

# Effects of an aquatic therapy approach (Halliwick-Therapy) on functional mobility in stroke patients – a randomized controlled trial

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**Objective:** To evaluate a physiotherapeutic aquatic therapy approach (Halliwick-Therapy) as it relates to activities in the area of mobility during the post-acute phase of rehabilitation after a stroke

**Design:** Randomized controlled trial with blinded assessment

**Setting:** Clinic of neurology and neurological rehabilitation

**Participants:** Patients after first-ever stroke in post-acute inpatient rehabilitation (n=30)

**Interventions:** In the Halliwick-Therapy group (n=14) the treatment over a period of two weeks included 45 min of aquatic therapy (Halliwick-Therapy) 3 times per week and a conventional physiotherapeutic treatment 2 times per week. Subjects in the control group (n=16) received conventional physiotherapeutic treatment over a period of two weeks 5 times per week.

**Outcome measures:** The primary outcome variable was postural stability (Berg Balance Scale). Secondary outcome variables were functional reach, functional gait ability (Functional Ambulation Categories) and basic functional mobility (Rivermead Mobility Index).

**Results:** In both groups significant improvements in all outcome variables were measured. The mean values of the improvements were higher in the Halliwick-Therapy group than in the control group. Compared to the control group, significantly more subjects in the Halliwick-Therapy group (83,3% vs. 46,7%) attained significant improvement of the Berg Balance Scale ( $p < 0,05$ ). Improvement of the functional gait ability was significantly higher in the Halliwick-Therapy group (mean value  $1,25 \pm 0,866$  SD) than in the control group (mean value  $0,73 \pm 0,704$  SD) ( $p < 0,1$ ). The analysis of the results in functional reach and the Rivermead Mobility Index indicated greater improvements in the Halliwick-Therapy group but did not reach a level of significance.

**Conclusions:** This first clinical trial of aquatic physiotherapy in post-acute stroke patients in an inpatient setting displayed greater improvements of postural stability and functional gait ability after two weeks of intervention in comparison to conventional treatment. Further studies with larger sample sizes and longer study duration are necessary.

## Key Words:

*Stroke, Motor Recovery, Aquatic Therapy, Halliwick-Therapy, Mobility, Balance*

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