STUDY PROTOCOL

Study Title

Comparison of the Effects of Kinesio Taping and Compression Bandaging on Edema, Range of Motion, Upper Extremity Function, and Grip Strength in Patients With Breast Cancer-Related Lymphedema

Study Design: Randomized Crossover Clinical Trial
Planned Enrollment: 44 participants
Condition: Breast Cancer-Related Lymphedema
Primary Purpose: Treatment
Intervention Model: Crossover Assignment

Background and Aim

Breast cancer-related lymphedema may cause upper extremity swelling, pain, restricted range of motion, functional limitations, and reduced muscle performance. Compression bandaging is commonly used in lymphedema management, whereas Kinesio Taping has been proposed as an alternative or complementary treatment approach.

The aim of this study is to compare the effects of Kinesio Taping and compression bandaging on upper extremity edema, shoulder range of motion, upper extremity function, pain, and grip strength in patients with breast cancer-related lymphedema.

Study Design

This study is a randomized, two-sequence crossover clinical trial involving 44 participants.

Participants will be randomly assigned to one of two treatment sequences.

Sequence A:
Weeks 0–4: Kinesio Taping + Manual Lymphatic Drainage
Weeks 4–6: Washout period
Weeks 6–10: Compression Bandaging + Manual Lymphatic Drainage

Sequence B:
Weeks 0–4: Compression Bandaging + Manual Lymphatic Drainage
Weeks 4–6: Washout period
Weeks 6–10: Kinesio Taping + Manual Lymphatic Drainage

Manual lymphatic drainage will be administered three times per week during both intervention periods.

Clinical assessments will be performed at baseline, week 4, and week 10.

Participants

Participants with breast cancer-related upper extremity lymphedema who meet the predefined eligibility criteria will be included in the study.

Participants with contraindications to compression therapy, manual lymphatic drainage, or Kinesio Taping; active infection; significant skin lesions; or other conditions that may substantially affect upper extremity function will be excluded.

Interventions

Kinesio Taping

Kinesio Taping will be applied to the affected upper extremity using a standardized lymphatic correction technique by a trained physiotherapist.

Compression Bandaging

Multilayer compression bandaging will be applied to the affected upper extremity according to a standardized lymphedema management protocol.

Manual Lymphatic Drainage

Manual lymphatic drainage will be administered three times per week during both 4-week treatment periods.

Outcome Measures

Primary Outcome

Upper Extremity Edema:
Upper extremity edema will be evaluated using standardized circumferential measurements. Limb volume will be calculated from the circumference measurements.

Secondary Outcomes

- Shoulder range of motion measured with a goniometer
- Upper extremity function assessed using the QuickDASH
- Grip strength measured using a Jamar hand dynamometer
- Pain intensity assessed using the Visual Analog Scale

All outcomes will be assessed at baseline, week 4, and week 10.

Statistical Analysis

Descriptive statistics will be used to summarize participant characteristics and outcome measures.

Treatment effects will be analyzed considering the crossover design and repeated measurements. Period effects and potential carryover effects will also be evaluated where appropriate.

Statistical significance will be set at $\mathbf{p < 0.05}$.

Ethical Approval

The study was approved by the **Haliç University Non-Interventional Clinical Research Ethics Committee** on **October 30, 2025**.

Written informed consent will be obtained from all participants before enrollment.