

Prosthetic Intervention Effects on Activity of Lower-Extremity Amputees

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OBJECTIVE

To investigate the effect of prosthetic interventions on the functional mobility of lower-extremity amputees.

DESIGN

Crossover with repeated measures.

SETTING

Household and community environment.

PARTICIPANTS

Twelve transtibial and 5 transfemoral amputees.

INTERVENTIONS

For transtibial amputees, shock-absorbing versus rigid pylons. For transfemoral amputees, C-Leg versus Mauch SNS knees.

MAIN OUTCOME MEASURES

Daily activity level (step count) and duration (minutes of activity).

RESULTS

Pylon type had no effect on the daily activity level or duration of transtibial amputees. Knee type had no effect on the daily activity level or duration of transfemoral amputees. Transtibial amputees were more active on weekdays (3079+/-1515 steps/d) than weekends (2386+/-1225 steps/d) (P=.007). In general, lower-extremity amputees perform numerous short-duration bouts of activity (1-2 min) consisting of fewer than 17 steps/min, but activities of more than 15 minutes in duration were relatively rare (<1 per day).

CONCLUSIONS

Intervention had no effect on amputee activity level and duration. Higher weekday activity levels of transtibial amputees suggest their vocational activities are more demanding than recreational activities. The fitting, alignment, and design of prosthetic components should be optimized for 1 to 2 minute bouts of activity consisting of only a few dozen steps.

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