

## The Purpose Of Use Of A Targeting Exercise Program To Minimise The Post-Operative Strength Deficit Of Abductors Muscles After Hip Fracture

Trauma / Hip & Femur Trauma / Surgical Treatment

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### Background

Falls are the main cause of femoral neck fractures in the elderly. Indoors falls accounts (68-70%) for all falls. In the literature the odds of a new fracture are six to 20 times higher than the initial fracture within the first year. Thus prevention of future falls is essential for these individuals. in terms of morbidity, and mortality. Here we study the contribution of a home-based targeted physiotherapy exercise program in the isometric strength and ratio of hip abductor muscles in hip-fractured patients.

### Objectives

There is no unanimity in the literature for a specific and detailed physical rehabilitation program for elderly patients in the postoperative period of proximal femoral fractures. We propose a home-based targeted physiotherapy exercise program to increase abductor muscles strength in hip-fractured patients.

### Study Design & Methods

Double-blind, stratified, randomized clinical study involving 96 patients (70-84 years) after hemiarthroplasty due to Garden's III & IV femoral neck fracture. Patients were divided into two equally numbered subgroups. For 12 weeks period the control group followed the classic physiotherapy program, while the research group followed - beyond the classic physiotherapy program- an abductors active exercise program which performed with gradual encumbrance in different body positions and increasing ranges of motion as well as the sets of repetitions. Postoperative measurements of isometric strength of abductors were performed at the end of 3rd month (13th week) and again at the end of 6th month (25th week) (follow-up measure) with reliable electronic dynamometer (ICC 0.899 95% CI 0.764-0.959). Also, the ratio of abductors of fractured to contralateral hip has been calculated. The p-value <0.05 was set as the statistical significance level. (ClinicalTrials.gov identifier number: ISRCTN30713542)

### Results

At 13th week the abductors isometric strength of fractured limb of research group compared to control were 19.0±2.9(lbs) versus 13.99±1.8(lbs) (p<0.0005), respectively, while the

abductors' ratios were  $79.9\% \pm 2.3\%$  vs  $77.0\% \pm 0.5\%$  ( $p < 0.0005$ ), respectively. At 25th week the abductors isometric strength of research group compared to control were  $22,6 \pm 3,4$ (lbs) vs  $16,5 \pm 2,1$ (lbs) ( $p < 0,0005$ ) while the ratios were  $80.7\% \pm 3.1\%$  vs  $73.6\% \pm 3.0\%$  ( $p < 0.0005$ ), respectively.

### **Conclusions**

The targeted progressive strengthening increases the isometric muscle strength of abductors and reduces the strength deficit of the fractured compared to the contralateral hip. That helps the patient to walk easily and safely minimizing the risk for a future fracture