LESSER GLUTEAL MUSCLES AND TRENDELENBURG GAIT:

Trendelenburg gait results from the loss of function of lesser gluteal muscles. Lesser gluteal muscles are hip abductors, and they keep the pelvis level during unilateral stance phase. Notice that in the trendelenburg gait, the hip is dropping to the unaffected side, while there is a slight lateral flexion of the trunk to the affected side.

HAMSTRINGS (AND GLUTEUS MAXIMUS):

Hamstrings extend the hip and flex the knee, while the gluteus maximus acts as an accessory hip extensor. During walking, hamstrings prevent the trunk from bending forward following heel strike. To compensate for the loss of hip-extension when these muscles are paralyzed, notice that there is a backward lean or extension of the trunk immediately after the heel strike.

VASTI:

Vasti are knee extensors. During walking, they arrest the collapse of the partially flexed knee under body weight. To compensate for the paralysis of the vasti muscles, notice that the knee on the unaffected side is completely extended just before heel strike. After the heel strike, the trunk is bent slightly forward to keep the center of gravity anterior to the knee.

ILIOPSOAS AND ADDUCTORS:

These muscles slow down the extension of hip at the end of stance phase, and initiates flexion of hip at the beginning of the swing phase. When the adductors are paralyzed, flexion of the hip on the affected side is accompanied by hip and thigh abduction.

TRICEPS SURAE:

Triceps surae muscles plantarflex the foot, and regulate tendency of ankles to collapse in dorsiflexion. (ZOOM ON THE FEET HERE) When these muscles are paralyzed, and the foot can no longer be plantarflexed, the patient tends to walk with very short steps to keep weight back on the heels.

ANTERIOR TIBIAL COMPARTMENT MUSCLES:

Anterior tibial compartment muscles dorsiflex the foot and extend toes. Paralyses of these muscles lead to "foot-drop". To compensate for this loss, the patient tends to walk with a high-stepping gait to clear the ground. (ZOOM ON THE FEET HERE) When the patient walks quickly, the foot on the affected side lands on heel, and the forefoot slaps down on the ground. (ZOOM ON THE FEET HERE) When the patient walks slowly, he tends to land on the forefoot.