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Effects of Thoracic Mobilization in Improving the Joint Range of Motion in Patientswith Adhesive Capsulitis

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KEYWORDS
Thoracic Mobilization, Joint Range of Motion, Adhesive Capsulitis

ABSTRACT:
Background: Adhesive Capsulitis has become a very common problem for the middle-aged and old-aged population encountered by physiotherapists in their daily practice. Joint mobilization is a very important part of treatment used by physiotherapists for various conditions including adhesive capsulitis. Similarly, thoracic mobilization could also prove to be a good option for the treatment of adhesive capsulitis.
Purpose: The present study is aimed at exploring the effect of thoracic mobilization in improving joint range of motion in adhesive capsulitis.
Materials and Methods: Total 41 patients were enrolled for the study and data was gathered based on joint range of motion i.e. abduction and external rotation of the affected shoulder joint.
Result: The study concluded that thoracic mobilization is effective in treating patients with adhesive capsulitis

Introduction

Adhesive Capsulitis or Frozen Shoulder is a very common condition dealt by physiotherapists in their daily practice. Many researchers have reported that it is a self-limiting condition that may get cured on its own over a period of time but generally, patients prefer to go for therapeutic treatment for this mainly because of the discomfort it causes.

Progressive loss of glenohumeral mobility leading to significant functional limitations is mainly observed in adhesive capsulitis. In 1896, Duplay was credited with initial description of the painful and restricted shoulder. Prevalence of adhesive capsulitis is 2% to 3% of the population and is common among females. The condition is most commonly reported between 40 and 64 years.

Joint mobilization is very important part of treatment used by physiotherapists for various conditions including frozen shoulder. Small, passive movements are given by physiotherapist to move the joint manually. These passive gentle movements strengthen the tissue surroundingthe joint and helps reducing pain by increasing blood circulation and range of motion. Studies have shown that thoracic joint mobilization and extension exercises have been helpful in increasing range of motion, reducing pain and improving shoulder function in the patients affected with subacromial impingement syndrome.

The present study is aimed at exploring the effect of thoracic mobilization in improving joint range of motionin adhesive capsulitis.

Aims & Objectives

To study the effect of thoracic mobilization in improving joint range of motion in adhesive capsulitis.

Materials and Methodology

An experimental study was conducted at IMS and Sum Hospital, Bhubaneswar, Odisha. The patients were screened based on inclusion and exclusion criteria and were selected accordingly. Total 41 patients were enrolled for the study after having their informed consent.

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InclusionCriteria:

Patients with adhesive Capsulitis for at least more than three months.

Range of motion at least 50% of the unaffected side.

Exclusion Criteria:

1. Bilateral shoulder adhesive capsulitis.
2. Intrinsic glenohumeral pathology such as glenohumeral arthritis.
3. A history of substantial shoulder trauma, recurrent dislocation or subluxation of the shoulder, recent fracture of humerus, scapula or clavicle, nerve injury
4. Previous shoulder surgery
5. Pathological instability of the shoulder caused by reflex sympathetic dystrophy andrheumatologic disorders
6. Patients with cervical spine pathology, malignancy were excluded.

Total of 41patients with Adhesive Capsulitis who met the inclusion criteria are included in the study. After taking the descriptive data and history of the patient, a complete orthopaedic evaluation was done. Range of motion of shoulder joint is measured using goniometer. Patient was made to lie supine and measured shoulder range of abduction and external rotation.

After this Thoracic mobilization treatment was started immediately for 15 – 20 minutes followed by cold pack after the mobilization. The patients were advised to attend therapy for three days at stretch. The same treatment of mobilization was followed for three days. The readings of abduction and external rotation were recorded on day 1 and day 3.

Statistical Analysis

After data is collected from the patients, analysis is done using Statistical Package of Social Sciences (SPSS).

Stats:

Age:

	Mean	Standard Deviation
Age	52.24	9.90

Table – 1: Distribution of data based on age of patients

Gender distribution:

	Count	Percentage
Male	22	53.6
Female	19	46.4

Table – 2: Distribution of data based on gender of patients

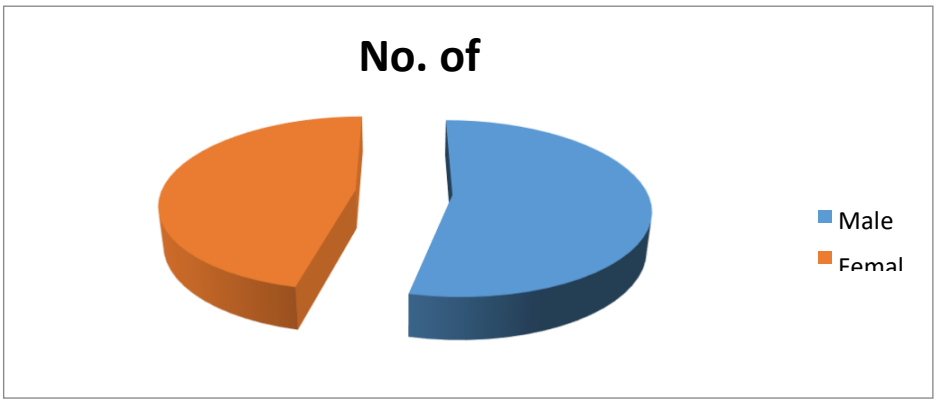

Fig. 1 – Graphical representation of data based on gender

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Test of Normality:

	Shapiro-Wilk		
	Statistic	df	Sig.
Abduction	.788	41	.000
External Rotation	.705	41	.000

Table – 3: Test of normality of data

As p-value for Abduction and External Rotation is less than that of 0.05 indicates that data is not distributed normally therefore along with paired t-test, the results are also verified using Wilcoxon signed rank test.

Comparison of Abduction:

		Mean	N	Std. Deviation	Std. Error Mean
Pre-post	Day-0	89.4634	41	20.06377	3.13343
	Day-3	107.8293	41	19.30272	3.01458

Table – 4: Pre-post data comparison for abduction movement in the affected shoulder

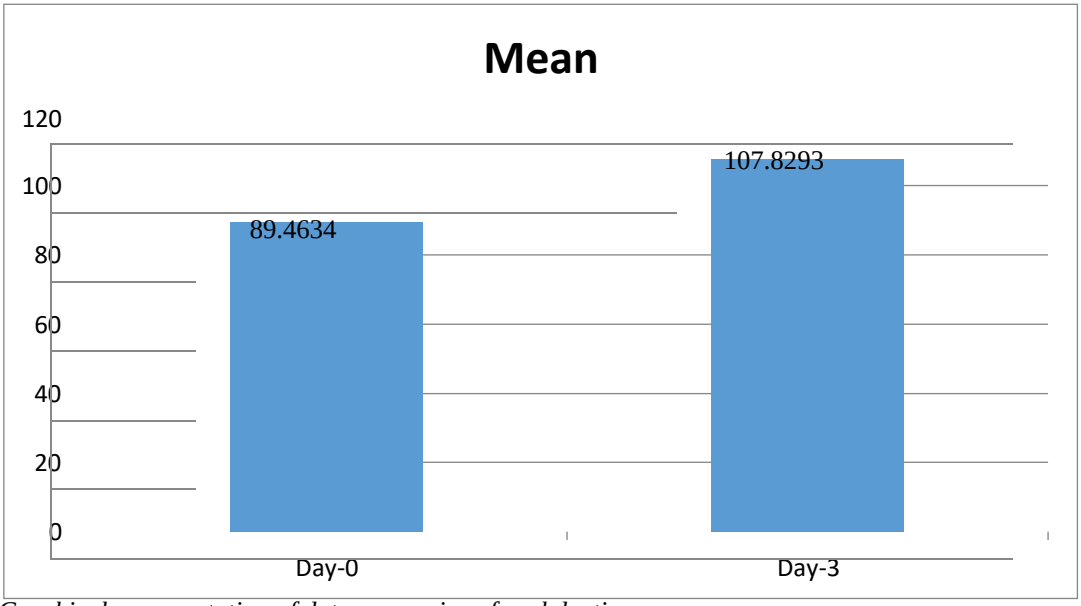

Fig. 2 – Graphical representation of data comparison for abduction

Test result:

	Test value	d.f.	p-value
Paired t-test	-7.674	40	0.000
Wilcoxon signed rank test	-5.515	--	0.000

Table – 5: Paired t-test result for abduction

Interpretation:

As p-value for the paired t-test and Wilcoxon signed ranks test as well is less than that of 0.05 indicates that there is significant increase in the average Abduction score when compared on day-3.

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Comparison of External Rotation:

		Mean	N	Std. Deviation	Std. Error Mean
Pre - post	Day-0	38.8049	41	22.47245	3.50961
	Day-3	53.4634	41	22.28127	3.47975

Table – 6: Pre-post data comparison for External rotation movement in the affected shoulder

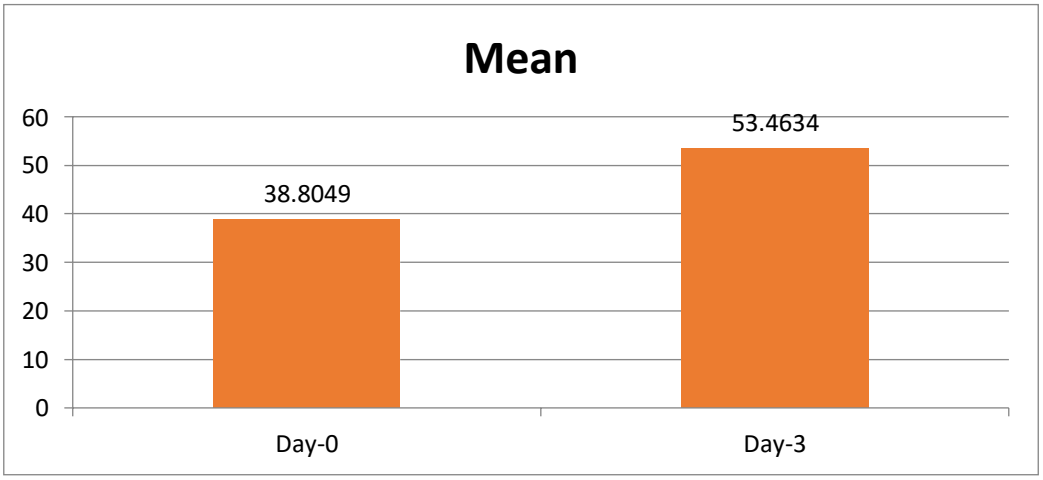

Fig. 3 – Graphical representation of data comparison for external rotation

Test result:

	Test value	d.f.	p-value
Paired t-test	-7.000	40	0.000
Wilcoxon signed rank test	-5.583	--	0.000

Table – 7: Paired t-test result for external rotation

Interpretation:

As p-value for the paired t-test and Wilcoxon signed ranks test as well is less than that of 0.05 indicates that there is significant increase in the average External Rotation score whencompared on day-3.

Findings & Conclusion

The study findings showed that there were 22 male and 19 female patients. The analysis further showed that the p-value for the paired t-test and Wilcoxon signed ranks test is less than that of 0.05 indicates that there is significant increase in the average Abduction score and average External Rotation Score when compared on day-3.

The study concluded that thoracic mobilization is effective in treating patients with adhesive capsulitis and the therapists should consider thoracic mobilization for the treatment of adhesivecapsulitis.

Discussion:

The study concluded that thoracic mobilization is effective in treating patients with adhesive capsulitis and the therapists should consider thoracic mobilization as an integral part for the treatment of adhesive capsulitis. The abduction and external rotation range significantly increased and the pre and post test values shows significant when statistically analysed by performing student t test and wilkosons rank test i.e p value is less than 0.05. In this study, thoracic joint mobilization was applied to improve hypomobility in noncontractile tissues which gets affected with adhesive capsulitis . Posterior anterior (P-A) mobilization technique was given for 20 minutes showed a spontaneous increase in range as an after effect or the maneuver .Further Kebaetse, M.etal stated thoracic spine in neutral position alters the scapular kinematic, increasing the ROM & strength [29]. Furthermore, as stated by Smith, M etal

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scapular correction reduces the upper trapezius muscle activity [30] and increases the lower trapezius activity [31]. Thoracic mobilization helps in increasing lower trapezius strength as stated by Liebler, E.J etal [32] by decreasing the tone of upper trapezius muscle . Thus, thoracic mobilization can alter scapular kinematics, improving the upper trapezius muscles, pectoralis major tone and shoulder ROM. Were as no researches have yet proved thoracic mobilization to be effective for Adhesive Capsulitis so this study aims to highlight the efficacy of the same.

To state the limitation of this study the total sample size is small thus the results are not representatives of all adhesive capsulitis condition where as this study can be considered as a pilot study. The treatment duration is too less .Further a study with larger population and increased treatment duration is intended to pe performed .

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