

RELATION BETWEEN CAPACITY AND PERFORMANCE IN PAEDIATRIC MYOELECTRIC PROSTHESIS USERS

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BACKGROUND AND AIM

Myoelectric prostheses are often prescribed to children with upper limb reduction deficiency and training is given regularly by the prosthetic clinics. One goal of prosthesis fitting and training is to give the child a tool to assist when performing daily activities. Prosthetic fitting should be initiated at a young age but little is known whether the prosthetic skills training and recommendations for daily use of prostheses can ease the performance of daily activities. Measures of capacity and performance can help to determine if there is any gap between them that may restrict participation.

The aim was to explore the relationship between capacity scores obtained in a standardised clinical setting and proportional ease of performance in using the prosthesis to perform daily activities obtained from a real-life environment.

METHOD

During their clinic visits, pediatric prosthesis users (n=62, age 3 to 17) were asked to fill in a questionnaire, 'Prosthetic Upper Extremity Functional Index' (PUFI), where the child (or the parent if the child was under 6) rated the ease of performance in using the prosthesis to perform 26-38 daily activities. Then the child performed a bimanual activity and an occupational therapist from the clinic (n=6) assessed the child's capacity for prosthetic control with an observational based assessment, 'Assessment of Capacity for Myoelectric Control' (ACMC). In addition, the child or the parent was asked about the prosthetic wearing pattern. Sex and prosthetic side were recorded. Spearman correlation coefficient and Generalised linear model were used to examine the association between these measures.

RESULTS

A strong correlation (Spearman= 0.75) was found between the capacity scores and the ease of performance. In both unadjusted and adjusted models, capacity was significantly associated with proportional ease of performance. The adjusted model showed that, by 1 unit

increase in the ACMC score, the ratio of proportional ease of performance increases by 45%. This implies that ACMC can be a predictor for ease of performance in real-life environment.

DISCUSSION & CONCLUSION

The ACMC as an independent variable was the strongest predictor variable for ease of performance. The results confirm earlier results suggesting a relationship between pattern of use and prosthetic skills. The conclusion is that wearing a myoelectric prosthesis every day facilitates learning of operation skill which, in turn, eases the performance of daily activities. Training for children with myoelectric prostheses should emphasize both establishment of wearing habits and practicing control skills during daily task performance.