

# Application of MET Technique after Upper Limb Dysfunction after Breast Cancer Surgery

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## ARTICLE INFO

### Article history

Received: 20 March 2021

Revised: 27 March 2021

Accepted: 24 July 2021

Published Online: 30 July 2021

### Keywords:

MET technology

Muscle energy technology

Breast cancer

Upper limb dysfunction

## ABSTRACT

**Object:** Explore the application and actual effect of MET (Muscle Energy) technology after breast cancer surgery with upper limb dysfunction. **Methods:** Taking 40 female breast cancer patients who underwent surgical treatment in our hospital from September 2017 to June 2019 as the research objects, all of them successfully completed modified radical mastectomy for breast cancer. According to different nursing methods, the patients were randomly divided into two groups. The experiment There were 20 cases in each group and the control group. The control group was given routine functional recovery exercise intervention after the operation, and the experimental group added MET technology to the base of the control group. One month after the operation, the functional recovery of the affected limbs of the two groups of patients was effectively assessed. The upper limb dysfunction of the two groups was compared by statistical methods, and the shoulder joint range of motion (ROM) was used for performance. **Results:** Through early functional recovery training and MET technology, 19 cases of ROM in the experimental group showed compliance (95%), compared with only 14 cases (70%) in the control group. The difference in upper limb dysfunction between the two groups is very obvious with statistical significance ( $P < 0.05$ ). **Conclusions:** Early functional recovery training combined with muscle energy technology can promote the recovery of upper limb dysfunction after breast cancer surgery faster and better, which is conducive to the recovery of patients as soon as possible and improve the quality of life.

## 1. Introduction

Breast cancer is a malignant tumor disease with a higher incidence in the female population. In recent years, with the advancement and improvement of timely diagnosis and overall treatment of breast cancer, the overall survival rate and survival time of patients have been greatly improved. At the same time, related complications of breast cancer treatment will interfere with the quality of life of patients and related problems. Began to gradually attract people's attention<sup>[1]</sup>. In order to further improve the qual-

ity of life of patients, many studies have pointed out the related comorbidities and prevention measures of breast cancer treatment. Among them, dyskinesia of the affected upper limb is more common, which has developed into a major comorbidity in patients after breast cancer<sup>[2]</sup>. In the early stage of overall breast cancer treatment, surgical treatment (including breasts and armpits) and radiotherapy are likely to cause the production of scar tissue, fibrosis and soft tissue contraction in local locations. Such conditions can easily lead to dysfunction of the upper limbs of the patient and cause pain. Reduced range of motion, etc.,

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continued development will lead to myofascial dysfunction, mucosal capsulitis, nerve function obstruction, which leads to pain and shoulder joint behavior obstruction, and upper limb function obstacles ultimately hinder the normal life and daily behavior of patients. First report the specific situation as follows.

## 2. Materials and Methods

### 2.1 General Information

For this study, a total of 40 female breast cancer patients who underwent surgical treatment were selected in our hospital from September 2017 to June 2019. According to different nursing methods by random method, all patients were divided into experimental group and control group, each with 20 cases<sup>[3]</sup>. The diagnosis and classification of upper limb dysfunction were carried out according to the plan drawn up by Richards. The specific process is: ask the patient to stand facing the wall and lift his hands vertically. The difference between the hands to touch the high level indicates the difference in the upper limb lift level; arrange the patient's hands to be reversed from the back to wear the bra to touch their own. The spine, the highest protrusion that the thumb can reach, is used to measure the level of abduction, external rotation, and internal rotation of the upper limbs. When any one of them is abnormal, it can be judged as the lack of ability of the side shoulder joint, that is, upper limb dysfunction.

The screening criteria are: (1) Meet the criteria: patients after breast cancer surgery (unlimited surgery); female patients aged 29-75 years; patients voluntarily join this study with informed consent. (2) Non-compliance: Patients with bleeding tendency such as severe blood diseases; patients with severe skin diseases; patients with allergies or history of drug allergy; patients with unconsciousness or mental illness.

### 2.2 Method

Patients in the control group were given training based on domestic and international standards for postoperative rehabilitation exercises for breast cancer. They were regularly and correctly guided by professional nurses every day, including non-resistance exercise training, resistance equipment exercise training, and music-rhythm rehabilitation exercises. The training time is 10 minutes, training 3 times a day, a total of half an hour, 2 times a week, giving a total of 8 treatments. At the same time, a certain amount of psychological care was given to solve the existing nursing problems in a timely and routine manner.

Patients in the experimental group were treated with MET on the basis of the control group, 40 minutes each

time, 5 times a week. Among them, the main steps of the technique of relaxing muscle strength after isometric contraction are: the patient chooses a sitting position and asks him to place one hand below his back. If there is difficulty, he can put his hand on the same side of the greater trochanter. One of the therapist's holds the patient's elbow and places the other hand on the distal part of the forearm. Pull the distal end of the forearm away from the back as much as possible. The patient will make appropriate resistance. The isometric contraction is about 5-10 seconds. Slowly pull the arm to the new resistance. Limit, repeat the above actions 3-5 times<sup>[4]</sup>. Perform eccentric contraction muscle strength in MET: Instruct the patient to choose a prone position and raise the arm to a comfortable limit. The therapist will hold the distal end of the humerus with one hand and place the other hand on the forearm. Try to use appropriate pressure Move the arm beyond the top of the head, the patient resists, slowly move the arm to the painless limit, continue to relax for about 10 seconds, maintain the new range without pain, if there is pain, it needs to be sent back slowly. Repeat 3-5 times, lower your arms, and perform this action 3-5 times. The total duration of the 2 groups of medical treatment was 4 months.

### 2.3 Observation Indicators

ROM is used as an objective indicator to detect the rehabilitation of patients' upper limb function. A professional goniometer was used to detect the movement of the shoulder joints of the uninfected and affected upper limbs in the 4th and 12th weeks after surgery (shoulder extension, flexion, abduction, and adduction). Among them, the patient has no discomfort or pain, which means that the upper limbs are functioning normally.

### 2.4 Statistical Methods

Use SPSS 23.0 statistical software to conduct scientific and reasonable analysis and research on all the acquired data. Among them, the count data are compared with X<sup>2</sup> detection. When  $P < 0.05$ , it means that the difference is obvious and has statistical significance.

## 3. Results

Through early functional recovery training and MET technology intervention, 19 patients in the experimental group (up to 95% compliance rate) showed that the upper extremity function was up to standard (normal), while only 14 patients in the control group (70% compliance rate) showed that it was up to the standard. The difference is obvious and has statistical significance ( $P < 0.05$ ). The specific conditions are shown in Table 1 below.

**Table 1.** 2 Comparative analysis of shoulder joint activity of postoperative breast cancer patients in 2 groups (cases)

Grouping	Quantity	ROM up to standard	ROM is not up to standard
test group	20	19	1
Control group	20	14	6

Note: Comparative analysis of the ROM compliance rate of the two groups of patients,  $X^2=3.907$ ,  $P=0.049$ .

#### 4. Discussion

Breast cancer is currently a major malignant tumor that endangers the physical and mental health of women around the world. There is a high incidence and mortality rate, and it continues to show a rising trend. Modified radical mastectomy for breast cancer is a common type of clinical surgery in the current surgical treatment of breast cancer, and patients often have a series of complications after surgery. According to the corresponding clinical data display and analysis, the current incidence of upper limb dysfunction after breast cancer surgery has reached 36%-65%, the affected side shoulder joint disorder has also reached 48%, and the incidence of subcutaneous effusion on the affected side is 10%. About 20%<sup>[5]</sup>, upper extremity edema regurgitation usually occurs within 1-2 years after surgery, and upper extremity dysfunction is a common type of comorbidity after breast cancer surgery. The main symptom is that patients show varying degrees functional problems such as lymphedema, obstructed behavior of upper limbs and shoulder joints, and decreased muscle strength. It greatly interferes with the patient's limb function, thereby affecting the patient's normal life and social behavior.

MET technology is a manual treatment technique that actively participates in patients under the principle of painlessness, which can increase muscle length, flexibility, and increase muscle strength and stability. Patients in the experimental group were treated with muscle energy technology. The specific process was: Isometric contraction and relaxation (PIR), the patient's shoulder joints were moved to the maximum extent, and appropriate resistance was applied to them to maintain the isometric. The contraction lasts for 5 seconds to effectively relax the internal rotator muscles; the contraction relaxation (CR) process is basically the same as PIR, but the difference is that it needs to simply complete repeated operations in the shield of the original resistance; interactive inhibition (RI); contraction Relaxation against contraction (CRAC) method. The patient received improved muscle energy training<sup>[6]</sup>. The main operation process of the muscle energy technol-

ogy to improve the external rotation of the shoulder joint is to passively move the shoulder joint to the extreme position of the external rotation. The therapist increases the appropriate resistance to prevent the patient's internal rotation isometric contraction and allows the same long contraction time for 5 seconds, the muscles relax after the isometric contraction. The therapist performs external rotation of the shoulder joint to the new blocked part of the movement, and then applies the same technique again, repeating the technique 3-5 times in the direction of external rotation. During the shoulder joint flexion, abduction, and internal rotation, the therapist repeats the above methods to complete the treatment process of muscle energy technology.

In summary, muscle energy technology can effectively accelerate the dissipation of edema of the affected limb of patients with upper limb dysfunction after breast cancer surgery, reduce the possibility of scar contracture, and avoid postoperative shoulder stiffness due to long-term immobilization and pressure bandaging. And upper limb dysfunction.

#### Funding

Item Number: 2018020778 project name: Clinical study of MET technique on the improvement of lymphedema and shoulder dysfunction after breast cancer surgery.

Item Number: 2019ZY3011 project name: Index analysis of the influence of Weisan acupuncture on sarcopenia.

Item Number: LHGJ20191057 project name: JAK/STAT signal regulation of macrophages involved in tendon remodeling and its mechanism.

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