

Genium vs C-Leg

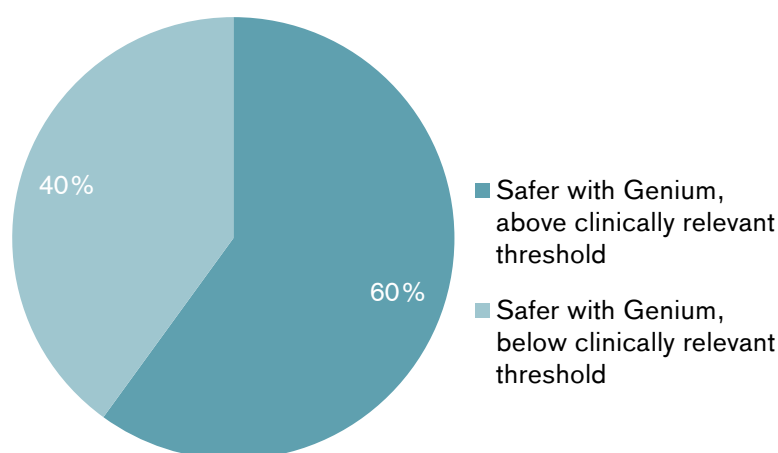
Safety

Major Findings

With Genium compared to C-Leg:

- **60% of the examined activities of daily living (ADLs) are rated as safer above a threshold considered to be clinically relevant**
- **Movement control in all three backward directions improved by up to 10%**

Clinically relevant improvement in safety of activities of daily living with Genium



Safety was assessed for 45 activities (Kannenberget al. 2013).

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 potential falling situations.

Summary

The results of an activity of daily living (ADL) questionnaire show, that 60% of the examined ADLs were rated as safer with Genium compared to C-Leg with a comparative rating above the threshold considered to be a clinically relevant difference (25% of the maximum possible difference). The other 40% of the examined ADLs also showed improved safety, but below this threshold. Especially the category 'Family and Social Life' with 83% of ADLs rated as safer, and 'Mobility and Transportation' with 63% of ADLs rated as safer were clearly in favour for Genium (Kannenberget al. 2013).

Highsmith et al. examined 2016 the safety with the four square step test, a test of dynamic balance that clinically assesses the person's ability to step over objects forward, sideways, and backwards. The test could be finished by 9% faster with Genium than with C-Leg.

Other studies tested the influence of Genium when standing on a decline. It was observed that with Genium not only was the body weight evenly distributed on both legs, but also the body posture was more relaxed than with C-Leg. The latter can most likely be explained by the reduced activity required to keep up the posture and the decreased hip moments which were found in patients using Genium. Further-

more, observed that the postural sway on the prosthetic side is reduced when standing on a decline using Genium compared to C-Leg (Bellmann et al. 2012 and Blumentritt et al. 2012).

Highsmith et al (2014) investigated postural stability measured by a balance system. They could show that posterolateral directional stability over the sound side is improved with Genium compared to C-Leg.

In a retrospective, cross-sectional cohort analysis from Hahn et al. 2016, clinically important factors on performance using Genium were analysed based on 899 trial fittings. The category Safety within Functional Benefits presented a very clear responsiveness of 49.94%. However, none of the factors qualified as predictor for performance.

References of summarized studies

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* Systematic Reviews

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