Orthotics and Prosthetics

Knee Adduction Moment Peak and Impulse Do Not Change During the First Six Months of Walking with a Prosthesis

Individuals with unilateral lower limb loss are at increased risk for developing knee osteoarthritis in their contralateral limb. To better understand the mechanisms behind this outcome, researchers at the DoD/Veterans Administration (VA) Extremity Trauma and Amputation Center of Excellence (San Diego, CA) conducted a longitudinal assessment of knee joint kinetics during independent ambulation in individuals with lower limb loss (*Krupenevich et al., 2018*).

Gait analyses were conducted from Service members with lower limb loss (n = 8) as they walked at a self-selected speed and cadence. Data were collected zero, two, and six months after participants achieved independent ambulation. There were no significant differences between time points for the peak, loading rate, or impulse of knee adduction moment; peak knee flexion moment; or the peak or loading rate of vertical ground reaction force. In addition, although there was a significant time effect on stride length overall, there were no significant pairwise differences between time points. The results suggest that in individuals with lower limb loss, these aspects of contralateral knee joint kinetics do not change over the first six months of independently walking with a prosthesis.

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REFERENCES:

Krupenevich, R. L., Miller, R. H., Hendershot, B. D., Schnall, B. L., & Pruziner, A. L. (2018). Knee adduction moment peak and impulse do not change during the first six months of walking with a prosthesis. Gait Posture, 63, 86-90. doi:10.1016/j.gaitpost.2018.04.040