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## **Evaluation of an Oncological Rehabilitation Program for Therapeutic Physical Activity in Adult Cancer Patients: Analysis of a Breast Cancer Cohort Across Rehabilitation Phases**

### Background and Objective:

Advances in systemic therapies have improved survival in breast cancer, but many patients experience fatigue, reduced physical performance, and impaired quality of life. Increasing evidence supports exercise and rehabilitation as supportive interventions associated with improved function, reduced fatigue, and better survival outcomes. Since 2023, Luzerner Kantonsspital (Switzerland) has offered a 12-week supervised multimodal outpatient rehabilitation program for patients before, during, or after cancer therapy. This subgroup analysis evaluated outcomes in breast cancer patients participating in this monocentric before-after study.

### Methods:

Breast cancer patients undergoing prehabilitation, rehabilitation, or post-treatment rehabilitation were included (N=61). Lean muscle mass and handgrip strength were assessed before and after the 3-month program. Patient-reported outcomes included FACT-G, Multidimensional Fatigue Inventory (MFI), Distress Score (FBK-R10), and PG-SGA, measured at baseline, post-rehabilitation, and 6 months later. Multivariable regression analyses evaluated self-reported functional performance and ability to work at 6 months.

### Results:

Sixtyone patients were included. Overall, rehabilitation significantly improved lean muscle mass (+0.7 kg), handgrip strength (+2.4 kg), fatigue, distress, and nutritional status, while FACT-G scores remained unchanged. Breast Cancer Patients undergoing Prehabilitation showed slight muscle loss and no significant handgrip improvement compared with rehabilitation or post-treatment patients. Higher baseline SMI and level of physical activity at 6 months were independently associated with better functional performance, whereas there was no significant association with physical activity level before diagnosis. Functional performance trajectories differed according to rehabilitation phase and neoadjuvant treatment. Self-reported functional performance at 6 months was significantly lower in prehabilitation group but improved in rehab and post-rehab groups, this being particularly evident for Patients receiving chemoimmunotherapy.

### Conclusion:

Outpatient oncology rehabilitation improved muscle mass, strength, fatigue, distress, and nutritional status in breast cancer patients. Functional performance was lowest during prehabilitation, highlighting the importance of maintaining muscle mass and physical activity throughout neoadjuvant treatment.

## **Keywords**

Breast Cancer, Prehab, rehab

## **Conflict of Interest & Ethical Approval**

yes

## **Abstract submitters declaration**

yes

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