

Spine - Health and Disease

Foot Drop

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The term foot drop is used to describe a specific pattern of weakness involving the foot. It is characterized by a limited capacity to elevate the toes and forefoot while walking. This movement is also referred to as dorsiflexion. The most common cause of foot drop is nerve damage. Nerve damage can occur secondary to compromise of the L4 and/or L5 nerve, polyneuropathy or as the result of isolated injury to the peroneal nerve, which supplies the muscle that move the foot up. The peroneal nerve is a branch of the sciatic nerve. Foot drop may be associated with other symptoms such as pain, numbness or tingling. Foot drop represents one of the most common patterns of isolated muscle weakness in the leg.

Foot drop occurs with varying degrees of weakness depending upon the severity of the associated neurological compromise. Mild foot drop may occur after the muscles, which raise the toes and foot upwards become fatigued such as after a long walk. . The weakness is usually not obvious until the toes catch during walking. This often comes as a surprise and can lead to stumbling and /or a fall. With more severe cases the foot will appear floppy and the patient may have to drag the foot and toes while walking. To compensate for the inability to clear the toes while walking the individual with foot drop has to bend their knee and lift the leg up higher so they can adequately swing their leg forward. The compensatory gait is commonly referred to as a steppage gait or high-step walking gait.

Foot drop is not a disease; it is a symptom of nerve damage. Foot drop may be temporary or permanent depending upon the pattern of nerve recovery and the willingness or ability of the individual to strengthen weak muscles.

The peroneal nerve is susceptible to a variety of different types of injury in the leg. The most common cause is compression or blunt trauma near the knee. The peroneal nerve can be stretched and injured during a surgical procedure. The peroneal nerve can also be compromised secondary to trauma including leg fracture. Common causes of spinal nerve compromise include disc herniation at the level of L4, L5 or S1, spinal stenosis, and spondylolithesis. Any condition, which causes polyneuropathy involving motor nerves can progress result in foot drop. More common causes include diabetes, thyroid disease, B12 deficiency, autoimmune disease and alcohol abuse. Drop foot can also be found in patients who have Amyotrophic Lateral Sclerosis (ALS), Multiple Sclerosis (MS), and Parkinson's Disease.

The evaluation of foot drop should include a comprehensive review of the patient's history and a thorough physical examination. Additional diagnostic studies may include nerve testing with an EMG/NCV and/or advanced imaging such as MRI or CT. The attending spine specialist should attempt to determine the exact cause of the drop foot prior to recommending and implementing a treatment plan.

The type of treatment is dependent upon the cause of the drop foot. If the cause is due to compression of the peroneal nerve, surgery may be required to decompress the nerve and allow for recovery. Some patients may be fitted with an Ankle Foot Orthosis (AFO) to assist them in walking and help prevent tripping. Foot and ankle strength training and gait training is often implemented as part of a physical rehabilitative approach. In some cases, foot drop occurs secondary to more than one cause. In this case the treatment approach should address each cause and improve recovery.