Trendelenburg Gait

A Trendelenburg gait 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 (gait is the manner in which a person walks), both of the legs will bear half of the body's weight. When the right leg is raised, the left 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 (Fig. 1a).

If there is a weakness in the abductor muscles, the pelvis will drop instead of rising up on the side that isn't supported (Fig. 1b). To help lessen the effect, many individuals find themselves leaning over the affected hip. The centre of gravity changes to be over the hip to help reduce the degree of the drop in the pelvis. Seeing this happen is the diagnostic test for Trendelenburg gait and is called a Trendelenburg sign.

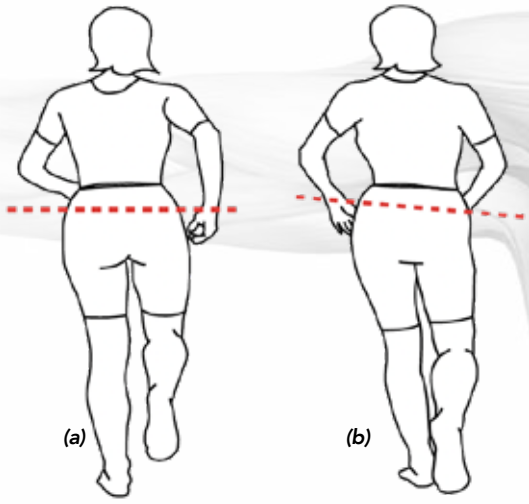


Figure 1: Position of the hips in (a) normal and (b) Trendelenburg gait

CAUSES OF A TRENDELENBURG GAIT

By far the most common cause of a Trendelenburg gait is hip replacement surgery. 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 joint. This can lead to weakness meaning that the muscles are not able to stabilise the pelvis.

There are many other reasons for developing weakness of the hip abductors. Congenital hip dysplasia, arthritis of the knee or hip, muscle tears or strains, tendinopathy or even nerve damage.

TRENDELENBURG GAIT 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 in towards the body (adduct) and out away from the body (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 attach and meet to promote hip abduction and movement from one side to the other. The lesser trochanter is the point where the iliopsoas muscle (from the front of the hip and pelvis) is attached to the hip joint to provide for forward movement within the leg, which is called hip flexion.

HOW TO TREAT TRENDELENBURG GAIT

A Trendelenburg gait 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 gait is important for minimising any secondary injuries and knee, back and foot pain.

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 can be prescribed by your physical therapist. To make the whole experience more challenging, weights or a resistance band can be used around the active limb.

Lateral (sideways) step-ups, closed-chain exercises and other functional balance exercises are also beneficial for 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 gait is caused by a leg-length discrepancy, strengthening the muscles will not be likely to make a significant difference. Instead the patient may need to consider an orthosis 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 programme to correct it.
- Avoid sitting and remaining docile for extended periods of time. You need to strengthen the muscles and joints to correct the problem.

The information contained in this article is intended as general guidance and information only and should not be relied upon as a basis for planning individual medical care or as a substitute for specialist medical advice in each individual case. ©Co-Kinetic 2021

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