



Benefits and use of myoelectric arm prostheses

Outcomes, influencing factors and experiences

av

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Abstract

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People with acquired upper limb loss or congenital limb reduction deficiency are often offered a myoelectric prosthesis to compensate for the missing hand. A common problem is the non-use of prostheses, and lack of training has been suggested as a reason for this. Today, myoelectric prosthetic hands are available with multiple grips to benefit the users, but these benefits have yet to be confirmed in daily activities.

The overall aim of this thesis was to gather empirical evidence about the benefits and use of myoelectric arm prostheses, by investigating and describing the environmental factors influencing prosthesis use, describing a training method for the use of multi-grip prostheses and evaluating the effect of multi-grip hands in daily activities. The users' experience of environmental influences on prosthesis use were investigated in a survey (study I) and an interview study (study II). A scoping review of training methods for the use of multi-grip prostheses (study III) showed that training instructions are few and none were described in detail. Therefore, a new method for training, STAIR, was developed and described (study IV). This method was used when we investigated the benefits of multi-grip hands in a clinical trial (study V). We found that, after a period of structured training, users found the multi-grip prostheses beneficial for performing their daily activities and reducing their pain-related disability, and they reported an increase in prosthesis wearing time.

In conclusion, prosthesis users experience most environmental barriers from the physical environment and from the prosthesis itself. Positive environmental factors, such as training and support from health care professionals, facilitate their adaptation to the prosthesis. When a prosthesis feels like a part of the user, the negative impact from the surrounding environment decreases. With a structured training method, it is possible to learn how to operate a multi-grip prosthesis and use it in daily activities.

Keywords: upper limb, amputation, artificial limbs, rehabilitation, occupational therapy, environment, qualitative methods

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