Mobility analysis of AmpuTees (MAAT 5): Impact of five common prosthetic ankle-foot categories for individuals with diabetic/dysvascular amputation

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Summary

The functional mobility scores of 738 dysvascular patients, using five different prosthetic foot types, were retrospectively analysed and compared.

Method

Components: MPF: microprocessor ankle-foot, HA5968 – hydraulic ankle-foot system, VL5987 – shank-foot system with vertical loading pylon, FWS5981 – flex-walk system, FF5980 – flex-foot system

Measurements: T-score from functional mobility assessment (PLUS-M questionnaire)

Subjects: 738 (females in brackets) amputees, K3, diabetic/dysvascular patients

MPF: 28 (4) individuals, (14 unilateral trans-tibial (TT), 7 unilateral trans-femoral (TF), 7 bilateral (B)), 57.1±13 years, 98.7±16.8 kg

VL5987: 155 (11) individuals (121 TT, 16 TF, 18 B), 57.7±12.1 years, 101±23.9 kg

FWS5981: 342 (86) individuals (241 TT, 67 TF, 34 B), 58.8±10.4 years, 95.1±24.2 kg

FF5980: 123 (34) individuals (80 TT, 31 TF, 12 B), 58.6±11.8 years, 89.0±24.8 kg

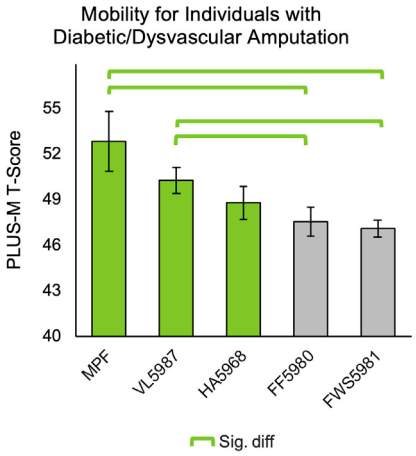
HA5968: 90 (15) individuals (66 TT, 7 TF, 17 B), 61.1±10.2 years, 90.5±18.2 kg

Data collection protocol: Patients were asked to complete the PLUS-M questionnaire during a routine standard of care appointment. These were then collected and sorted via inclusion criteria. The weighted values from the included questionnaires were summed and converted to a T-score which was then used for comparison.

Analysis: Patients were divided into groups dependent on what type of prosthetic device they were using. A general linear univariate model was used to compare groups and Fisher's least significant difference determined specific group differences.

Results

A significant difference in mobility was found across all groups (p=0.008). Individuals using MPF had the greatest mobility, although this was not significantly more than the vertical loading pylon (VL5987) condition, which had the second highest mobility score. There was no significant difference between the VL5987 condition and the third highest ranking hydraulic (HA5968) condition, however the flex-foot and flex-walk (FF5980, FWS5981) conditions both had significantly lower functional mobility scores than the top two conditions.



Conclusion

The authors suggest that, based on functional mobility provided, a top down approach should be utilised within a clinical setting when prescribing for vascular patients. Shank-foot with vertical loading pylon systems, such as the Elite2, resulted in a mobility score not dissimilar to that of a microprocessor-controlled foot, so should be considered, along with hydraulic ankle-foot systems like the Echelon, once a microprocessor option has been ruled out and ahead of other flex-foot and flex-walk options.

Products with Related Technology:

Elan, Echelon, EchelonVT, EchelonVAC, Elite2, EliteVT, Elite Blade, Elite BladeVT