

# Repetitive training of the paretic hand in Integrated Homecare for patients suffering from Stroke

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**Purpose:** Clinical testing of the INIMOVE Complex (IC) on Stroke patients admitted to Broenderslev Neurorehabiliteringscenter, BNC, Denmark. The study focuses on qualitative aspects as acceptability, usability and motivation for home training with INIMOVE Complex.

## THEORY

Systematic reviews conclude that repetitive training and a period of sensory input of the paretic hand improve functional recovery. With or without the subject's attention repetitive training will produce a specific pattern of sensory-motor reorganization in the human cortex. This reorganization will develop quickly. It's therefore important to develop a training device that motivates patients to home training.

## METHODS

Based on internal pre-pilot-studies, a set of training exercises with Inimove Complex have been developed for reinforcement of coordination and strength of the paretic hand.

The training is introduced to the patient at hospital. The patient will exercise on his own with the IC for 4 weeks during admission to hospital. There will be instructions once a week in order to assess whether there is a need for a change in the training application. It is the patient's own motivation that determines the intensity of the training.

The training starts at different levels according to the patient's functional level. It is possible to begin balancing 4 rings, then progressing to 6 rings and ending up with balancing 8 rings. Some patients starts on a higher level than 4 rings.

The study includes 10 patients, both men and women, from the age of 56 to 83. All patients are suffering from Stroke. The only exclusion criterion is that the patient must be able to understand the instructions in relation to the project.

At the start of the project an Action Research Arm Test (ARAT) is made in order to assess the patient's functional level. A Canadian Occupational Performance Measure (COPM) is made at the start and at the end of the project to detect a change in the patient self-perception of occupational performance.

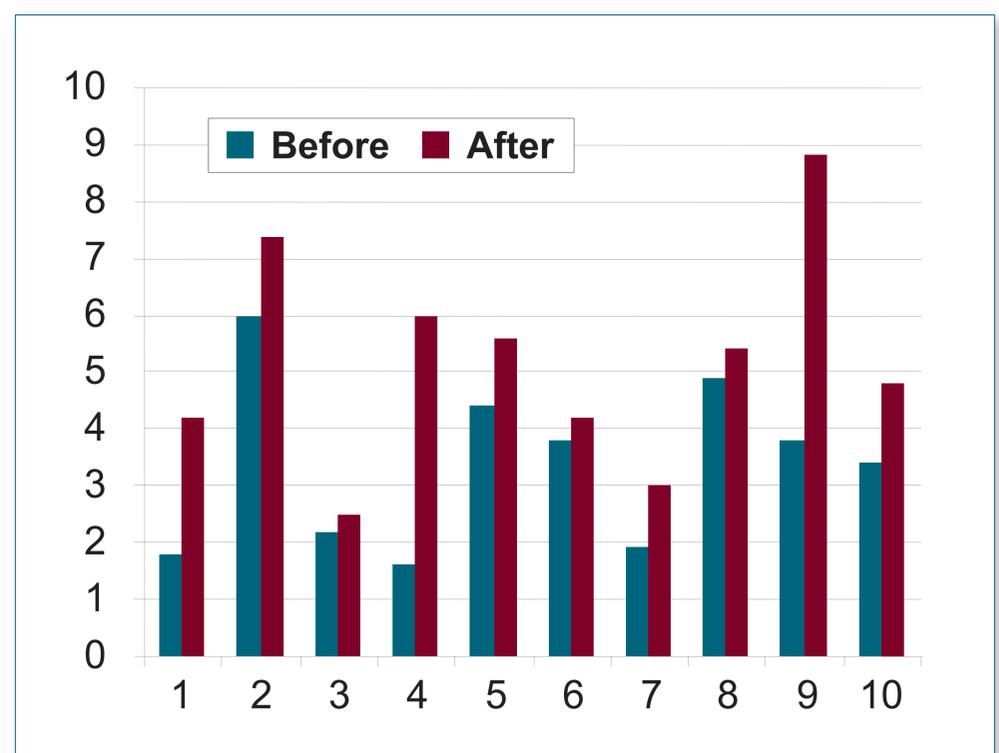
A qualitative interview is used to evaluate the outcome in which the patient determines if the IC has motivated him to exercise by himself and the amount of minutes he has spend exercising.

## RESULTS

The review of COPM shows that all patients have improved their occupational performance from 0,3 points for the lowest improvement to 5,6 points to the highest. In relation to satisfaction of their occupational performance, there has been a positive development with 7 patients, 1 patient has had a negative development and for the last 2 patients it was unchanged.

The exercise intensity is very diverse. The highest exercise intensity is 3 times a day with 10 minutes per session, while the lowest is 3 times a week with 5 minutes per session. 9 patients describe IC as fun to exercise with and also feel it has been challenging. A single patient did not feel it has been fun to train with IC and felt no effect of the exercise. 8 patients do not feel they are finished with exercising with the IC and would like to have the IC available for more than 4 weeks.

## COPM BEFORE AND AFTER TRAINING (performance)



## CONCLUSIONS

After the use of the IC in 4 weeks there has been a positive development in the patients' occupational performance and there is a vast improvement in satisfaction of their occupational performance. The IC is fun to exercise with and has been a contributing factor on coordination, strength and control of their paretic hand. 8 patients had a desire to continue to exercise with IC. It can therefore be concluded that the acceptability, usability and motivation is high for the use of IC.

## DISCUSSION

All patients have continuously while participating in the project received physiotherapy and occupational therapy as a part of their rehabilitation, which is why it is difficult to assess the exact effect of exercising with the IC. To do so, it will be necessary to conduct a RCT-study.

It is solely the patient's own assessment that is reflected in this project. The project includes a broad group of patients suffering from stroke. Cognitive dysfunctions as lack of motivation, anosognia and compromised initiative can have a major impact on the outcome. Exercise intensity could be enhanced by supervised training, and hence if desired improve the impact of exercising with the IC even more. The reason for the low exercise intensity could be due to the fact that the patients as a result of their stroke have reduced motivation, and hence have a hard time even to take the initiative to exercise on their own, which was the focus of this project.