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# Impact of surgical treatment on shoulder joint complex and muscle strength of women undergoing breast cancer treatment

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**Objective:** This study aimed to evaluate the range of motion (ROM), muscle strength, and functional performance of the shoulder joint complex (SJC) of women with breast cancer undergoing surgical treatment, in two moments, before and after surgery. **Methodology:** The study included 11 volunteers (age  $53.7 \pm 10.8$  years; body mass  $73.1 \pm 17.1$  kg; height  $1.55 \pm 0.06$  m; BMI  $30.4 \pm 6.3$  kg/m<sup>2</sup>) recruited at the Advanced Breast Diagnostic Center (CORA)/Universidade Federal de Goiás. The volunteers were evaluated in the preoperative moment (0–8 days before) and in the postoperative moment (30–43 days after). ROM was assessed using the Clinometer application, muscle strength was assessed using the hand-grip strength (HGS) test, and functional performance was assessed using the arm, shoulder, and hand dysfunction questionnaire (DASH). **Results:** There was no interaction between the side and time factors and the effect of the side factor for HGS ( $p=0.80$  and  $p=0.41$ , respectively) and ROM on abduction shoulder movements ( $p=0.45$  in both), flexion ( $p=0.92$  and  $p=0.54$ , respectively), 0° abduction lateral rotation ( $p=0.28$  and  $p=0.14$ , respectively), 90° abduction lateral rotation ( $p=0.39$  and  $p=0.15$ , respectively), and 90° medial rotation of abduction ( $p=0.06$  and  $p=0.81$ , respectively). There was also no effect of the time factor for HGS ( $p=0.56$ ) and ROM on shoulder movements of lateral rotation 0° abduction ( $p=0.29$ ), lateral rotation 90° abduction ( $p=0.09$ ), and medial rotation 90° abduction ( $p=0.94$ ). However, there was a reduction in abduction ROM ( $p=0.002$ ) and shoulder flexion ROM ( $p=0.002$ ) after surgery on both sides. In addition, there was a reduction in the scores on shoulder functional performance after surgery ( $p=0.005$ ). **Conclusion:** Abduction and flexion of the shoulder were affected after surgery, in addition to a reduction in the scores on the functional performance of the shoulder.

**Keywords:** muscle strength; breast cancer treatment; surgery.