



Hand-Held Dynamometry for the Hip Muscles

Strength testing will be performed using a hand-held dynamometer (HHD). Each maximal isometric contraction (make test) of 5 seconds will be performed for **two trials**. The two trials will be entered into the spreadsheet in **pounds (lbs)** and the average will automatically be calculated. Raw data and side to side comparisons will show up in dark green boxes to the right and can be copied and pasted for documentation purposes. In cases of bilateral involvement or weakness, average values will auto populate below in tables that will automatically compare to reference values from older adults and from younger adults. Comparison box will be light green if the value is above the mean value or less than 1 SD below the mean value. Comparison box will be red if the value is more than 1 SD below the mean. Maximal encouragement should be used by the examiner. Comparison to reference values will be used for patient education and for therapist's knowledge but not used for documentation purposes.

Tips

- Always check HHD settings prior to testing to ensure correct settings. (i.e. lbs vs. kg)
- Raise or lower the examining table to your advantage.
- Either lock elbows into full extension or brace flexed elbow into your body depending on the testing position.
- Clinician's force should be in line with the participant's force.
- Stabilize your body by standing in a lunge position, keeping the trunk neutral, shoulders retracted, and performing an abdominal brace when resisting the participant's isometric contraction.

Flexion (Iliacus and Psoas Major)

Patient Position: seated with hips and knees flexed to 90 degrees, feet dangling. The participant uses their hands to hold onto the side of the plinth for stabilization and to decrease substitution that may occur with a posterior trunk lean.

Clinician Position: standing to the side to be tested. Elbows in full extension and both hands fixed to stabilize the HHD.

HHD Position: just proximal to the superior pole of the patella

Standard Command: "Go ahead, push-push-push-push-push, and relax"

Method of Testing: 2 trials of 5 second duration, isometric contraction





Extension (Gluteus Maximus)

Patient Position: prone with knee to be tested flexed to 90 degrees

Clinician Position: mid-table on the side to be tested. Elbows in full extension and both hands fixed to stabilize the HHD.

HHD Position: just proximal to the popliteal fossa of the limb to be tested

Standard Command: “Go ahead, push-push-push-push-push, and relax”

Method of Testing: 2 trials of 5 second duration, isometric contraction



Abduction (Gluteus Medius and Minimus)

Patient Position: supine, with contralateral knee in flexed position to assist with pelvic stability and to decrease stress on the low back.

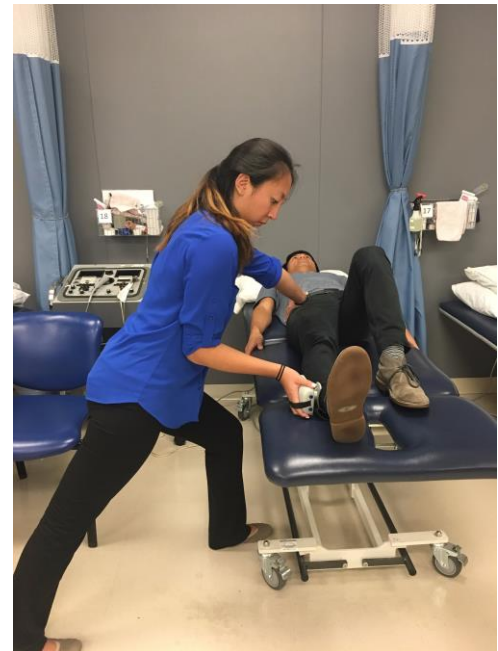
Clinician Position: standing on the side to be tested. Elbows in full extension. One hand on the HHD and the other hand stabilizing the participant’s pelvis at the ASIS.

HHD Position: Just proximal to the lateral malleolus of the limb to be tested

Standard Command: “Go ahead, push-push-push-push-push, and relax”

Method of Testing: 2 trials of 5 second duration, isometric contraction

Note: watch for substitution of external rotation of the limb to be tested. Participant’s toes should point towards the ceiling throughout testing.





Adduction (Adductor Magnus, Longus, and Brevis, Pectineus, Gracilis)

Patient Position: supine, with contralateral knee in flexed position to assist with pelvic stability and to decrease stress on the low back.

Clinician Position: standing on the side to be tested. Elbows in full extension. One hand on the HHD and the other hand stabilizing the participant's pelvis at the ASIS.

HHD Position: Just proximal to the medial malleolus of the limb to be tested

Standard Command: "Go ahead, push-push-push-push-push, and relax"

Method of Testing: 2 trials of 5 second duration, isometric contraction



External Rotation (Piriformis, Gemellus Superior and Inferior, Obturator Internus and Externus, Quadratus Femoris)

Patient Position: prone with knee to be tested flexed at 90 degrees.

Clinician Position: standing on the opposite side of the limb to be tested. Elbows in full extension. One hand on the HHD and the other hand stabilizing the participant's pelvis at the PSIS.

HHD Position: just proximal to the medial malleolus

Standard Command: "Go ahead, push-push-push-push-push, and relax"

Method of Testing: 2 trials of 5 second duration, isometric contraction





Internal Rotation (Tensor Fascia Lata, Gluteus Minimus, Gluteus Medius)

Patient Position: prone with knee to be tested flexed at 90 degrees.

Clinician Position: standing on the same side of the limb to be tested. Elbows in full extension. One hand on the HHD and the other hand stabilizing the participant's pelvis at the PSIS.

HHD Position: just proximal to the lateral malleolus

Standard Command: "Go ahead, push-push-push-push-push, and relax"

Method of Testing: 2 trials of 5 second duration, isometric contraction

