

Patient Evaluation of a Novel Prosthetic Foot with Hydraulic Ankle Aimed at Persons with Amputation with Lower Activity Levels

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Summary

A group of limited community walkers were asked to evaluate their existing prosthesis before starting a trial of an Avalon hydraulic ankle-foot device. After a four week period, they evaluated the Avalon.

Method

Components: Multiflex, Avalon

Measurements: Prosthesis Evaluation Questionnaire (PEQ) – a patient reported outcome measure instrument

Subjects: Fourteen K2 patients (12 male, 2 female; 11 unilateral trans-tibial, 1 bilateral trans-tibial, 2 unilateral trans-femoral; 38-84 years).

Data collection protocol: Patients were asked to complete the PEQ in relation to their Multiflex feet. They were then supplied with an Avalon hydraulic ankle-foot device, which they wore for an acclimatisation period of four weeks. At the end of the trial, they were asked to complete the PEQ again, this time with respect to the Avalon foot.

Analysis: Scores from the questionnaire were separated by amputation level and broken down into categories of question (ambulation, transferring, utility, well-being, prosthesis satisfaction, gait satisfaction). Results from the two evaluations were compared between amputation levels and as a whole.

Results

When considering the subject group as a whole, the mean scores in each of the six question categories was consistently higher for the Avalon. The mean improvement across all categories was 14.7 points. This included a 17.3 point improvement in ambulation, a 17.2 point improvement in prosthesis satisfaction and a 21.9 point increase in gait satisfaction. When broken down by amputation level, trans-tibial amputees had a mean improvement across all categories of 16.6 points. For trans-femoral amputees the cross-category mean improvement was 6.2.

Conclusion

The author concludes that the statistically significant improvements in gait and overall prosthesis satisfaction when using the Avalon highlight the device's efficacy. He suggests further gait analysis could be performed to identify the causes of these perceived improvements.

Products with Related Technology:

Linx, Elan, Echelon, EchelonVT, EchelonVAC, Avalon

