

C-Leg vs MPKs

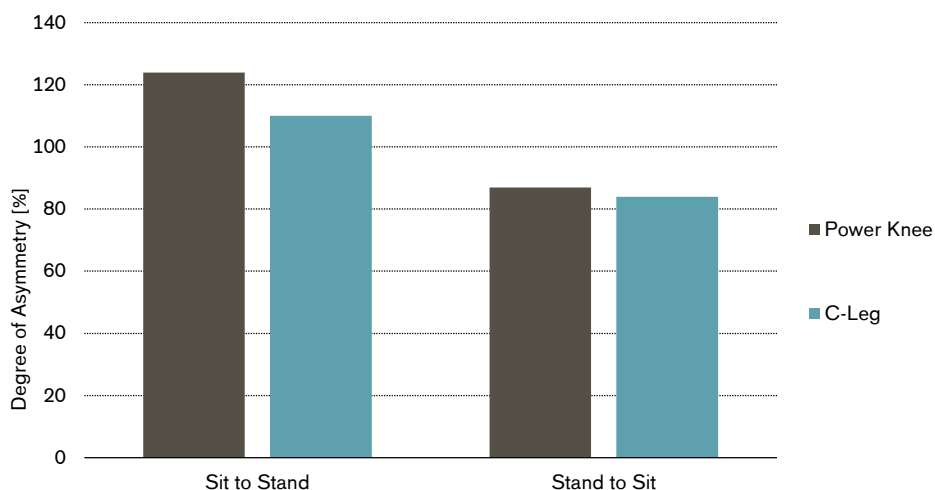
Activity, Mobility, Activities of daily living (ADLs)

Major Findings

With C-Leg compared to Power Knee:

→ **Subjects prefer to load mainly the sound side during sit to stand (up to 82% of ground reaction force) and stand to sit task (up to 77% of ground reaction force) regardless of MPK they use.**

Degree of Asymmetry for Knee Moment



Highsmith et al. (2011)

Clinical Relevance

Activity and mobility are assessed to get an insight into general independence of amputees. Standing up and sitting down are required tasks to be able to function independently and therefore of special interest. A loading pattern where the weight is distributed evenly between the sound side and the amputated side is pursued to prevent inappropriate loading of the sound limb. Overloading of the sound limb can result in secondary diseases such as osteoporosis and osteoarthritis.

Summary

Neither in sit to stand task nor in stand to sit task a significant difference between C-Leg and Power Knee regarding asymmetry of hip and knee moments and asymmetry of ground reaction force were observed. However, it was concluded, that independent of the MPK, subjects still prefer to load mainly the sound side. This leads to a relatively high degree of asymmetry (Highsmith et al 2011). Similar results were reported by Wolf et al. (2013) for the sit to stand task. No difference in peak knee power generation on the intact limb between C-Leg and Power Knee could be measured. These results confirm that the largest part of the load is on the sound side.

References of summarized studies

Highsmith, M. J. (2011). Kinetic asymmetry in transfemoral amputees while performing sit to stand and stand to sit movements. *Gait & Posture*, 34(1), 86–91. doi:10.1016/j.gaitpost.2011.03.018

Wolf, E. J., Everding, V. Q., Linberg, A. A., Czerniecki, J. M., & Gambel, C. J. M. (2013). Comparison of the Power Knee and C-Leg during step-up and sit-to-stand tasks. *Gait & Posture*, 38(3), 397–402. doi:10.1016/j.gaitpost.2013.01.007

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