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## Treatment-Phase–Tailored Exercise in Breast Cancer: 6-Month Interim Results from a Randomized Controlled Trial

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**Background:** This randomized controlled trial (RCT) examined the short-term effects of a phase-tailored, home-based exercise program for women with stage I–III breast cancer. The aim was to evaluate whether the intervention improves metabolic biomarkers and postoperative shoulder function (strength and range of motion, ROM) during the first 6 months after surgery.

**Methods:** In this 12-month, two-arm RCT, women with stage I–III breast cancer (target n=96) were randomized to a phase-tailored exercise group or usual care. Phase 1 (post-surgery) combined supervised, in-person shoulder ROM and strengthening sessions with home-based training, while Phase 2 (during chemotherapy and/or radiotherapy) focused on maintaining physical function and muscle mass through individualized home-based exercise. This interim analysis included 69 participants who completed the 6-month follow-up, assessed at baseline (V1), 1 month post-surgery (V2), and 6 months post-surgery (V3).

**Results:** Shoulder strength improved over time with significant group-by-time interactions for flexion and abduction, favoring the exercise group. CA 15-3 significantly decreased in the intervention group ( $10.0 \pm 8.42$  to  $8.74 \pm 4.19$  U/mL,  $p=0.01$ ), with no significant change in usual care ( $10.68 \pm 5.93$  to  $10.30 \pm 6.24$  U/mL,  $p=0.46$ ).

**Conclusion:** In this interim analysis, a phase-tailored, home-based exercise program promoted superior recovery of postoperative shoulder strength and reduced CA 15-3 levels compared with usual care. Longer follow-up will clarify long-term cardiometabolic and clinical benefits.

### Keywords

Breast cancer, Exercise, Intervention, Early recovery

### Conflict of Interest & Ethical Approval

yes

### Abstract submitters declaration

yes

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