International Journal of Healthcare Sciences ISSN 2348-5728 (Online)
Vol. 13, Issue 1, pp: (579-582), Month: April 2025 - September 2025, Available at: www.researchpublish.com

EFFECTIVENESS OF PILATES EXERCISE AND ALEXANDER'S TECHNIQUE WITH CORRECTIVE EXERCISE AMONG LACTATING WOMEN WITH UPPER CROSS SYNDROME – A COMPARATIVE STUDY

[1]Dr. S Priyanka., MPT, [2]M. Serin Prisya, [3]Dr. Lokesh.R., MPT., (Ph.D)

[1]Assistant Professor, Department of Physiotherapy, Adhiparasakthi college of Physiotherapy, Melmaruvathur, Tamilnadu.

[2]BPT Internee, Department of Physiotherapy, Adhiparasakthi college of Physiotherapy, Melmaruvathur, Tamilnadu.

[3]Associate Professor, Research & Development Coordinator, Department of Physiotherapy, Adhiparasakthi college of Physiotherapy, Melmaruvathur, Tamilnadu.

DOI: https://doi.org/10.5281/zenodo.16894323

Published Date: 18-August-2025

Abstract: **Introduction: Lactating women are particularly susceptible to developing Upper cross syndrome due to the prolonged postural strain they experience while breastfeeding .Upper cross syndrome is a postural imbalances that affects the muscles of the neck ,shoulders and upper back.**

Aim of The Study: To determine the effectiveness between Pilates exercise and Alexander's Technique with corrective exercises among Lactating women on Upper cross Syndrome.

Materials And Methodology: A Comparative study consists of 30 Lactating women (15-47years) with upper cross syndrome which is selected based on inclusion and exclusion criteria. They were allocated into two groups: GROUP-A were given Pilates Exercise and GROUP-B were given Alexander's technique with corrective exercises for weekly 3 sessions (6weeks) and both group will be measured before and after the treatment using Neck Disability Index.

Results: The participants who were supervised to attend all the sessions were shown a difference in their NDI of mean ± standard deviation of group A and group B pre-test is 31.4667 ± 10.16026 and 47.3067 ± 6.62101, then post-test is 29.3667 ± 10.43939 and 44.1333 ± 6.33434 and RPA of mean ± standard deviation of group A and group B pre-test is 61.3333 ± 13.29160 and 60.0667 ± 5.73793, then post-test is 66.666± 13.047 and 66.000± 6.600.

Conclusion: Both the groups were effective in reducing the symptoms of UCS but group B showed slighter more difference on reducing the symptoms of UCS.

Keywords: **Upper cross syndrome, Lactating women, Pilates, Alexander's Technique.**

1. INTRODUCTION

Upper cross syndrome also known as "Cervical crossed syndrome" was coined by Vladimir Janda in 1979.There are two major categories of derangements, tightness and weakness. A tight muscle includes of Upper Trapezius, Pectoralis Major and Levator Scapulae and a weakening group comprises of Rhomboids, Middle Trapezius and Lower Trapezius, Serratus anterior and deep neck flexors frequently the scalene muscles. This condition is increasingly observed among Lactating

women due to the unique physical demands and Postural challenges they experience during Breastfeeding and Childcare. During Lactation, mothers often adopt prolonged forward leaning position to feed or hold their infants which can lead to muscle imbalances over time. The repetitive nature of these tasks, combined with the additional weight of carrying the baby, places strain on the neck, shoulders and thoracic spine. As a result, many lactating women develop symptoms such as neck pain, shoulder discomfort, and reduced mobility which can impact their overall well being.

PREVALENCE: 66.7% of Multiparous women were found to exhibit upper cross syndrome.

CAUSES: Prolonged Slouched Posture**,** Muscle Imbalance**,** Repetitive motion**,** Lack of physical activity**,** Poor Ergonomics.

MUSCLES INVOLVED IN UCS:

- INHIBITED MUSCLES: Deep cervical flexors: Longus colli, Longus capitis, Rectus capitis anterior, Rectus capitis lateralis, Middle and Lower Trapezius, Serratus anterior, Rhomboids, Scalene, Digastric,Upper limb extensors, Supinators.
- TIGHTENED MUSCLES: Pectoralis major and minor, Upper Trapezius, Sternocleidomastoid, Suboccipitals, Lattisimus dorsi, Upper limb flexors, Pronators, Masticators, Levator Scapula.

POSTURAL ABNORMALITIES IN UCS: Increase in Cervical Lordosis, Increase in Thoracic Kyphosis, Hunching Thoracic spine, Forward head posture, Shoulder protraction, abduction or rotation, Winging of Scapula.

SYMPTOMS: Chest pain, Migraine, Tension headache, Neck pain, Shoulder pain, Upper back pain, Pain in jaw, Tiredness, Neck stiffness, Numbness and tingling in upper arm, Affect Lung capacity and Respiratory efficiency leads to decreased exercise tolerance.

RISK FACTORS: Lack of knowledge of correct posture, Sedentary lifestyle, Occupational demands, Poor core stability, Muscle weakness.

PILATES EXERCISE: Pilates exercises help in managing UCS by addressing the muscle imbalances, postural misalignments, and joint restrictions associated with the condition. Pilates strengthens the core, scapular stabilizers, and deep neck flexors, helping to realign the head, neck, and shoulders. It also stretches overactive muscles, such as the chest and upper trapezius, to relieve tension and promote better mobility. Pilates emphasizes breath control and body awareness, which improves thoracic expansion and reduce stress.

ALEXANDER'S EXERCISE: This technique helps with UCS by promoting better posture, releasing neck and shoulder tension, and reducing habitual patterns like slouching or FHP. It teaches awareness of body alignment, encouraging proper use of the head, neck and spine, which reduces strain on overactive muscles and activates underused muscles. Additionally it improves breathing by enhancing thoracic mobility, helping to restore balance and ease to the upper body, which can alleviate UCS symptoms over time.

CORRECTIVE EXERCISES: Corrective exercise is a specialized approach to physical training designed to address muscle imbalances, improve posture, enhance joint mobility, and reduce the risk of injury, faulty movement patterns. It combines assessments with targeted interventions such as stretching tight muscles, activating weaker ones, and improving joint stability. These exercise aim to restore proper alignment, enhance mobility, and build strength in the areas of dysfunction, ultimately improving overall movement efficiency and reducing the risk of injury.

2. LITERATURE REVIEW

SHUMAYAM SHAFEEQ et al., (2023) This study is aimed to assess the association of UCS with neck pain in Lactating women. Data were collected through NPRS, NDI, and Reedco posture score. Data was analyzed using SPSS version 21 statistical package. All the data was categorical and was presented in the form of frequency and percentage.

NESA SHADI et al ., (2024) this study compares the effect of pilates, corrective exercise and alexander's technique on UCS among adolescent girls student (ages 13-16) for six week study concludes the effect of alexander's technique and corrective exercise on forward head angle, rounded shoulder and kyphosis abnormalities was almost similar and more effective than pilates exercise.

3. MATERIALS AND METHODS

The total number of 30 subjects was selected using random sampling technique based on the inclusion and exclusion criteria. The study was explained to the subjects and written consent has been obtained from the participants. The participants were divided into two groups- Group A and Group B. Randomly the participants were allotted in two groups containing 15 subjects each. Initially the subjects were assessed and measured by NDI and RPA.

1. **Group A** consists of 15 participants and they performed Pilates Exercise. Three Sessions per week with duration of 30 to 45 minutes for six weeks. Exercises are Nodding the head, Head turning, Arm lifts, Arm and leg lifts, Cat and Cow pose, Bilateral arm arcs, Spine twist.
2. **Group B** consists of 15 participants and they performed Alexander's technique with Corrective exercise. This session includes Stretching Exercise for 10 to 15 minutes, Strengthening exercise for 10 to 15 minutes, Postural training for 10 minutes.

4. FINDING AND ANALYSIS

The mean value of NDI in group B (Alexander's exercise with corrective exercise) (44.1333) is more than the NDI in group A (Pilates exercise) (29.366) and RPA value for group B (Alexander's exercise with corrective exercise) (66.0000) is more than the RPA in group A (Pilates exercise) (66.6667).

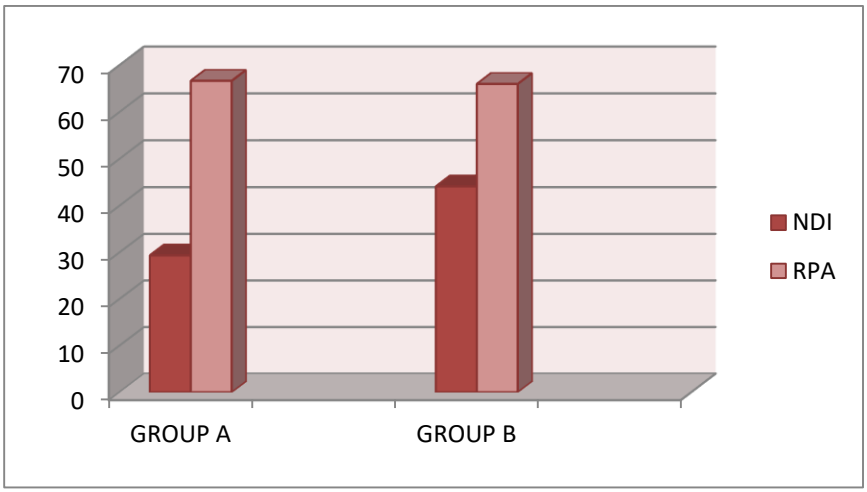

FIGURE: Post test analysis of Group A and B

5. RECOMMENDATIONS

1. A larger sample size would improve statistical power and make the findings more applicable to a wider population.

2. A longer study period could better assess sustained improvements in posture and pain reduction.

3. Future research should investigate how lactation related hormonal changes impact musculoskeletal adaptations and recovery from Upper cross syndrome.

6. CONCLUSION

From this study it was concluded that both the Pilates exercise and Alexander's Technique with corrective exercise were effectively reduced the pain and muscular imbalances and improves body posture of the participants with Upper cross syndrome. But when compared group B (Alexander's technique with corrective exercise) showed much difference than group A (Pilates exercise) in reducing the pain and muscular imbalances and improves body posture of UCS.

7. DISCUSSION

In Group A with NDI, 9 subjects were moderate (score 30 – 48%), 6 subjects were mild (score 10- 28%) and Group A with RPA, 8 subjects were severe (score <60), 3 subjects were significant postural malalignment (score 60-69), 2 subjects were moderate (score 70-79), 2 subjects were mild (score 80-89). In Group B with NDI, 4 subjects were severe (score 50 -68%), 11 Subjects were moderate (score 30- 48%) and Group B with RPA, 9 Subjects were significant postural mal alignment

(score 60-69), 6 subjects were severe (score <60). The result shows that there was significant difference in both the groups on reducing pain and muscular imbalances and also improves postural abnormality of UCS.

Lactating women face specific ergonomic challenges. Studies such as **Shafeeq et al.(2023)** emphasized that neck pain and poor posture are highly prevalent among Breastfeeding mothers. Therefore, integrating postural awareness with targeted muscle correction is especially beneficial, as confirmed in our findings.

These findings are supported by **Shadi et al.(2024)** who compared Pilates, Corrective exercises and Alexander's technique among adolescent girls and found that Alexander's technique and corrective exercises had more pronounced effects on forward head posture, rounded shoulders, and thoracic kyphosis than Pilates alone.

While several studies have explored UCS among students, working professionals, or general female populations, no prior research has evaluated UCS rehabilitation strategies exclusively in lactating women, a group particularly prone to postural dysfunction due to breastfeeding positions, hormonal laxity, and infant handling. This Study addresses that gap by assessing two clinically accepted approaches – Pilates and the Alexander technique in a postpartum setting.

REFERENCES

[1] Shafeeq S, Noreen A, Nasrullah Z, Masood A, ul Hassan W, Ahmad S, Hashim A. Association of Upper Crossed Syndrome with Neck Pain in Lactating Women. Pakistan Journal of Medical & Health Sciences. 2023 Jun 15;17(05):192-.

[2] Shadi N, Khalaghi K, Seyedahmadi M. Comparing the effects of Pilates, corrective exercises, and Alexander's technique on upper cross syndrome among adolescent girls student (ages 13–16): a six-week study. BMC Sports Science, Medicine and Rehabilitation. 2024 Jun 28;16(1):143.

[3] Khaliq A, Yaqub S, Islam F, Raza A, Batool A, Jamil S. RISK FACTORS ASSOCIATED WITH UPPER CROSSED SYNDROME IN FEMALES OF AGE 25-50 YEARS: A POPULATION-BASED CASE CONTROL STUDY. Khyber Medical University Journal. 2021 Dec 31;13(4):201-5.

[4] Teaching Pilates for Postural Faults, Illness and Injury(A Practical Guide) – Jane Paterson.

[5] The use of the self (1932) – Alexander F. Matthias.