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## **The Impact of Long-Term Physical Therapy on Torso Morphometric Parameters in Middle-Aged Women After Mastectomy: A Comparative Study**

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### **ABSTRACT**

This study investigates the effect of physical therapy (PT) on torso morphometric parameters in middle-aged women following mastectomy. A total of 120 women were included, with 66 participating in a PT program and 54 not receiving PT. Anthropometric data were collected before surgery and 36 months post-mastectomy. Key parameters included height, body weight, body mass index (BMI), seated height, torso length, and chest circumference. Results demonstrated that PT contributed to better recovery of morphometric indicators. Patients using PT showed improved height, BMI, and chest mobility compared to those who did not participate in rehabilitation programs.

**KEYWORDS:** Mastectomy, physical therapy, rehabilitation, morphometric parameters, body mass index, torso length, chest circumference.

### **Relevance:**

Mastectomy significantly affects the physical and psychological well-being of women, leading to changes in body proportions and general health decline. One of the challenges after surgery is the progressive alteration in morphometric parameters such as height, body mass, BMI, and thoracic flexibility. Physical therapy is a proven rehabilitation tool, yet its precise impact on body morphometry post-mastectomy is insufficiently studied. Identifying its effectiveness is essential for developing optimal rehabilitation protocols. This study fills a gap in current medical literature by providing quantitative evidence of how PT can mitigate negative physical changes and improve recovery. It supports integrating PT into standard care after mastectomy to promote physical restoration, improve posture, and enhance overall quality of life. Data-driven insights into morphometric improvements will allow clinicians to tailor patient-specific rehabilitation approaches.

**Aim:**

To evaluate the effect of long-term physical therapy on morphometric parameters of the torso in middle-aged women after mastectomy.

**Materials and Methods:**

The study involved 120 women aged 45–60 years who had undergone mastectomy. Among them, 66 used structured physical therapy for 36 months, while 54 did not engage in PT. Morphometric parameters such as standing height, body weight, BMI, seated height, torso length, and chest circumference (at rest, inhalation, exhalation) were measured before surgery and after 36 months. Data were analyzed statistically to assess differences between the PT and non-PT groups, with particular attention to thoracic mobility and structural alignment.

**Results:**

Participants who underwent PT showed significant improvements in morphometric parameters. Height improved from  $158.0 \pm 1.5$  cm (post-surgery) to  $160.2 \pm 1.5$  cm. BMI increased from  $20.3 \pm 0.5$  kg/m<sup>2</sup> to  $23.3 \pm 0.5$  kg/m<sup>2</sup>. Chest circumference at rest increased from  $85.5 \pm 0.7$  cm to  $87.9 \pm 0.7$  cm. Thoracic excursion improved from  $2.8 \pm 0.1$  cm to  $3.8 \pm 0.1$  cm. In contrast, the non-PT group showed lower recovery across all indicators. These findings support the effectiveness of PT in improving postural alignment, weight control, and respiratory function post-mastectomy.

**Conclusion:**

Long-term physical therapy has a positive impact on the recovery of torso morphometric parameters in women after mastectomy. Patients engaged in PT showed improvements in height, BMI, chest circumference, and thoracic excursion, indicating better physical rehabilitation. The results emphasize the importance of incorporating PT into post-mastectomy care plans to prevent physical deterioration and promote healthier body metrics. This study provides strong evidence for healthcare providers to advocate for structured rehabilitation programs. PT not only accelerates physical recovery but also contributes to improved quality of life and functional independence for women following breast cancer surgery.

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