



“Shoulder Motion In Post Mastectomy: Efficacy Of Physiotherapeutic Intervention”

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**ABSTRACT**

**Background and Purpose:** Breast cancer is one of the main cancers in India and its incidence is increasing day by day. It is one of the leading causes of death in women. Mastectomy is the preferred treatment of breast cancer which leads to many post operative complications like pain and limitation of range of motion of affected side shoulder. Based on previous studies, the present study was focused on effect of direct exercises and free exercises in improving pain and range of motion of shoulder in patients with unilateral post operative mastectomy.

**Materials & Methods:-** 30 female patients with unilateral post operative mastectomy, age between 44-84 years, divided equally into 2 groups, Group A and Group B. All the patients were assessed for pain and shoulder range of motion by using VAS and universal goniometer. Group A was given direct exercises<sup>(9)</sup> and Group B was given free exercises<sup>(8)</sup>. The patients were reassessed after 6 weeks.

**Results and Conclusion:-** It can be concluded that both direct and free exercises are effective in post operative breast cancer patients but direct exercises are more efficient in improving shoulder pain and shoulder range of motion than free exercises.

**KEYWORDS :** Mastectomy, Direct Exercises, Free Exercises

**Introduction:-**

Breast cancer is considered to be one of the leading causes of death among women. It can be defined as a growth of malignant cells within the breast tissue. The limitation of the range of motion (ROM) of the shoulder is considered one of the major postoperative complications of the treatment of breast cancer, and is accompanied by impairment and decrease of the upper limb function<sup>(1,2)</sup>. The shoulder is subjected to the rapid installation of stiffness and muscle atrophy after breast cancer surgery, with the flexion and abduction movements the most affected<sup>(2,3)</sup>. For improvement of these complications, patients are advised to perform shoulder mobility exercises immediately after surgery gives positive results, as it increases the chances of women to return to their activities of daily living (ADLs) within a shorter period of time. So, this study was planned to investigate the effect of direct exercises and free exercises on shoulder range of motion and shoulder pain in post-operative mastectomy patients.

**Methodology:-**

The study involves 30 females with unilateral postoperative mastectomy after breast cancer, aged 44 to 84 years, having restricted active range of motion and pain of the ipsilateral shoulder from Out Patient department (OPD) of University College of Physiotherapy, Faridkot, In patient department (IPD) of Radiology and Oncology and In patient department of Surgery, Guru Gobind Singh Medical College and Hospital, Faridkot whereas the patients having history of contralateral breast cancer surgery, stroke, Deep Vein Thrombosis, any neurological disorders, cardiovascular disorders or other shoulder related musculoskeletal problems and underwent any physiotherapeutic intervention for shoulder pain were excluded from the study. All the patients were equally divided in 2 groups i.e. Group A and Group B, with 15 patients in each group. The shoulder pain and shoulder range of motion was measured by using VAS scale i.e. Visual Analog Scale and universal goniometer respectively. Shoulder flexion, shoulder abduction and shoulder external rotation were measured following standardized procedures reported by<sup>(4)</sup>. Group A patients were given free exercise regimen<sup>(5)</sup> 1986 following the biomechanical physiological movements of the shoulders including flexion, extension, abduction, adduction, internal and external rotation, both isolated and combined, performed with the rhythm of music twice a week with the duration of 25 to 30 minutes for each phase. Group B patients were given direct exercise protocol<sup>(6)</sup> which consist of

stretching of the neck muscles; elevation, external and internal rotation of the shoulders; flexion and extension of the shoulder and elbows performed for 10 times with 60-second interval between exercises, in 40-minute sessions with a frequency of three times a week, for a period of 6 weeks. Shoulder range of motion and pain were assessed at the baseline and after completion of treatment i.e. after 6 weeks.

**Result & Data Analysis:-** The Statistical study of the evaluation was done using SPSS (version 20).

Variable	Mean ± SD	t- value	p- value
Group A (0-6 weeks)	3.67 ± 0.90	1.228	0.229
Group B (0-6 weeks)	4.07 ± 0.88		

p>0.05-significant p<0.05- non significant

**Table 1.1** Describes the comparison of VAS scores in between Group A and Group B in postmastectomy patients.

Variable	Mean ± SD	t- value	p- value
Group A (0-6 weeks)	13.00± 3.23	13.920	0.000
Group B (0-6 weeks)	29.20± 3.14		

p>0.05-significant p<0.05- non significant

**Table 1.2** Describes the comparison of flexion in between Group A and Group B in postmastectomy patients.

Variable	Mean ± SD	t- value	p- value
Group A (0-6 weeks)	5.20± 0.94	26.425	0.000
Group B (0-6 weeks)	18.60± 1.72		

p>0.05-significant p<0.05- non significant

**Table 1.3** Describes the comparison of extension in between Group A and Group B in postmastectomy patients.

Variable	Mean ± SD	t- value	p- value
Group A (0-6 weeks)	16.47 ± 2.75	13.241	0.000
Group B (0-6 weeks)	30.93± 3.22		

p>0.05-significant p<0.05- non significant

**Table 1.4** Describes the comparison of abduction in between Group A and Group B in postmastectomy patients.

Variable	Mean $\pm$ SD	t- value	p- value
Group A (0-6 weeks)	12.67 $\pm$ 2.77	5.109	0.000
Group B (0-6 weeks)	18.27 $\pm$ 3.22		

p&gt;0.05-significant

p&lt;0.05- non significant

**Table 1.5** Describes the comparison of external Rotation in between Group A and Group B in postmastectomy patients.

Variable	Mean $\pm$ SD	t- value	p- value
Group A (0-6 weeks)	9.27 $\pm$ 1.16	10.172	0.000
Group B (0-6 weeks)	18.73 $\pm$ 3.41		

p&gt;0.05-significant

p&lt;0.05- non significant

**Table 1.6** Describes the comparison of internal rotation in between Group A and Group B in postmastectomy patients

### Discussion:

The results demonstrate that performance of directed exercises<sup>(6)</sup> was more efficient in the rehabilitation of pain and shoulder range of motion in the movements of flexion, extension, abduction, internal rotation and external rotation at the end of 6 weeks post-operative than the performance of free exercises. There was a higher statistically significant difference found in the Group B as compared to the Group A between the pre and post treatment applied to the patients with post-mastectomy. Molinaro et al defend an exercise regimen based on natural movements done to music, in order to develop flexibility, coordination and range of motion of the shoulder. Silva et al. proposed a protocol of 19 exercises based on metabolic exercises and stretches following the biomechanical physiological movements of the shoulder. It has been observed that the patients of group A were doing exercises as home based protocol on the other hand, directed exercises were given itself by therapist in Physiotherapy Department under the supervision of therapist. In direct exercises, more shoulder range of motion was achieved by the patients than the patients following free exercise program.

### Conclusion:

The present study has concluded that both directed and free exercises are effective in the management of shoulder range of motion and pain. Further, the directed exercises are more effective as compared to free exercises. Thus, directed exercises should be implemented in physiotherapy protocol of post-mastectomy, and it will be helpful in reducing the level of pain and thus improving the functional status of an individual suffering from post-mastectomy.

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