

## HIP JOINT EXAMINATION

### 1. Background and rationale

Not all hip pain emanates from the hip joint. The joint examination helps to identify when pain that the participant believes is in their joint actually emanates from their joint and when it does not. Some persons with hip pain may have tendonitis or bursitis or may have chronic pain disorders affecting multiple muscles and soft tissue areas of their body. We will use the physical examination to help determine whether the pain the participant is experiencing is in their hip or whether they have tenderness outside the joint, suggesting they have another disorder as a source of their hip pain.

### 2. Equipment and supplies

- Hand-held, long-armed goniometer
- Wedge pillows (various sizes)
- Examination table. Situating the examination table in the middle of the room will allow convenient access to the right and left limbs of the participant.

### 3. Safety and exclusion

There are no general safety issues for this exam.

*We will not assess internal rotation or trochanteric bursitis on a hip that has been replaced.*

Some participants may feel discomfort or joint pain during the hip examination. Even if some pain is felt, there is no risk of injury to the participant. If the participant exhibits or complains of pain, ask if it is OK to continue with the exam.

### 4. Participant preparation

The trochanteric bursitis exam requires access to the lateral thigh.

Acceptable attire during testing includes:

- Loose shorts (participants should be encouraged to bring loose shorts, e.g., gym shorts)
- Hospital gown
- Scrubs
- Shoes with a flat heel

The following should not be worn during testing:

- Pants (other than thin pants such as scrubs; thick sweatpants are not acceptable)
- Spandex or bicycle shorts
- long-underwear
- high-heeled shoes or boots

## 6. Measurement procedures

### 6.1 Participant positioning and suggested order of exams:

Lying on L side

- Trochanteric bursitis, R

Lying supine

- Pain with hip internal rotation R, L

Lying on R side

- Trochanteric bursitis, L

Sitting on edge of exam table

- Range of hip internal rotation with goniometer R, L

### 6.2 General Procedure

#### 1. Introductory script:

“We are going to examine your. The exam starts with you lying on your left side, then on your back and then on your right side. We’ll finish the exam with you sitting at the end of the exam table.”

3. Equivocal answers: If a participant does not respond “yes” or “no” to the question about whether they feel pain, persist in getting a “yes” or “no” answer.

Script: “Does this hurt? Would you say ‘yes’ or ‘no?’”

If the examiner is unsure about any findings at the initial exam, they should enlist the help of another examiner. When they compare findings, the exam will be recorded as positive (for pain) on the data collection form only if the two examiners agree.

#### 6.2.1 Trochanteric bursitis

***Do not do trochanteric bursitis examination on the side where a hip has been replaced.***

1. Participant is lying on side, with the limb to be examined on top (to examine right leg, participant lies on their left side). If a participant has difficulty lying on his right side, the trochanteric bursitis exam can be completed with the participant standing.
2. Examiner feels for trochanter (a bony prominence about 4 inches distal (down the leg) to iliac tubercle of iliac crest).
3. Determine if it is tender by applying moderate pressure (for large participants) with the thumb directly on the trochanter. The thumb pushes medially (toward the groin). Repeat for the area that is reached by sliding the examining thumb from the side of the prominent bone to its back side. When in this position, the thumb pushes anteriorly (in the direction of the front of the thigh). For obese patients, it may be necessary to repetitively press over a larger area to attempt to localize this site.

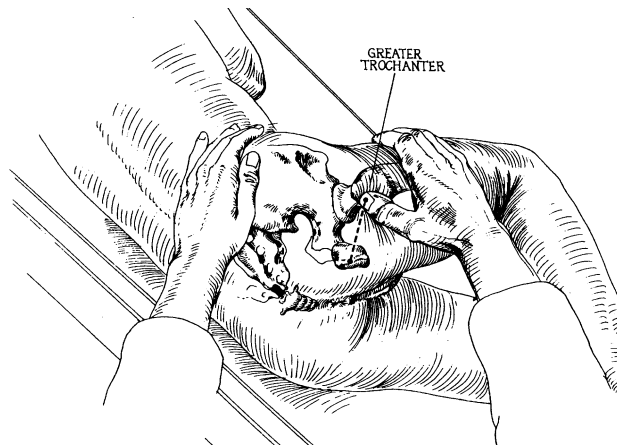
4. While applying pressure, ask:

Script: “Is this tender or painful?”

5. If participant does not respond “Yes” or is uncertain, but makes an indication of discomfort or withdraws or winces or in some other way indicates discomfort, reapply pressure and ask them again,

Script: “Does this hurt?”

Record whether the participant feels pain on the data collection form.



**Figure 1**

### **6.2.2 Hip examination/internal rotation**

***Do NOT perform the internal rotation exam if a hip has had a total hip replacement.***

Internal rotation of the hip is the movement made by the femoral head in the acetabulum when the hip and the knee are both flexed to 90 degrees and the lower leg is moved laterally away from the midline of the body (See Figure 3).

Range of hip internal rotation measured by goniometer. Range of hip internal rotation will be measured in degrees using a goniometer. Goniometry is the measurement of angles; in our study the measurement in degrees of the internal rotation of the hip. The measurement is taken while the pivot, or axis, of the goniometer is over the axis of motion of the joint; in this case, the patella which is perpendicular to the axis of motion of the hip (see Figure 2). Since the axis of motion may shift somewhat when the joint is moved, care should be taken to be sure the pivot of the goniometer is as closely as possible over the axis of motion when the measurement is taken.

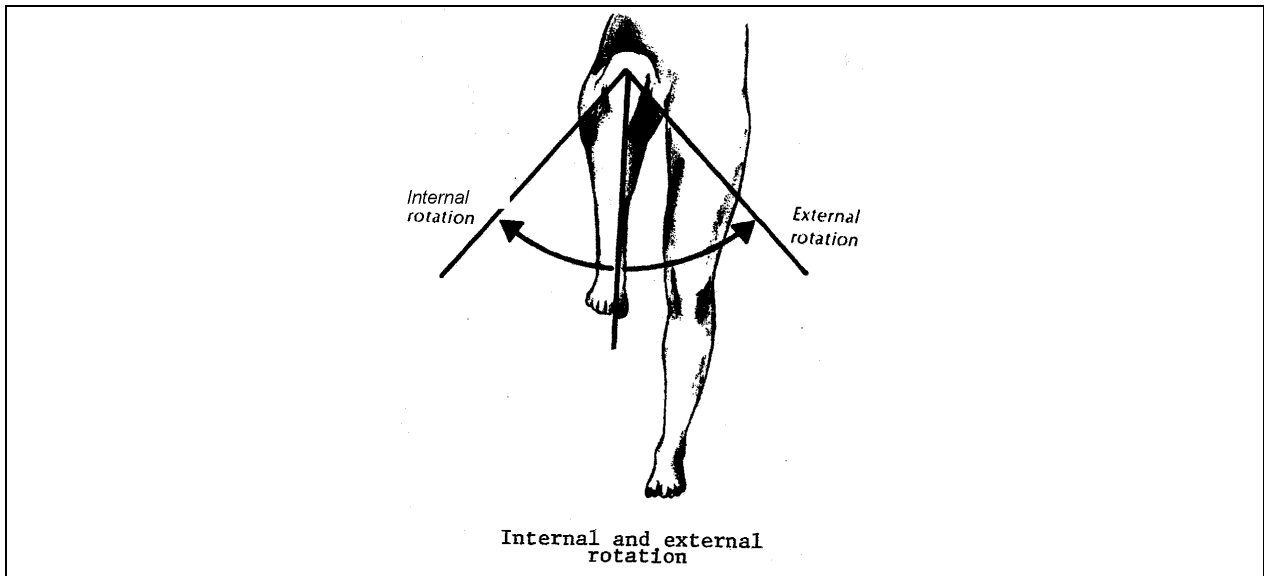


Figure 2

We will measure free and easy range of passive motion, which is defined as movement of the joint by the examiner up to the point of resistance to movement, or to the point where joint pain prevents further movement. For some participants this will mean moving the joint beyond the onset of discomfort in the joint. Generally, less than 30 degrees of internal rotation is considered limited and 15 degrees is highly limited.

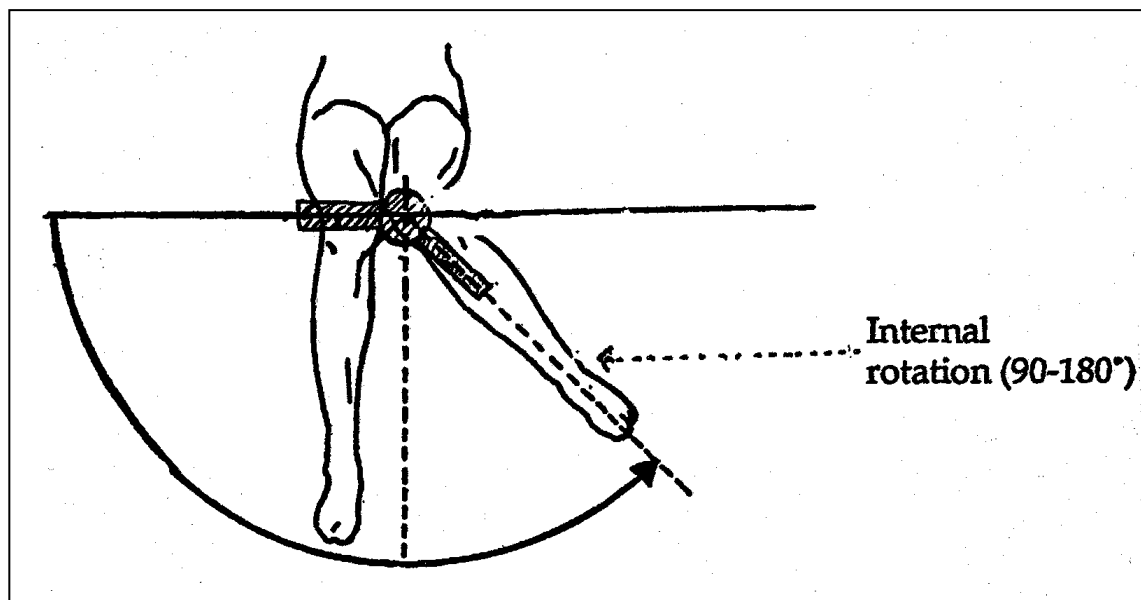


figure 3

**IMPORTANT:** For purposes of recording, the goniometer measurement will always be an angle between 90 degrees and 180 degrees, as recorded from the black numbered

scale at the bottom of the goniometer dial. The 'stationary' arm of the goniometer is the arm attached to the circular dial calibrated in degrees. The moveable arm pivots around the circular dial.

### 6.2.3 Pain on internal rotation

1. Determine eligibility for each hip to be examined. ***Do NOT examine on the side where a hip has been replaced.***
2. Participant is lying supine on the examination table with legs extended.
3. The examiner lifts the participant's lower leg, with one hand cupped underneath the heel and the other placed over the patella. The knee and hip of the limb being examined should both form 90 degree angles.

Script: "I'm going to lift your leg and then rotate your hip by pulling your lower foot outward. Please relax your muscles. As I move your leg, tell me if you feel any pain in your hip."

4. Apply firm pressure to the top of the knee to keep it in line with the axis of the hip joint. Slowly pull the heel outward until you feel resistance indicating the limit of motion. The resistance encountered at the limit of normal motion is typically "firm" - a firm or springy sensation that has some give as muscle is stretched.
5. When you have reached the point of firm resistance or the participant indicates discomfort, ask

Script: "Is this tender or painful in your hip?"

If "Yes," ask:

Script: "Where does it hurt?"

6. If the participant does not respond "Yes," but makes an indication of discomfort or withdraws or winces or in some other way indicates discomfort, continue applying pressure and ask again,

Script: "Is this tender or painful in your hip?"

If, "Yes," ask:

Script: "Where does it hurt?"

Show the participant Card #1 (the hip diagram) and mark all that apply.

- 1 Groin/inside leg near hip
- 2 Outside of leg near hip
- 3 Front of leg near hip
- 4 Buttocks
- 5 Lower back

7. Record the participant's response on the data collection form.

#### 6.2.4 Range of internal rotation

1. Participant is seated on the edge of the examination table with legs over the side and knees flexed to about 90 degrees; knees about 8 inches apart. The participant's hands are resting on knees to help hold the goniometer in place. You may need to place a wedge under the thighs to get knees and hips to 90 degrees.

Test the right leg, then the left leg.

Have the participant hold the goniometer with the pivot centered over the middle of the patella of the knee on the side being rotated, and the stationary arm on a line between the patellae of the right and left knees. (See Figure 2.) Ask the subject/participant to keep the pivot point centered over the knee while you are moving their leg.

Script: "I'm going to rotate your hip again by pulling your lower leg outward and measuring its movement. To help me measure this, I need you to hold this device in place over your knees. (*Explain to participant how to hold the goniometer.*)

Script: "While I'm moving your leg, try to keep both of your buttocks on the table.

2. The examiner may either squat or sit on exam stool in front of the participant and push their leg up and outward, or (this is preferred) stand to the side of the participant and pull the lower leg up and outward. In either case, use the flat part of your hand or the 'V' between thumb and first finger to apply pressure. If pressure is applied with the finger tips, this may hurt the participant's lower leg. PLEASE NOTE: For some very large participants, it may be necessary to have one examiner hold the knee to stabilize it and the other to rotate the hip.

Hold the leg at the shin near the ankle with one hand and put your other hand on the top of the knee to stabilize the joint. Move the lower leg (and the arm of the goniometer) outward to the limit of motion or until the participant complains of pain. Buttocks should remain on the table and the stationary arm of the goniometer parallel to the table top. Apply firm pressure to the top of the knee to keep it from moving.

The resistance encountered at the limit of normal motion is typically "firm" - a firm or springy sensation that has some give as muscle is stretched. The typical limit of motion, as measured by the goniometer, is about 135 degrees to 155 degrees.

3. After reaching the limit of motion read the angle from the black numbered scale at the bottom of the goniometer dial (between 90 degrees and 180; full ROM usually not more than about 135 to 155 degrees).
4. Record degrees of motion.
5. Reverse examiner hand and goniometer positions and perform the examination on the other leg.

## 7. Quality assurance

### 7.1 Training

Experience in musculoskeletal examinations is preferred but not required. Training includes:

- Read and study operations manual chapter
- Attend training session
- Practice on volunteers between the ages of 50 and 79 and compare findings with other examiners.

### 7.2 Certification requirements

- Fulfill training requirements
- Conduct exam on two participants with more experienced examiner and reach consensus on findings
  - According to protocol, as demonstrated by completed QC checklist

### 7.3 Quality assurance checklist

#### Right-side exams:

##### Trochanteric bursitis

- Participant lying on left side, with right limb to be examined on top
- Examiner correctly feels for trochanter (about four inches distal to iliac tubercle of iliac crest)
- Examiner applies moderate pressure with the thumb directly on the trochanter
- Examiner applies moderate pressure with the thumb pushing medially (toward groin), then anteriorly (in direction of the front of the thigh)
- Accurately records results on data collection form

##### Pain with hip internal rotation

- Participant supine on exam table, legs extended
- Examiner lifts the participant's lower leg, with one hand cupped underneath the heel and the other placed over the patella

- The knee and hip both form 90 degree angles
- Knee stabilized with firm hand pressure to keep it in line with the axis of the hip joint
- Heel pulled slowly outward to the limit of motion
- Asks “Is this tender or painful in your hip?” and, if “Yes” asks, “Where does it hurt?” and accurately records where pain is felt on data collection form

**Left-side exams:****Pain with hip internal rotation**

- Participant supine on exam table, legs extended
- Examiner lifts the participant’s lower leg, with one hand cupped underneath the heel and the other placed over the patella
- The knee and hip both form 90 degree angles
- Knee stabilized with firm hand pressure to keep it in line with the axis of the hip joint
- Heel pulled slowly outward to the limit of motion
- Asks “Is this tender or painful in your hip?” and, if “Yes” asks, “Where does it hurt?” and accurately records where pain is felt on data collection form

**Trochanteric bursitis**

- Participant lying on left side, with right limb to be examined on top
- Examiner correctly feels for trochanter (about four inches distal to iliac tubercle of iliac crest)
- Examiner applies moderate pressure with the thumb directly on the trochanter
- Examiner applies moderate pressure with the thumb pushing medially (toward groin), then anteriorly (in direction of the front of the thigh)
- Accurately records results on data collection form

**Right hip internal rotation ROM exam**

- Participant sitting on edge of exam table, lower leg able to move freely
- Goniometer positioned properly, participant instructed to hold in place
  - Pivot remains over patella during the exam
- Examiner moves lower leg counterclockwise
  - left hand on left knee, right hand grasping shin and arm of goniometer
- Examiner pushes limb to limit of motion or until participant complains of discomfort
- Participant's buttocks do not rise up off table
- Records range of motion in degrees and pain for right
- Reverses goniometer and hand position and repeats for the left leg



**Left hip internal rotation ROM exam**

- Participant sitting on edge of exam table, lower leg able to move freely
- Goniometer positioned properly, participant instructed to hold in place
  - Pivot remains over patella during the exam
- Examiner moves lower leg counterclockwise
  - right hand on right knee, left hand grasping shin and arm of goniometer
- Examiner pushes limb to limit of motion or until participant complains of discomfort
- Participant's buttocks do not rise up off table
- Records range of motion in degrees and pain for left

**All exams**

- Reviews form for completeness
- Correctly completes form

### Hip Pain Card

