

Trendelenburg Sign

Trendelenburg is often caused by a weakness within the hip abductors. The condition makes it difficult for the hip to support the weight of the body on the affected side. In normal gaits, both of the legs will bear half of the body's weight. When the left leg is raised, the right side will be able to take the entire amount of weight placed on it. When walking, the pelvis will tilt, rising on the side that isn't taking the weight.

If there is a weakness in the abductor muscles, the pelvis will drop instead of rising up on the side that isn't supported. To help lessen the effect, many individuals find themselves leaning over the affected hip. The center of gravity changes to be over the hip to help reduce the degree of the drop in the pelvis.

Causes of a Trendelenburg

By far the most common cause of a Trendelenburg sign is post-hip replacement. When the hip is replaced, there are two potential problems. The first is that the leg length may be unintentionally altered following the hip replacement. This is due to the surgeon. The second is because of a weakness in the gluteal (buttock) muscles. During surgery, these muscles may have to be cut to get access to the hip. This can lead to weakness meaning that the muscles are not able to stabilize the pelvis.

Trendelenburg Sign Anatomy

The hip is a ball and socket joint connecting the thigh bone (femur) to the pelvis socket. It allows the leg to rotate, flex, extend, and move to the inside (adduct) and outside (abduct). The hip joint is composed of multiple parts, including that of the lesser and greater trochanters. The greater trochanter is the place where countless muscles from the buttocks allow and meet to promote hip abduction and movement from one side to the other. When it comes to the lesser trochanter, this is the point where the iliopsoas muscle is attached to the hip joint to provide for forward movement within the leg, which is otherwise referred to as hip flexion.

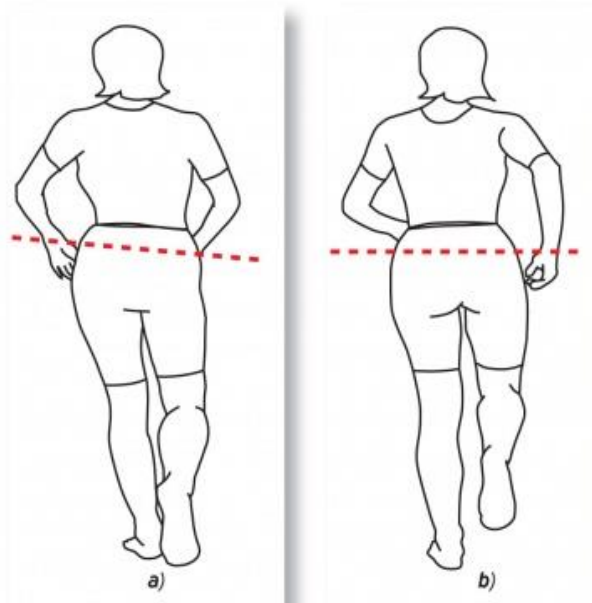


Figure 6a: Trendelenburg gait – inadequate pelvic stability;

Left Figure 6b: normal gait – adequate pelvic stability

How to Treat Trendelenburg Sign:

A Trendelenburg may have a knock-on effect on other problems or pathologies in the hip and knee such as that of premature wear and arthritis in the hip joint. Finding a form of physical therapy that helps to reduce the degree of Trendelenburg is important to minimizing any secondary injuries.

This abnormal gait is caused when the hip abductors are weak. The main purpose of physical therapy is to help strengthen the hip abductors. Appropriate exercises for strengthening the abductors involve the patient lying on their side on the less affected side and abducting the upper leg upward toward the ceiling. To make the whole experience more challenging, weights or a theraband can be used around the active limb.

Lateral step-ups, closed-chain exercises and other functional balance exercises are also beneficial to strengthening the hip. It is important that the rest of the leg on the affected side is strengthened to help promote balance.

If the Trendelenburg is caused by a leg length discrepancy, then strengthening the muscles will not be likely to make a significant difference. Instead the patient may need to consider an orthotic or heel raise to even up the two legs.

Tips:

- Pelvic support can significantly improve the outcomes related to gait, posture and walking in those who had a congenital dislocation what wasn't treated.
- Physical therapy works to strengthen the hip joint muscles and provide you with an increased range of movement in the joint.
- A waddling motion is often a sign that you are dealing with this condition and need to undergo a proper treatment program to correct it.
- Avoid sitting and remain docile for extended periods of time. You need to strengthen the muscles and joints to correct the problem.