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Research Article

# Effectiveness of Strengthening Exercises Versus Integrated Massage Techniques for Postnatal Mother with Neck Pain

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## I N F O

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## A B S T R A C T

*Background:* Neck pain can be a serious issue for postpartum mothers and can range from mild to severe, disabling conditions. The cause of postpartum neck pain is physiological musculoskeletal changes and new factors like changes in posture, although the effect of exercise and massage reduces the pain. The study is designed to examine how strengthening exercises and massage techniques affect postnatal mothers with neck pain.

*Aim and Objective:* The aim of the study is to determine the effectiveness of integrated massage techniques and strengthening exercises for postnatal mothers with neck pain.

*Methodology:* 30 participants were included in the study and divided into two group-A (n=15) performed strengthening and stretching exercises, & Group- B (n=15) performed massage techniques. Outcome measures were done using the Visual Analog Scale (VAS) and Neck Disability Index (NDI).

*Result:* The analysis shows that the significant value (p-value) for both intervention A & intervention B is P<0.0001. The mean value of the outcome measures VAS and NDI shows that neck strengthening exercises (VAS A = 3.33) and (NDI A=19.73) is more effective than the integrated massage techniques (VAS B = 4.07) and (NDI B =19.60)

*Conclusion:* This study concluded that both groups showed significant improvement. Group A (neck-strengthening exercises) is more effective than group B (integrative exercises).

**Keywords:** Postnatal Neck Pain, Strengthening Exercise, Massage Techniques, Visual Analog Scale (VAS), Neck Disability Index (NDI)

## Introduction

Neck pain is a significant problem during the postpartum period, and it can range in intensity from mild to severe. In the postnatal period, breastfeeding is the main cause of the neck pain in which the position is improper feeding to the baby due to inappropriate posture or proper support, which can lead to musculoskeletal conditions such as neck pain and lower back pain. Prolonged periods of time in which the position is maintained can cause postural deformities from the normal curvature of the spine. Postpartum women constantly play many important roles and are in a physically and mentally stressful condition, which may be related to the prevalence or severity of NSP.[1]

However, there are no reports demonstrating what kind of factors affect the prevalence and severity of NSP, and its QOL disturbance in postpartum women.[2] Mothers can breastfeed their child in different positions, including the cradle hold, cross-cradle hold, and side- lying.[3] The mother adopts the same posture for extended periods and multiple times per day during the breastfeeding phase, which can be unsuccessful when performed incorrectly.[4] During bathing, feeding, nappy changing, and maneuvering the baby, improper positioning can cause musculoskeletal changes and discomfort.[5] The most suitable positions for breastfeeding are the cradle, cross- cradle and football position to give proper care for themselves and for their baby.[6]

Various workouts, such as proprioceptive exercises, stability exercises, dynamic and isometric strength exercises, and endurance exercises, are included in therapeutic exercises. Static exercise is used to strengthen weak muscles without stimulating pain-sensitive structures like ligaments, tendons, or neck muscles. They cause contraction in a specific group of muscles without changing muscle length, causing impediments in the movement of involved joints. As for isometric neck exercises, which are simple, easy to use, and cost-effective, they may provide patients with good adherence to the treatment.[9] Therefore, the aim of the study is to reduce neck pain and disability.

Massage therapy is the most common method of treatment for chronic neck pain, and it has been found to be effective in the short term. If the objective is relief of pain, no evidence has been found for their long-term effectiveness in the treatment of chronic neck pain. However, in addition to reducing pain, active neck strengthening and stretching exercises have also improved neck function.[10] This can be overcome with massage. Based on Ipang Suryani's research in 2017, neck massage and pectoralis major muscle massage are beneficial for breastfeeding mothers in the postpartum period. Neck massage and pectoralis major muscle massage have been shown to be good for milk production, but there is no information about which massage is more effective in increasing the total of breast milk. According to the neck massage theory, it is more effective in milk production (Ganong, 2013). Increased muscle tone resulting in limitation in the range of cervical motion is a typical finding in patients with neck pain . Therapeutic massage is one of the methods used in conservative treatment. A properly performed massage normalizes muscle tone, relieves pain, and restores balance of the body and mind.[11]

## Aim of the Study

The aim of the study is to identify the effectiveness of integrated massage techniques and strengthening exercises for postnatal mothers with neck pain.

## Objective of the Study

To determine the effectiveness of integrated massage techniques for postnatal mothers with neck pain To determine the effectiveness of strengthening exercises for postnatal mothers with neck pain

## Need of the Study

Impact of neck pain in postnatal mothers is crucial for several reasons. Postpartum recovery places significant physical strain on women's bodies, particularly in the neck and shoulder region, due to changes in posture, hormonal fluctuations, and the physical demands of caring for a newborn. Neck pain can hinder their ability to care for their infant effectively, leading to potential negative consequences for both mother and child. Additionally, untreated neck pain can escalate into chronic conditions, affecting the mother's long-term quality of life and potentially leading to increased healthcare costs. Therefore, studying neck pain in postnatal mothers can provide insights into effective preventive measures, treatments, and support systems to improve maternal health outcomes and overall well-being during the postpartum period. Studies done on neck pain for the postnatal mother using the integrated massage techniques and strengthening exercises are very few in our country. This study is being carried out with the sole intention of creating awareness among postnatal mothers. This study reduces the neck pain of the postnatal mother and improves the neck range of motion and function.

## Hypothesis

### Null Hypothesis

There is no significant difference between integrated massage techniques and strengthening exercises for postnatal mothers with neck pain.

### Alternative Hypothesis

There is a significant difference between integrated massage techniques and strengthening exercises for postnatal mothers with neck pain.

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## Methodology

- **Study Design:** Experimental Study.
- **Study Type:** Comparative Study.
- **Sampling Method:** Convenient Sampling.
- **Sample Size:** 30 Subjects.
- **Study Duration:** 4 Weeks.
- **Study Setting:** Elite Advance Physiotherapy Clinic, Keelkattalai, chennai 600044

## Inclusion Criteria

- Mothers aged between 24 and 30 years
- Primiparous mothers.
- Exclusively breastfeeding mother.

## Exclusion Criteria

- Mothers with lactation failure
- Mothers already with musculoskeletal disorders
- Mothers with premature babies.
- Mothers with pigeon chest.

## Procedure

30 subjects were selected according to inclusion and exclusion criteria. With the informed consent, the subject was randomly divided into 2 groups. Group A (n=15) underwent strengthening exercises and Group B underwent integrated massage techniques for the duration of 4 weeks. The outcome was analyzed before and after the intervention. (Fig 1)

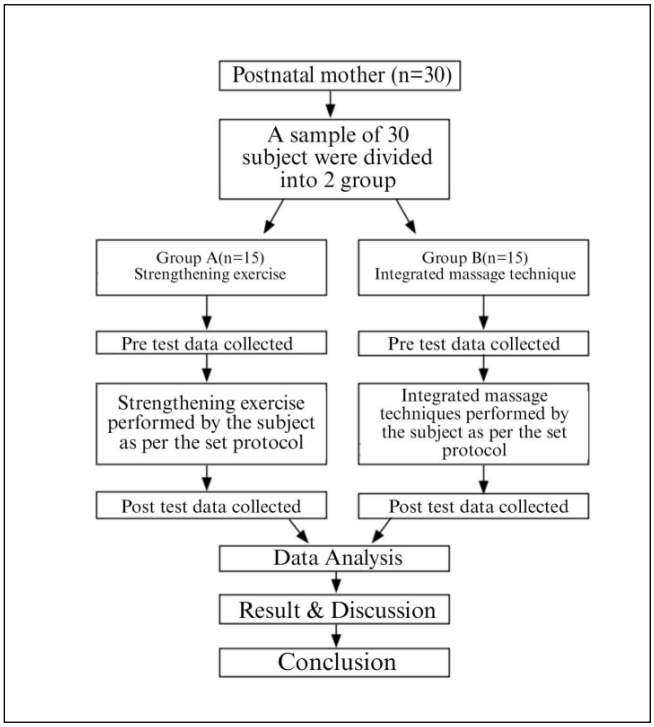


**Figure 1.30 eligible subjects were randomly assigned into two groups: Group A (strengthening) and Group B (massage), for 4 weeks. Outcomes were assessed before and after**

## Data Analysis

**Table 1.Comparison of Visual Analouge scale Score between group A and group B in Pre Test and Post Test**

| VAS | Group A | | Group B | | T- Test | P- Test |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | |
| Pre - Test | 6.4000 | 1.12122 | 6.3333 | 1.17514 | 0.159 | 0.875 |
| Post -Test | 3.3333 | 1.11270 | 4.0667 | 1.38701 | 1.597 | 0.000 |

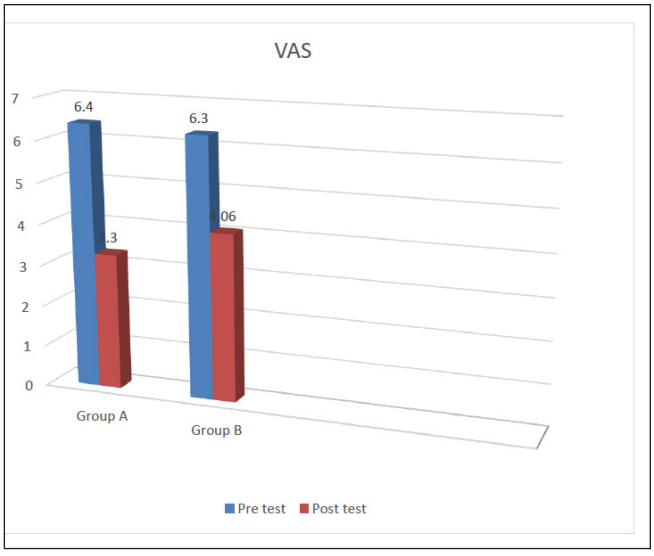


**Figure 2.Comparison of Visual Analogue Sacle Score between group - A and group - B in Pre Test and Post Test**

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**Table 2.Comparison of Neck Disability index score between group - A and group - B in Pre Test and Post Test**

| NDI | Group A | | Group B | | T Test | P Test |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | |
| Pre- Test | 36.2667 | 5.84889 | 33.9333 | 6.02929 | 1.076 | 0.291 |
| Post- Test | 18.400 | 3.48 | 21.40 | 3.439 | 2.3748 | 0.000 |

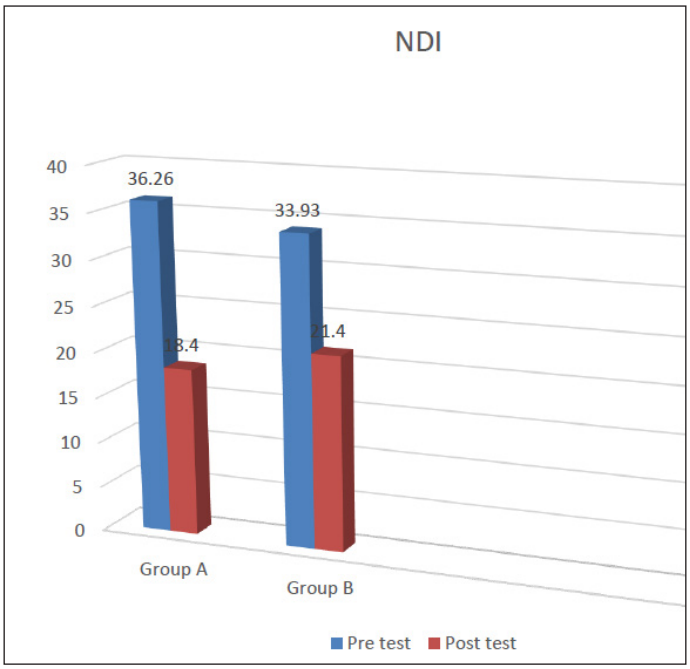


**Figure 3.Comparison of Neck Disability index score between group - A and group - B in Pre Test and Post Test**

**Table 3.Comparison of Visual Analouge Scale and Neck Disability Index between Pre Test and Post Test within Group - A**

| Group A | Pre - Test | | Post - Test | | T Test | P Test |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | |
| VAS | 6.4000 | 1.12122 | 3.333 | 1.11270 | 20.008 | .000 |
| NDI | 36.2667 | 5.84889 | 18.400 | 3.480 | 21.019 | .000 |

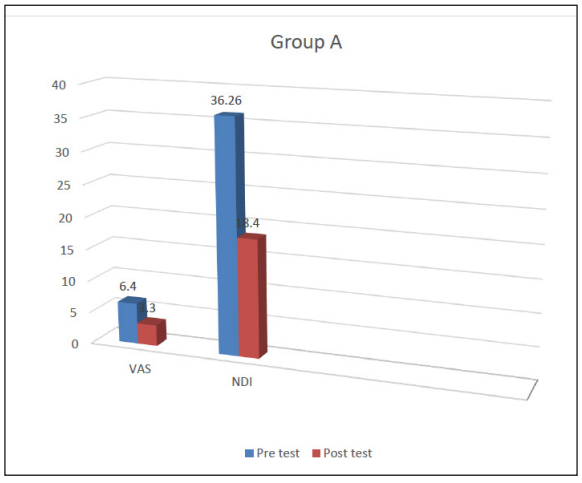


**Figure 4.Comparison of Visual Analouge Scale and Neck Disability Index between Pre Test and Post Test within Group - A**

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**Table 4.Comparison of Visual Analouge Scale and Neck Disability Index between Pre Test and Post Test within Group - B**

| Group A | Pre - Test | | Post - Test | | T Test | P Test |
|---|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | | |
| VAS | 6.3333 | 1.17514 | 4.0667 | 1.38701 | 14.789 | .000 |
| NDI | 33.9333 | 6.02929 | 21.40 | 3.439 | 13.860 | .000 |

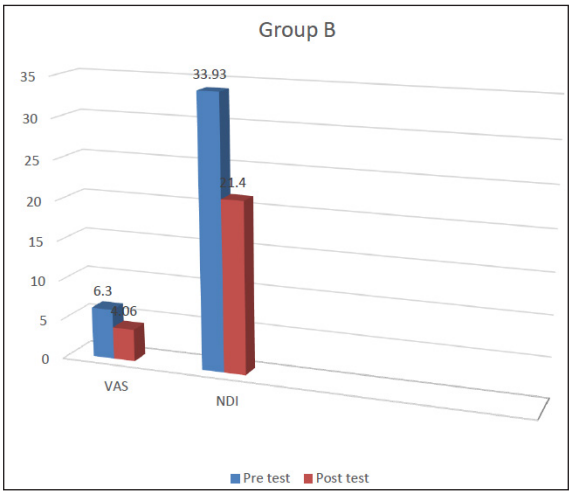


**Figure 5.Comparison of Visual Analouge Scale and Neck Disability Index between Pre Test and Post Test within Group - B**

## Results & Discussion

30 postnatal lactating mothers were selected and divided into 2 groups. Group A underwent strengthening exercises, and Group B underwent integrated massage techniques.

In Table 1, on comparison of mean values of GROUP-A and GROUP-B on Visual

Analogue Scale Group B shows highly significant improvement in the posttest

P≤0.001, hence the null hypothesis is rejected. (Graph-1)

In Table 2, On comparing mean values of GROUP-A and GROUP-B on Neck

Disability Index score: GROUP B shows highly significant improvement in the posttest P≤0.001, hence, the null hypothesis is rejected. (Graph-2)

In Table 3 & 4, on comparing mean values of Visual Analogue Scale and Neck Disability Index scores Between pretest and posttest within the Group-A and Group B, Group B shows a highly significant difference at p≤ 0.0001. hence, the null

hypothesis is rejected. (Graph 3 and 4)

This study will determine the effectiveness of integrated massage techniques and

Strengthening exercises for postnatal mothers with neck pain. In this study a total of 30 subjects diagnosed with neck pain in the age group of 21 to 35 years participated in this study.

The participants who satisfied the selection criteria were conveniently assigned into two groups.

Baseline measurements were taken using the Visual Analogue Score (VAS) and Neck Disability Index (NDI) for both groups. One group received strengthening exercises for 4 weeks and the other group received integrated massage techniques for 4 weeks. At the end of 4 weeks, patients again underwent the evaluation using the same outcome measures. No patients with similar impairments and similar functional limitations.

Neck pain for postnatal mother is reduced after neck strengthening exercise. Strengthening

exercise is associated with increasing blood flow to working muscles during any activity. When performing neck strengthening exercises the co-contraction of various neck muscles. In this study VAS had the pre test mean value of 6.40 which significantly improved in 4thweek with mean of 3.33 ($p<0.0001$) and NDI has the pre test mean value of 36.26 which significantly improved in 4$^{th}$ week with mean of 33.93 ($p<0.0001$) which showed that Neck pain for postnatal mother is reduced after neck Strengthening exercise.

Neck pain for postnatal mothers is reduced after integrated massage techniques. Massage technique is associated

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with increasing venous and lymphatic drainage. When we perform massage technique to mobilize the soft tissue of body with the palmar aspect of hands or fingers. In my study VAS has the pre test mean value of 6.33 which significantly improved in 4thweek with mean of 4.06 ($p<0.0001$) and NDI has the pre test mean value of 33.96 which significantly improved in 4th week with mean of 21.40 ($p<0.0001$) which showed that Neck pain for postnatal mother is reduced after Integrated massage technique.

So our study aimed at reducing pain and improving range of motion in these subjects by

emphasizing neck muscle strengthening exercises and integrated massage techniques which had positive effect on postnatal mothers with neck pain.

## Conclusion

The statistical results show that there is improvement in both the groups. But when

comparing both it was found that mothers underwent Strengthening exercises is more effective than the mothers underwent Integrated Massage techniques

## Limitations

- Small Sample Group.
- focused on cervical pain alone.
- shoulder functions are not included in this study.
- Acute stage of the conditions was not taken.

## Recommendations

- Study should be done for long term.
- larger age group should be included in further study.
- include large sample group.

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**Conflict of Interest:** None

**Source of Funding:** None

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