C-Leg in limited mobility ambulators

Preference, Satisfaction, Quality of Life

Major Findings

With C-Leg and C-Leg Compact compared to NMPKs:

→ Improvements in quality of life regarding following criteria:

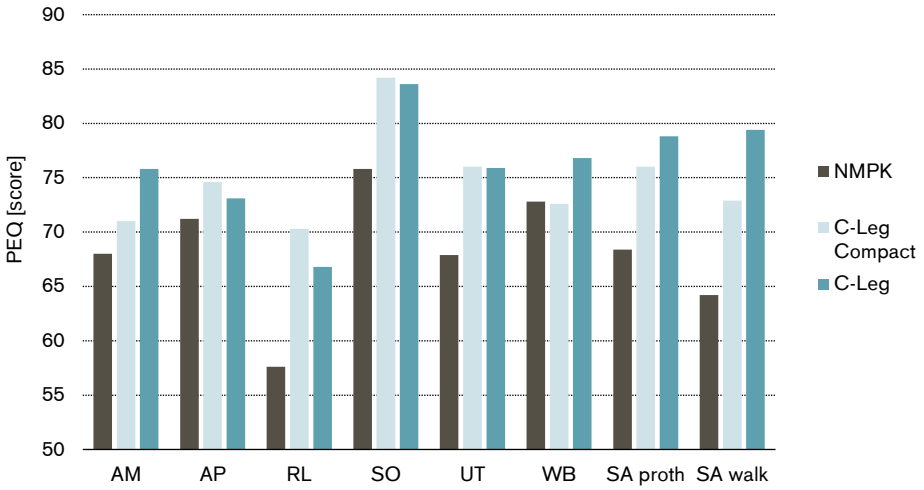
Ambulation improved by 11% with C-Leg
Residual limb health improved by 16% with C-Leg and by 22% with C-Leg Compact
Utility (such as comfort, fit, feel) improved by 12% with C-Leg and by 12% with C-Leg Compact
Satisfaction with walking improved by 24% with C-Leg

→ Preference

Up to 90% prefer C-Leg over their previous NMPK

→ Houghton prosthetic scale showed a positive trend (30.6 %)

Improved satisfaction and quality of life with C-Leg and C-Leg Compact in K2 subjects



Prosthesis Evaluation Questionnaire (PEQ) consists of the subscales ambulation (AM), appearance (AP), residual limb health (RL), sound (SO), utility (UT), general well-being (WB), satisfaction with prosthesis (SA proth) and satisfaction with walking (SA walk). (Theeven et al. 2012)

Clinical Relevance

Satisfaction and quality of life can be measured to determine the general well-being of a person. They are all very meaningful parameters to investigate, since they have the most direct impact on the amputee's well-being. They are influenced by other categories and can therefore be seen as a summary of possible activities, independence and perceived safety. A common outcome measure in prosthetic research is the Prosthesis Evaluation Questionnaire (PEQ), a questionnaire with a total of 84 items. The items are analysed and summarized in 9 subscales and a total score.

Summary

Both studies investigating preference regarding prosthesis in K2 subjects found positive results for C-Leg and C-Leg Compact. 90% of K2 subjects preferred C-Leg over a NMPK (Kahle et al. 2008). The study testing C-Leg and C-Leg Compact found that 72% of subjects preferred C-Leg, 24% preferred C-Leg Compact and only 3% preferred NMPKs (Theeven et al. 2011, Kannenberg et al. 2014).

Prosthesis Evaluation Questionnaire (PEQ) total score was increased by 20% with C-Leg compared to NMPKs, also assessed in K2 and K3 subjects together (Kahle et al. 2008). A later study assessing K2 and K3 subjects separately, found, that in K2 subjects satisfaction tended to be increased by 21% with C-Leg compared to NMPKs (Hafner et al. 2009). Burnfield et al. (2012) found that the PEQ mobility score was increased by 25% due to transition from NMPKs to C-Leg Compact. When comparing C-Leg with NMPKs, major improvements were found in the PEQ subscales satisfaction with walking (24% increase), residual limb health (16% increase), utility (12% increase) and ambulation (11% increase). With C-Leg Compact major benefits were found in the PEQ subscales residual limb health (22% increase) and utility (12% increase). Furthermore, Theeven et al. (2012) showed that amount of benefit as expressed by change in PEQ when transitioning to C-Leg and C-Leg Compact is activity-dependent. With C-Leg benefits were mainly found in intermediate and high K2 subjects, whereas with C-Leg Compact, major benefits were only found in high K2 subjects (Theeven et al. 2012). Kaufman et al. also investigated a significant improvement in satisfaction subscales PEQ (greatest improvements in ambulation, appearance and utility) when using a MPK like C-Leg. (Kaufman et al. 2018)

A study by Wong et al. (2015) found a positive trend in the Houghton prosthetic use scale (30.6%) comparing C-Leg /C-Leg Compact to NMPK in a mixed K1/K2/K3 group (the only significant difference between groups was found in the initial Houghton assessment between K1-K2 and K3). K1 and K2 subjects accounted for 50% of the total participants (N=8, 2 K1, 2 K2). All except one subject (K1, see reference for details) presented an increased Houghton score.

No significant differences were investigated comparing MPKs like C-Leg to NMPKs by Davie-Smith and Carse in the EQ5D scale and the Socket Comfort Scale (Davie-Smith et Carse 2021).

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