

## **Assessing the Outcome of Rehabilitation after Hip Fracture with a Wearable Device - A pilot and feasibility study**

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**Background:** Rehabilitation after hip fracture should be early and effective. The evidence regarding most beneficial type of rehabilitation is however insufficient. Using an Inertial Measurement Unit (IMU) gives possibilities to measure movements and give feedback. The aim of this study was to investigate any differences in outcome between different rehabilitation interventions and also within each group. Another aim was to study the feasibility of performing a randomised control trial.

**Method:** This was a three-arm randomised pilot and feasibility study with two intervention groups and one control group. Both intervention groups followed the High Intensity Functional Exercise programme, including exercises for strength, gait and balance. One intervention group also wearied an IMU. The control group had usual rehabilitation. All interventions were individualised to meet each participant's goal and function. Outcome measures was functional balance, activities of daily living (ADL), self-rated quality-of-life and postural sway, recruitment rate, retention rate, the ability to collect primary and secondary outcomes as well as differences in outcomes between and within the different groups.

**Results:** A total of 28 participants were included in the study. All three groups improved in functional balance, ADL and quality-of-life. There were no other significant changes within or between the groups. Feasibility tests showed that recruitment rate was 46%, retention rate 75%, and the ability to collect outcome measures was 80% at baseline and 64% at follow up.

**Conclusion:** All three groups improved in self-perceived health measures, and the feasibility outcome was satisfactory apart from collection of measures of postural sway.