

Reference

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Intermanual Transfer in Training with an Upper-Limb Myoelectric Prosthesis Simulator: A Mechanistic, Randomized, Pretest-Posttest Study

Physical Therapy 2013; 93:22-31

Products

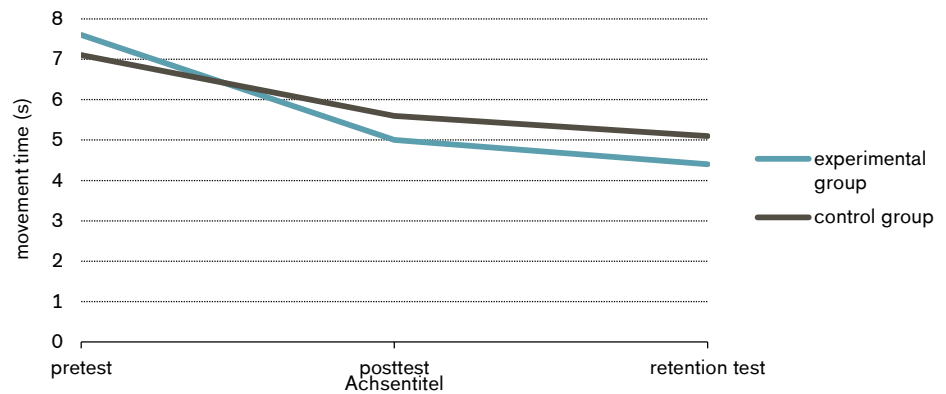
Prosthetics simulator – PAULA software connected to MyoBoy

Major Findings

Prosthesis’ control was compared between groups with and without previous training:

- **Training with prosthesis simulator enables faster handling of the prosthesis**
- **Intermanual transfer effects were present after training with a myoelectric prosthesis simulator**

Movement time for all tasks



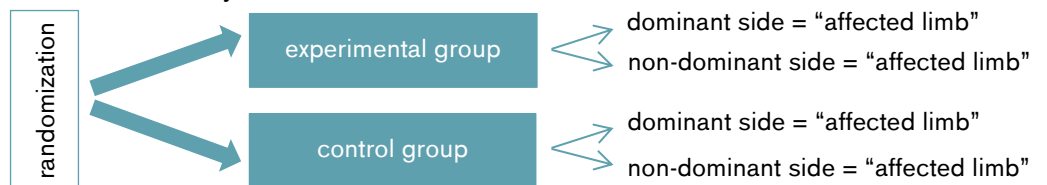
To determine the improvement in skill, a test was administered before (pretest), immediately after (posttest) and 6 days after training (retention test) for experimental group. The control group only performed the tests without training.

Population

Subjects: 48 healthy, abled bodied participants
Previous: none
Amputation causes: none
Mean age: 24.6
Mean time since amputation: none

Study Design

A randomized study:



Experimental group performed the training with the unaffected arm, and tests were performed with the affected arm (the affected arm simulating an amputated limb). Half of the participants were tested with the dominant arm and half with the non-dominant arm.

Results

Body Function		Activity			Participation	Others	
Mechanics	Pain	Grip patterns / force	Manual dexterity	Activities of daily living (ADL)	Satisfaction and Quality of life (QoL)	Training	Technical aspect

Category	Outcomes	Results for with and without previous training:	Sig.*
Training	Initiation time	Time from starting signal until start of the movement was not different between groups.	0
	Movement time	Time from beginning of the movement until completion of the task was shorter in experimental group.	++
	Force control	Maximal applied force on the object did not differ between groups.	0

* no difference (0), positive trend (+), negative trend (-), significant (++/--), not applicable (n.a.)

Author's Conclusion

"Intermanual transfer effects were present after training with a myoelectric prosthesis simulator in individuals who were healthy. The initiation time did not show intermanual transfer effects, presumably because of the differences in training tasks and test tasks. The movement time showed intermanual transfer effects, whereas the force control did not. Finally, no laterality effects were found. These findings suggest that intermanual transfer might be of clinical relevance for people with an upper-limb amputation because intermanual transfer training would enable them to start prosthetic training shortly after the amputation." (Romkema et al. 2013)

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