C-Leg vs NMPKs

Safety

Major Findings

With C-Leg compared to NMPKs:

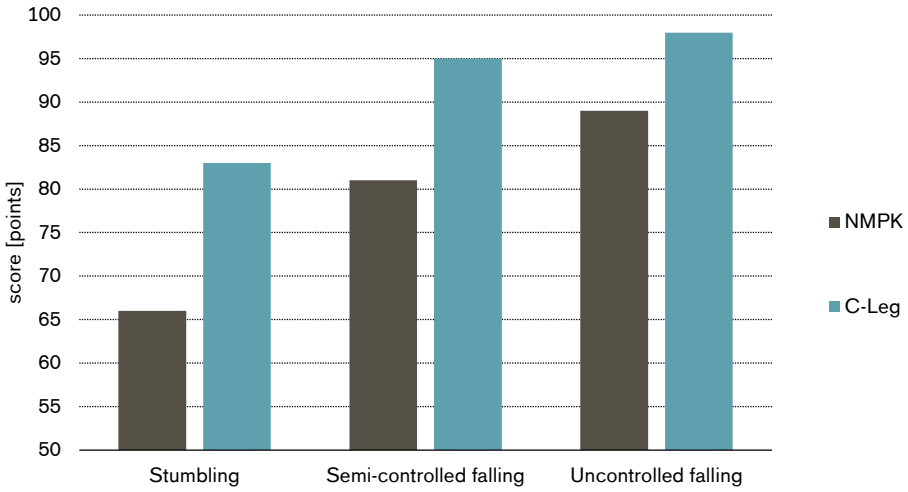
→ Improved safety

Stumbles reduced by up to 59%
Semi-controlled falls reduced by 17%
Falls reduced by up to 64%

→ Improved balance

Activities-Specific Balance Confidence Scale (ABC) score increased by 26%
Subjects rely more on somatosensory system

Improved safety with C-Leg



Hafner et al. (2007)

Clinical Relevance

Safety aspects of the prosthesis are highly relevant for the patients. Since the fear of falling can have a negative impact on activities of daily living as well as on participation, perceived safety is regarded as an important factor for quality of life of an amputee. Information about perceived safety when performing different activities is gathered through a questionnaire. Balance tests are conducted to obtain objective information about the patients' ability to react in the situations associated with higher risk of falling.

Summary

Subjects reported that when using C-Leg compared to NMPKs, stumbling was reduced by 25%, semi-controlled falls by 17% and falling by 10% (Hafner et al. 2007). Even a larger decrease with C-Leg compared to NMPKs, namely stumbles by 59% and falls by 64%, was reported by Kahle et al. (2008). Limited community ambulators profit from a transition from a NMPK to C-Leg with a decrease in falls by even 80%. K3 subjects reduced the frequency of stumbles by 31% when using C-Leg (Hafner et al. 2009). Furthermore, the most recent study reported that falls were reduced by 33% with C-Leg compared to NMPKs (Highsmith et al. 2014). Similar observations are further confirmed in other studies (Drerup et al. 2008, Wong et al. 2012).

Time required to complete the timed up and go (TUG) test decreased by 38% with C-Leg Compact compared to NMPKs in K2 subjects (Burnfield et al. 2012). Therefore subjects using a C-Leg have a decreased risk of falling. A case report tested a subject with C-Leg after 1 hour of training and after 1 year. It was found that time to complete the TUG test decreased after 1 hour of C-Leg use by 8% and after 1 year of C-Leg use by 38% compared to when the subject conducted the test with a NMPK (Wong et al. 2012).

Balance, measured by sensory organization task (SOT), was improved with C-Leg compared to NMPKs (Kaufman et al. 2007). A later study also conducting SOT, found, that the reliance on the somatosensory system is increased with C-Leg compared to NMPKs (Highsmith et al. 2014). Activities-Specific Balance Confidence Scale (ABC) score increased by 26% in K2 subjects with C-Leg Compact compared to NMPKs (Burnfield et al. 2012). Furthermore, a case report showed that Berg balance scale score and ABC score improved immediately with C-Leg after only one hour of training compared to a NMPK (Wong et al. 2012).

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