required, such as when sitting at a desk or table.)

Body Structure code: **s7408** Structure of pelvic region, other specified

**s7508** Structure of lower extremity, other specified

Body Functions code: **b28015** Pain in lower limb

**b2804** Radiating pain in a segment or region

### *Common Historical Findings*

Line of pain in buttock, posterior thigh, and calf; aching in buttock

Symptoms worsen with driving and sitting on involved buttock (“wallet sign”)

### *Common Impairment Findings* - Related to the Reported Activity Limitation or Participation Restrictions:

Symptoms are reproduced with SLR and hip adduction - altered with ankle dorsiflexion and plantar flexion

Symptoms are reproduced with piriformis stretch and palpation/provocation of piriformis

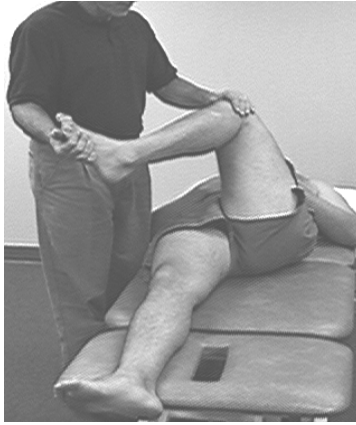
### *Physical Examination Procedures:*



SLR / Hip Adduction

### Performance Cues:

Raise leg to first sense of resistance- utilize a combination of additional hip flexion and hip adduction in an attempt to reproduce the reported symptoms - alter the symptoms with ankle dorsiflexion and plantar flexion



### Piriformis Stretch

Performance Cues:

Stand on opposite side of involved hip

Flex hip to approximately 90° - fully externally rotate hip - horizontally adduct and flex the hip (at about a 45° angle) simultaneously



### Piriformis Palpation/Provocation

Performance Cues:

Stand opposite side of involved hip

Piriformis runs from the anterior part of the sacrum, through the sciatic notch, to the superior aspect of the greater trochanter

Palpate through gluteus maximus on the outer 1/3 of a line from the PSIS to the trochanter

A normal piriformis will be indistinguishable from the surrounding myofascia

Abnormal piriformis hypertonicity feels like a “sausage” and is painful

Careful to not have a false negative as a result of not “sinking” deep enough through the gluteus maximus and surrounding tissues

## Hip and Related Lower Extremity Radiating Pain: Description, Etiology, Stages, and Intervention Strategies

The below description is consistent with descriptions of clinical patterns associated with the vernacular term  
“**Piriformis Syndrome**”

*Description:* Contracture or spasm of the piriformis muscle causing compression of the sciatic nerve resulting in neuritis of one or both branches of the sciatic nerve. The patient may experience buttock pain with or without lower extremity pain and paresthesias extending to, but rarely below, the knee; as well as tenderness to palpation over the piriformis muscle.

### *Etiology:*

Postural Factors: Prolonged or frequent single limb stance, crossed-leg sitting, sitting on one foot, prolonged hip external rotation – such as sleeping with one lower extremity in external rotation, unilateral coxa vara, pronated foot.

Trauma: Femoral neck fracture, sudden starts/stops – such as in playing tennis; direct trauma to the piriformis muscle.

Surgery: May present following a total hip arthroplasty

Diseases: Arthritis, tuberculosis, bone tumors may cause piriformis muscle contractures

### Acute Stage / Severe Condition: Physical Examinations Findings (Key Impairments)

*ICF Body Functions codes:* **b28015** SEVERE pain in lower limb

- The reported symptoms are reproduced with a stretch to the piriformis muscle (i.e., hip horizontal adduction, flexion (above 60°), and external rotation – or with – hip horizontal adduction, flexion (below 60°) and internal rotation, aka as FAIR)
- The reported symptoms are also reproduced with lower limb tension tests  
Example of lower limb tension tests include:
  - SLR with ankle dorsiflexion
  - Freiberg’s test (passive internal rotation of the hip with the thigh extended in prone)
  - Lasegue’s sign (hip and knee flexed to 90 degrees in supine and the knee is then extended until pain is reported or knee is fully extended)
- The reported symptoms are also reproduced with provocatory palpation of the piriformis muscle - typically palpated lateral to the sciatic notch to the greater trochanter
- The reported symptoms may also be reproduced with resisted tests to the piriformis muscle, such as the Pace test (resisted active abduction of thighs in seated position)
- The patient may present with any or all of the following biomechanical abnormalities: ipsilateral shortened lower extremity, anterior rotation of sacrum in the contralateral oblique axis (deep ipsilateral sacral sulcus), excessive pronation of ipsilateral foot, in supine- the involved lower extremity may rest in excessive external rotation
- Activities that stretch the piriformis and the sciatic nerve (e.g., exiting our of a car) aggravate the symptoms
- The patient may present with dyspareunia or rectal pain with bowel movements

Sub Acute / Moderate Condition: Physical Examinations Findings (Key Impairments)  
*ICF Body Functions codes:* **b28015** MODERATE pain in lower limb

As Above – except:

- Activities that stretch the piriformis and the sciatic nerve only intermittently aggravate the symptoms

Settled Stage / Mild Condition: Physical Examinations Findings (Key Impairments)  
*ICF Body Functions codes:* **b28015** MILD pain in lower limb

As Above – except:

- Activities that stretch the piriformis and the sciatic nerve only aggravate the symptoms after prolonged end-range positions

### Intervention Approaches / Strategies

#### Acute Stage / Severe Condition

Goals: Decrease pain

Increase hip rotation range of motion

- Manual Therapy
  - Soft tissue mobilization using very slow, inhibitory pressure to the piriformis muscle – followed by gentle contract/relax, manual passive stretching
  - Soft tissue mobilization to areas of potential entrapment of the sciatic nerve of the posterior thigh
- Therapeutic Exercises
  - Instructions in gentle piriformis stretch.
  - Nerve mobility exercises for the sciatic nerve
- Re-injury Prevention Instruction:
  - Modification or avoidance of activities/positions that are aggravating symptoms, such as prolonged sitting with an overstuffed wallet in the back pocket of the involved buttock

### Sub Acute Stage / Moderate Condition

Goals: Increase flexibility of piriformis muscle to normalize hip rotation range of motion

Normalize mobility of the sciatic nerve

Normalize pelvic girdle and lower extremity lower extremity biomechanics

- Approaches / Strategies listed above
- Manual Therapy
  - Procedures to restore normal pelvic girdle symmetry
- Therapeutic Exercises
  - Provide stretching exercises for relevant pelvis and lower extremity tight musculature – typically the hip external rotators and calf muscles
  - Provide strengthening exercises for relevant pelvis lower extremity weak musculature – typically the back extensor and hip flexor muscles and hip abductor muscles
- External Devices (Taping/Splinting/Orthotics)
  - Foot orthotics may be useful to correct excessive pronation

### Settled Stage / Mild Condition

Goal: Return to desired activity or occupation

- Approaches / Strategies listed above

### Intervention for High Performance / High Demand in workers/ Athletes

Goals: Return to desired sport or occupation

- Approaches / Strategies listed above

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