



C-LEG VS. MECHANICAL KNEE: IMPACT ON FUNCTIONAL OUTCOMES IN K2 TRANSFEMORAL DYSVASCULAR AMPUTEES

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INTRODUCTION

Dysvascular amputees are currently given a prosthetic knee based on the expectation that they will be stable in static standing and during slow gait speed. This consideration does not address higher levels of function like walking at multiple speeds and over different terrains; a requirement for community ambulation and social interaction. Newer microprocessor knees enable patients with transfemoral amputations to walk on different surfaces and at multiple cadences. Clinically it is as yet uncertain whether the mechanical knee or the microprocessor knee's capabilities can help dysvascular amputees to increase their function to have a healthy lifestyle. The purpose of this study is to compare the functional outcomes with the traditional mechanical knee (M-knee) versus the microprocessor knee (C-leg) in transfemoral amputees.

METHOD

Ten individuals with K2 unilateral transfemoral amputations were randomly assigned either to the C-leg with a standardized foot (1M10) or M-knee with the standardized foot. They were all set up at an initial bench alignment as specified by the manufacturer. Participants were given a 3 month acclimation for ADLs and daily functional use. They were then allowed to use their knees in every day life for 3 months without supervision from study staff. Tests for gait speed, balance, and function were performed at baseline and after three and six months, to assess the impact of M-knee vs. C-leg on functional outcomes and community mobility in dysvascular amputees. All participants crossed over to the other treatment group and acted as their own controls.

RESULTS

As shown in Figure 1, patients showed significant improvement in gait speed when using the C-leg. The C-leg also helped individuals make significant improvements in community mobility and social interaction compared to the M-knee and own foot or M-knee and the standardized study foot (1M10).

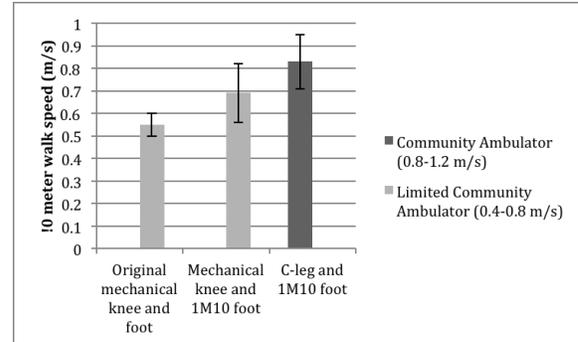


Figure 1: 10 meter walk test with mechanical knee vs. C-leg. Speed from 0.4-0.8 m/s indicates a Limited Community Ambulator classification while walk speed from 0.8-1.2 m/s gives a Community Ambulator classification.

DISCUSSION

The regular use of the C-leg in K2 dysvascular amputees could lead to a life style changes with reduced comorbidities and better quality of life resulting in lowered health care costs.

CONCLUSION

Microprocessor controlled knees help transfemoral amputees improve their quality of life. The components of the prosthesis in addition to getting acclimated to device usage in real-life environments might have contributed to these functional improvements.

CLINICAL APPLICATIONS

Microprocessor knees may help older dysvascular amputees improve their gait speed, and increase community participation.

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