



## Awareness of prosper exercise protocol (The prevention of shoulder problem trial) in post mastectomy patients among physiotherapist

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### Abstract

**Aim:** To evaluate the awareness of prosper exercise protocol in post mastectomy patients among physiotherapist.

**Background:** PROSPER exercise programme is a 12 months home-based programme that includes warm-up and posture exercises, a daily sustained stretch, range of movement (ROM) and strengthening exercises and advice about physical activity. It also incorporates behavioural strategies to encourage and facilitate adherence. The PROSPER exercise programme is designed to start from the 7<sup>th</sup> postoperative day onwards.

**Methodology:** To conduct this observational study, subjects will be taken according to the inclusion and exclusion criteria. Prior to starting the study, the procedure must be explained and consent form will be taken from the subjects, survey-based investigation was carried out with the aid of a self-made, validated questionnaire.

**Results:** Among 94 Physiotherapist (experience more than 6months/1 year) were collected for the study and analyzed. The results show that more than 50% physiotherapist are aware about PROSPER exercise protocol in post mastectomy patients.

**Conclusion:** It appears that there is a more than 50 % of Physiotherapist are aware about PROSPER exercise protocol however, usage are limited.

**Keywords:** PROSPER, post mastectomy, physiotherapist

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### Introduction

Breast cancer is the most common form of cancer affecting women worldwide and is the leading cause of cancer related death. Breast cancer is a disease in which abnormal breast cells grow out of control and form tumours <sup>[3]</sup>. PROSPER exercise programme is a 12months home-based programme that includes warm-up and posture exercises, a daily sustained stretch, range of movement (ROM) and strengthening exercises and advice about physical activity. It also incorporates behavioural strategies to encourage and facilitate adherence <sup>[1]</sup>. This protocol is indicated for patients with high risk of musculoskeletal shoulder problem after surgery or radiotherapy for breast cancer. High risk include: a) Axillary node clearance. b) radiotherapy to axilla or supraclavicular area. c) Pre-existing shoulder problems. d) BMI  $\geq$  30

The PROSPER exercise programme is designed to start from the 7<sup>th</sup> postoperative day onwards. In the first week of surgery all patients follow usual care advice with arm movement restricted to 90°. From 7 days onwards, first physiotherapy appointment patients is assessed and given a diary 'physiotherapy book' the home based exercise, physiotherapist will prescribe unrestricted ROM exercises into flexion, abduction, adduction and external rotation, shoulder movements above 90° and the 'daily stretch and hold' exercise to pectoralis muscle <sup>[2]</sup>.

At the end of the 4th postoperative week, in second session exercise diary and strength is assessed and strengthening exercises will be introduced using therabands, physiotherapist encourage women normally for general activities of daily living, and to promote steady increase in complexity and load of functional tasks. The third session from 12 weeks onwards, physiotherapist assess, progress and review goals. Emphasis is on need to return to higher level function, work & hobbies. Progress strength & stretching,

encourage continued monitoring & physical activity like cycling, gym work, running. The focus at 3 months was on the return to usual activities and the ability to undertake more demanding functional activities [1]. Additional physiotherapy appointments physiotherapist schedule which involve assessing progress, discussing barriers or complication may have arisen, and continue with home programme for 12 months [1].

Exercise type/category	Exercise	Frequency	Sets	Repetitions	Hold	Initial load	Progression				
<b>From 7 days after surgery</b>											
Warm-up	Posture check	Twice per day	1	5	5 seconds	-	-				
	Shoulder circles				N/A	-	-				
	Trunk twists (1-4)				3 seconds	-	-				
Range of movement	Daily stretch	Daily	1	10 minutes or 2 x 5 minutes	-	-	-				
	Forward				Clasp hand raise or forward wall slide	Twice per day	1	5	3 seconds	-	Step 1: increase up to 10 repetitions
	Side				Morning stretch or sideways wall slide				Step 2: if applicable, progress to next level of difficulty for the exercise		
	Open chest	Back broom lift or surrender									
<b>From 4 weeks after surgery</b>											
Strength	Forward	Forward band lift or rocker (advanced only)	2-3 times per week	1	10 (minimum 8 repetitions, maximum 12 repetitions)	3 seconds	Selected so that two repetitions are rated as 5 or 6 on modified Borg scale	Step 1: maintain 5-6 rating on Borg scale through increasing load (from tan to red to blue Theraband tubing)  Step 2: build up to three sets with 1-3 minutes' rest between sets			
	Side	Sideways band stretch or woodchopper									
	Open chest	Overhead band stretch or front band stretch or low band row									
Physical activity	From day 1	Gentle	Daily	3	10 minutes	-	-	Build up to 30 minutes continuous			
	From 4 weeks	Moderate	5 times per week	-	30 minutes			No restrictions after 12 weeks			
	From 12 weeks	Moderate to hard									

Fig 1: The aim of the study is to evaluate the awareness of proper exercise protocol in post mastectomy patients among physiotherapist



**Morning stretch OR sideways wall slide (shoulder abduction)**



**Fist pumps (optional exercise)**



**Back broom lift OR surrender (shoulder abduction with external rotation)**



**Forward band lift OR rocker (flexion)**



**Sideways band OR woodchopper (abduction)**



**Overhead band stretch OR front band stretch OR low band row (abduction with external rotation)**



**Fig 2**

**Method and Materials**

The following study was An Observational type of study. The sampling population was collected by convenient sampling method. The minimum sample size of the research was 94. The study was conducted in Jalgaon. The duration of study was 6 months.

The sample size was calculated by the following formula.

Formula:

$$n = \frac{z^2 \rho(1-p)}{d^2}$$

The Criteria of selection of participants was done based on Inclusion Criteria which included the participants Voluntary willing to participate, Physiotherapist having experience of 6 months and more than 1 years of experience. Malpractitioner / Un registered physiotherapist were excluded.

Procedure: Ethical clearance was taken from the institutional ethical committee of prior to the commencement of study. A brief demographic data of all physiotherapist was obtained and consent were taken from all participant. First, the nature and purpose of study was explained to the participants, then the participants were given all the information about the self-made questionnaire. Then participant was provided with the online questionnaire which was validated and asked to answer the question according to their knowledge. Data was collected and it was statistically analysed and results were generated.

**Results**

A total of 94 subjects were enrolled in the study. Data was collected on standardized self-made questionnaire and entered in MS Excel. Data was analyzed and results were obtained.

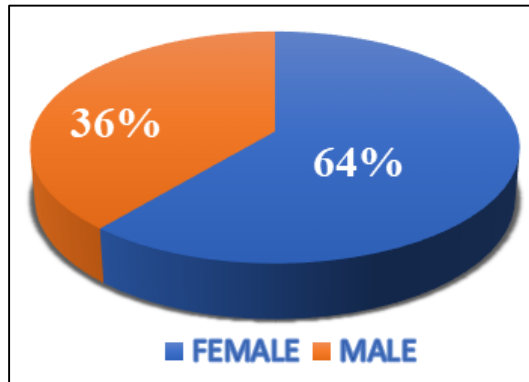


Fig 3: Among the participants, there were 64% females and 34% male

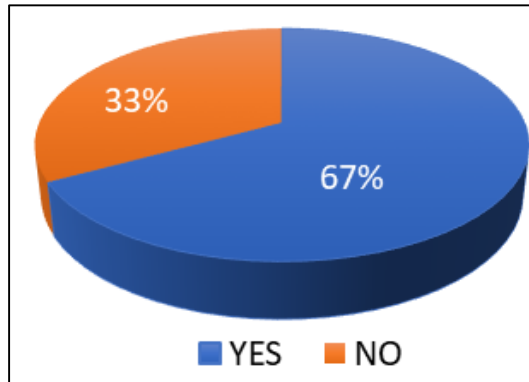


Fig 4: On an average 67% physiotherapist are aware about prosper exercise protocol

Table 1: Question-wise percentage of right answers by participants

Questions	1	2	3	4	5	6	7	8	9
% of Most appropriate options selected by the participant	56.3%	93.8%	78.1%	92.2%	89.1%	85.9%	92.2%	76.6%	93.8%

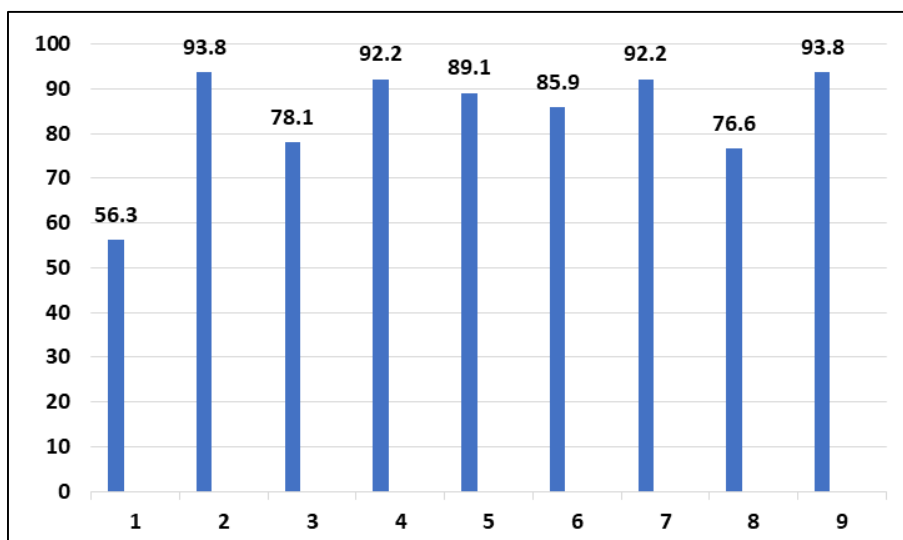


Fig 5: Survey Based Study

**Discussion**

This survey based study aimed to assess awareness of prosper exercise protocol in post mastectomy patients among physiotherapist in Jalgaon district. In the study there was 94 Physiotherapist among which 36% are Male and 64% are Female participants. The participants were given a form which was a self-made questionnaire. The form has 9 item Questionnaire. The data was obtained with the help questionnaire shows that 67 Physiotherapist are aware about

prosper exercise protocol. More than 50% of PTs in this study was reported that the PROSPER exercise protocol can be used for Assessment, Intervention and Follow up. About 78.1% PTs use PROSPER exercise protocol for Assessment, intervention and follow up. A study conducted by Julie Bruce et al 2021 concluded that early, structured, progressive exercise is safe and clinically effective for women, also improved upper limb function at one year after breast cancer surgery was cost effective. <sup>(5)</sup>

Also study conducted by Sophie Rees et al 2021 their result shows that early supported exercise intervention and integrated behavioural strategies helped women at risk of shoulder problems, with built-in progression and shared decision-making, helped women undergoing breast cancer treatment gain a restored sense of control over their well-being and empowered them <sup>[2]</sup>.

Similarly, a study conducted by Esther Williamson, Bruno Mazuquin et al 2022 their aim was to find out the clinical effectiveness and cost-effectiveness of a structured exercise programme compared with usual care on upper limb function, and their result shows that early, supported exercise after breast cancer surgery improved shoulder function in those at risk of shoulder problems and was associated with lower health-care costs than usual care and improved health-related quality of life <sup>[4]</sup>.

### Conclusions

From this research, it appears that there is a more than 50 % of Physiotherapist are aware about PROSPER exercise protocol however, usage are limited.

### Future Scope

In future scope, further research can be done via offline mode for example Interview method. Intervention strategies for prevention of shoulder problem in post mastectomy can be conducted.

### Clinical Implication

The study was design to assess the awareness of prosper exercise protocol in post mastectomy patients among physiotherapist which will serve to be prevention of shoulder complication. Improving strength and quality of life in post mastectomy patients. So, PROSPER exercise protocol must be given which can enhance physical activity. It can help in evidence based practice.

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