

Glute Medius & Hip Abduction Functional Training (Pt. 1)

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One of the most important functional roles of the [hip abductors](#) takes place during the single-limb support phase of walking to maintain frontal-plane stability. Just about every sport requires athletes to laterally walk or run with abduction. In real-life circumstances, we also have to move laterally in situations such as moving around people in a crowded mall or on sidewalks. This action requires stability as well as balance and awareness.

Weakness or poor timing issues (motor control) in the gluteus medius region can reduce athletic performance and serve as a catalyst for lower-body injuries and changes in gait. There are a number of factors that contribute to gluteus medius weakness. Lifestyle factors contributing to gluteus medius weakness include sleeping on your side (predominantly the same side), and flexing and adducting your top leg over your bottom leg. In addition, standing predominantly with all of your body weight on one leg can cause the pelvis to move sideways and the hip joint to adduct; this can contribute to weakening of the hip abductor muscles.

[Iliotibial band \(ITB\) syndrome](#) may result from gluteus medius weakness. The lack of control during thigh abduction and external rotation places greater tension on the tensor fascia lata and ITB.¹ Gluteus medius dysfunction can also contribute to patellofemoral pain syndrome (PFPS), resulting in decreased hip control and increased femoral adduction and internal rotation.²

Weakened gluteus medius muscles can lead to Trendelenburg gait, an abnormal gait caused by weakness of the abductor muscles of the lower extremities; the gluteus medius and gluteus minimus. A strong gluteus medius will hold up the pelvis as one leg swings forward; however, a weakened gluteus medius muscle is unable to hold up the opposite side of the pelvis, resulting in downward tilt of the pelvis and Trendelenburg gait (result of the pelvis not being stabilized during gait).³

The Trendelenburg test is a single-leg-stance test that requires the individual to stand on one leg with the hip flexed at 90 degrees for 30 seconds.⁴ Individuals are given five attempts on each leg and must successfully complete the task on each leg. It is considered a fail if the stance foot hops or twists on the floor, either hand reaches for support or the foot is put down.

The pelvis should not be laterally shifted while the leg is lifted, the trunk should not bend sideways to gain balance, and the pelvis should not lift at the same time the individual takes the leg off the floor. Any lateral shift in the pelvis or lowering of one side of the pelvis is indicative of gluteus medius weakness.³

According to [Jacobs, et al.](#), "The hip abductors play a vital role in maintaining neutral pelvic alignment during gait and are also active when performing lateral movements and navigating stairs."⁵ Since the abductors play a major role, focusing on a functional way of training them is important. I use standing hip abduction exercises to include more emphasis on stabilization. Activation levels aside, bringing hip abduction to a single-limb standing exercise certainly makes sense.

One of the problems I often see during standing hip abduction exercises is too much pelvic and/or trunk rotation. Focusing on movement at the hip joint is essential. You always feel the opposite leg working just as hard. When I have patients perform standing lateral band walks, they also feel the trailing abductor muscles. The main reason I like to do more standing is for functional reasons and also to burn more calories.

According to Neumann,⁶ lifting the foot off the ground, reaching toward the floor while hip hinging, or rapidly rotating the trunk and pelvis while supporting the body over one limb, demands strong and specific activation of the hip's surrounding musculature. This is at least true for non-injured athletes or exercise participants.

What place, if any, does the side-lying hip abduction exercise have in an exercise program? We don't often lie on our sides abducting our hips during activities of daily life. However, for those individuals with lower-extremity injuries who may be unable to begin a program with weight-bearing exercise, the side-lying hip abduction exercise may be a good starting point.

Piriformis Syndrome Rehab

To treat piriformis syndrome in the rehabilitation setting, [Tonley, et al.](#), divided treatment into three phases. The first phase included non-weight-bearing exercises to isolate muscle recruitment of the hip extensors, abductors and external rotators. The second phase progressed to weight-bearing exercises. The final phase incorporated more functional training.

Although activation levels were not specified, some of the exercises used to strengthen the hip musculature included side-lying clams with and without resistance (during the isolated muscle recruitment phase); squats with exercise bands wrapped around the knees (make sure to prevent knee adduction during squats); sidestepping; single-limb sit-to-stand and single-limb step-ups / step-downs (during the weight-bearing phase) and lunges to left and right; and double-limb vertical jumps with double-limb landing and single-leg landing (during the functional training phase). Using the bands helps train athletes to keep their feet wide enough to assume and maintain a position of power.

As a practitioner, I understand the importance of strong hip musculature for preventing injuries of the lower extremity. In a study by [Distefano and Pardia](#),⁸ side-lying hip abduction produced the greatest glute medius activation of all open-chain exercises (clams produced the lowest). In fact, the side-lying hip abduction produced similar glute medius activation to the best closed-chain exercises (single-leg squat, lateral tube walk, side hop with stabilization).

According to [Jacobs, et al.](#), "Activation of the gluteus medius muscle did not differ between the 2 weight bearing and non weight bearing exercises."⁵ Surprisingly, the side-lying abduction exercise *did not* show significant muscle activation compared to standing exercises, even though it may have been more isolated. The standing exercises had similar muscle activation because of the forced stability.

A Sensible, Safe Approach

Do these results provide enough information about relative activation of the gluteal muscles during specific therapeutic exercises? How can this influence our exercise progression and prescription? I agree that standing hip abduction seems more functional, as we usually need to recruit the glute medius in a standing position. One of the issues is whether our patients / clients are able to level the pelvis and keep the feet pointed forward on a neutral, unrotated pelvis.

For many, this is unattainable, so a safer alternative to begin strength training and motor control might be the side-lying position. The same can be said for bridging. It is a very popular exercise prescribed by many chiropractors and physical therapists, yet many patients have come to me from other practitioners who prescribed this exercise, because it exacerbated their lower back and SI pain. Very often when there is a pelvic disparity (one ilium tilted more anterior or posterior than the other), the glutes do not function at the same strength and hip extension is not bilateral. This can often lead to more [SI joint](#)-referred pain on one side of the lower back.

References

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Additional Resources

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AUGUST 2013