

Post-Mastectomy Upper Limb Exercises for Functional Recovery Among Breast Cancer Survivors: A Narrative Review

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ABSTRACT

Background: Breast cancer is one of the most common cancers affecting women worldwide. Although advances in diagnosis and treatment have improved survival outcomes, many women continue to experience physical and emotional challenges following breast cancer surgery. Mastectomy and associated lymph node procedures may result in upper limb complications such as pain, reduced shoulder mobility, muscle weakness, stiffness, and lymphedema. These problems can interfere with daily activities, independence, and quality of life. Post-mastectomy upper limb exercises are an essential component of rehabilitation that supports physical recovery and promotes adaptation after surgery.

Aim: This narrative review aims to explore the importance of post-mastectomy upper limb exercises, their role in improving functional recovery, preventing complications, and enhancing quality of life among breast cancer survivors.

Methods: A narrative review of published literature was conducted using electronic databases including PubMed, Scopus, CINAHL, Cochrane Library, and Google Scholar. Literature related to breast cancer surgery, mastectomy, upper limb exercises, shoulder rehabilitation, lymphedema prevention, and quality of life was reviewed and synthesized.

Findings: The reviewed literature indicates that structured upper limb exercise programmes improve shoulder range of motion, reduce stiffness, enhance muscle strength, support functional independence, and improve quality of life. However, exercise adherence may be affected by pain, fear of movement, lack of knowledge, emotional distress, and inadequate follow-up support.

Conclusion: Post-mastectomy upper limb exercises are a valuable component of breast cancer rehabilitation. Individualized exercise programmes, combined with patient education and professional support, can enhance recovery outcomes. Nurses play a key role in empowering women through education, motivation, and continuous rehabilitation support.

Keywords: Breast cancer, Mastectomy, Upper limb exercises, Rehabilitation, Shoulder mobility, Lymphedema, Nursing care.

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INTRODUCTION

Breast cancer remains a significant global health concern among women. Improvements in screening, early diagnosis, surgical management, and adjuvant therapies have contributed to increased survival rates. However, successful treatment is not limited to disease control; women often experience physical, psychological, and social challenges during survivorship.

Mastectomy is one of the commonly performed surgical procedures for women diagnosed with breast cancer. While the procedure is effective in removing malignant tissue, it may lead to several postoperative complications affecting the upper limb. Women may experience shoulder stiffness,

reduced range of motion, pain, weakness, altered

sensation, and lymphedema following surgery. These problems can negatively influence their ability to perform daily activities and affect overall quality of life.

The postoperative period represents an important phase in breast cancer recovery. Rehabilitation interventions aim to restore physical function, prevent complications, and support women in returning to their previous lifestyle. Among these interventions, upper limb exercises are considered a fundamental component of post-mastectomy care. Exercises such as range-of-motion activities, stretching, strengthening, and shoulder mobility

exercises help maintain joint flexibility, improve

muscle function, and promote independence.



Fig. 1 Common challenges after mastectomy

Although exercise rehabilitation is widely recommended, many women experience challenges in performing exercises regularly. Fear of pain, concerns about surgical wound healing, fatigue, lack of confidence, insufficient information, and limited support may reduce adherence. Therefore, rehabilitation approaches should consider both physical recovery and the individual experiences of women.

Nurses have an important responsibility in post-mastectomy rehabilitation. They provide education, demonstrate exercise techniques, encourage participation, monitor complications, and offer emotional support. A comprehensive understanding of the available evidence regarding upper limb exercises can assist nurses in developing effective, patient-centred rehabilitation strategies.

This narrative review discusses the role of post-mastectomy upper limb exercises in improving functional recovery and highlights implications for nursing practice.

Objectives of the Review

The objectives of this narrative review are:

1. To describe the importance of upper limb exercises following mastectomy.
2. To discuss the effects of exercise on shoulder mobility and upper limb function.
3. To explore the role of exercise in preventing postoperative complications.
4. To identify barriers influencing participation in post-mastectomy exercises.
5. To highlight the role of nurses in supporting rehabilitation among breast cancer survivors.

Methodology

Review Design

A narrative review approach was adopted to summarize and discuss available evidence related to post-mastectomy upper limb exercises.

Literature Search Strategy

Relevant literature was searched from electronic databases:

- PubMed

- Scopus
- CINAHL
- Cochrane Library
- Google Scholar

The following keywords were used:

- Breast cancer
- Mastectomy
- Upper limb exercise
- Arm exercise
- Shoulder rehabilitation
- Postoperative rehabilitation
- Lymphedema prevention
- Quality of life

Selection Criteria

Inclusion Criteria

- Studies involving women undergoing breast cancer surgery.
- Articles related to upper limb exercise and rehabilitation.
- Research articles, review articles, and clinical studies.
- Articles published in English.

Exclusion Criteria

- Studies unrelated to breast cancer rehabilitation.
- Articles without relevance to upper limb exercises.
- Non-scientific publications.

Review of Literature

1. Post-Mastectomy Physical Challenges

Following mastectomy, women may experience various physical limitations that affect upper limb function. Shoulder movement restriction is one of the most frequently reported concerns. Surgical trauma, pain, scar formation, and changes in muscle activity may contribute to reduced mobility. [1,2]

These physical limitations can affect activities such as dressing, bathing, lifting objects, and household work. Persistent functional problems may also influence emotional well-being and social

participation.

2. Role of Upper Limb Exercises in Recovery

Upper limb exercises are designed to restore movement and improve functional ability after breast cancer surgery. Early and gradual exercise participation helps prevent stiffness and promotes shoulder flexibility.

Range-of-motion exercises encourage joint

mobility, while strengthening exercises improve muscle function and endurance. Regular participation enables women to regain confidence in using the affected arm and return to daily activities. Exercise programmes should be introduced according to individual recovery status, surgical procedure, and patient tolerance [3].



Fig. 2 Role of upper limb exercises

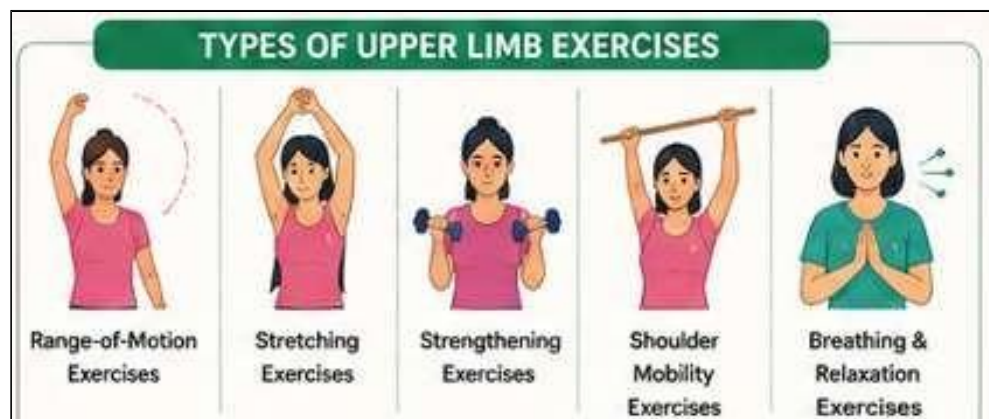


Fig. 3 Types of upper limb exercises

3. Effect of Exercises on Shoulder Mobility

Shoulder dysfunction is a common postoperative concern among women after mastectomy. Exercise-based rehabilitation has demonstrated positive effects on improving shoulder movement and reducing functional limitations [4].

Stretching exercises and progressive mobility training help maintain joint flexibility and prevent long-term restrictions. Consistent guidance from healthcare professionals improves correct exercise performance and adherence.

4. Exercise and Prevention of Lymphedema

Upper limb lymphedema is a potential complication following breast cancer treatment, particularly among women undergoing lymph node procedures. Symptoms may include swelling, heaviness, discomfort, and reduced arm function [5,6].

Appropriate exercise programmes support lymphatic circulation and may contribute to better

arm function. However, exercises should be

performed safely with proper education and monitoring.

5. Psychological Benefits of Exercise

Recovery after mastectomy involves emotional adjustment in addition to physical healing. Women may experience fear, anxiety, altered body image, and reduced self-confidence.

Participation in rehabilitation exercises can improve confidence by helping women regain control over their bodies and return to normal activities. Exercise may also provide a sense of progress and recovery [7].

6. Barriers Affecting Exercise Adherence

Although exercises provide several benefits, adherence remains a challenge for many women [8]. Common barriers include:

- Pain and discomfort
- Fear of movement

- Lack of knowledge regarding exercises
- Fatigue
- Emotional distress
- Limited professional guidance

• Lack of family support
Addressing these barriers through education and continuous encouragement may improve participation.



Fig. 4 Barriers to exercise participation

Role of Nurses in Post-Mastectomy Rehabilitation

Nurses are essential members of the breast cancer rehabilitation team. Their responsibilities include:

- Providing education about postoperative exercises.
- Demonstrating correct exercise techniques.
- Encouraging gradual progression of activities.

- Monitoring pain and complications.
- Providing emotional support.
- Motivating women to continue rehabilitation.
- Involving family members in supportive care.

Effective nursing interventions can improve confidence, adherence, and overall recovery.

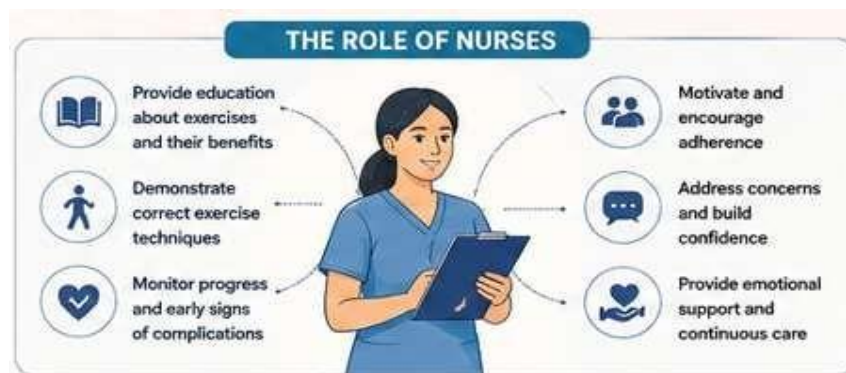


Fig. 5 The role of Nurses in the path to recovery

Discussion

The available evidence highlights that post-mastectomy upper limb exercises are an important aspect of breast cancer survivorship care. Exercise rehabilitation improves physical outcomes by enhancing shoulder mobility, reducing stiffness, and promoting functional independence. However, rehabilitation should not focus only on physical outcomes. Women's emotional experiences, confidence, motivation, and support systems significantly influence their recovery journey. A patient-centred approach that combines

exercise education, psychological support, and follow-up care may produce better outcomes. Nurses are uniquely positioned to provide continuous support throughout the rehabilitation process. Developing structured exercise education programmes and follow-up strategies can improve long-term recovery among breast cancer survivors.

Implications for Nursing Practice

Nursing Practice

- Implement standardized post-mastectomy exercise education.
- Provide individualized rehabilitation plans.

- Monitor exercise progress during follow-up.

Nursing Education

- Include cancer rehabilitation and exercise counselling in nursing curriculum.

Nursing Research

- Encourage further studies evaluating innovative rehabilitation approaches.

Conclusion

Post-mastectomy upper limb exercises play a significant role in improving recovery among breast cancer survivors. Regular and structured exercise programmes can improve shoulder function, reduce complications, and enhance quality of life. Rehabilitation should address both physical and emotional needs of women following surgery. Nurses have a vital role in providing education, encouragement, and holistic support to promote successful recovery.

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