

## **Conference**

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## **Title**

Gluteus Medius Weakness Masquerading as Perceived Shortened Prosthesis

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## **Case Diagnosis**

Right gluteus medius weakness

## **Case Description**

A 32-year-old male with right transtibial amputation presented to our *multidisciplinary* limb loss clinic with the complaint of feeling ‘lopsided’ while walking, perceived by him to be caused by a short prosthesis. The patient is a K4 ambulator, utilizing a prosthesis for work in construction, during which he discovered his right-sided lean was corrected when carrying weight in his right hand.

On physical examination, the prosthetist determined that limb length was equal, and that he was well situated in the prosthesis statically and dynamically. We identified weakness in bilateral gluteus medius (R>L). We observed compensated Trendelenburg gait during right stance phase. Addition of a weighted bucket to his right hand corrected the right lateral tilt and discomfort on his prosthetic side. Additional history included a remote motor vehicle accident with a pelvic injury and nerve damage.

## **Discussion**

The interdisciplinary team is the ideal setting for assessment and treatment of people with limb loss. Utilizing both medical and prosthetic expertise we identified a neuromuscular cause for what was initially a prosthesis-related complaint. Addition of weight to his right hand reduced his compensated Trendelenburg gait by shifting the center of gravity onto the stance limb without the need for the lateral tilt. Had a structural leg length discrepancy been the cause, added weight would not have improved his gait. Once the prosthesis was determined not to be the cause, we concluded that the patient’s gluteus medius weakness, a residual effect from the, at first, unknown remote history of a motor vehicle accident, accounted for these findings.

## **Conclusions**

Neuromuscular imbalance should be considered as part of a broad differential diagnosis when assessing perceived prosthetic length differences. An interdisciplinary team that conducts a thorough health history, physical examination, and gait analysis is crucial to elucidate the etiology of prosthetic gait abnormalities.