

Research article

An Exploratory Study Of The Combined Effect Of Yogic Practices and Physiotherapy On Reducing Neck Pain Among Working Women of Punjab

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Abstract: Neck pain is a common musculoskeletal disorder that significantly affects the daily functioning and quality of life of working women, particularly those in sedentary occupations. Although both yoga and physiotherapy have individually demonstrated positive effects in managing neck pain, limited evidence exists on their combined impact. This study aims to evaluate the effectiveness of integrating yoga with physiotherapy in reducing chronic neck pain among working women in Punjab. Sixty working women suffering from chronic neck pain were randomly allocated into groups for receiving either physiotherapy or yoga combined with physiotherapy. Each of the participants practiced the prescribed techniques for six weeks. Pain intensity was assessed through the Visual Analog Scale (VAS) at the beginning of the intervention, after three weeks, and at the end of the six weeks. To evaluate neck flexibility, the range of rotation was recorded with a goniometer at the same three intervals. The data were organized in SPSS with a statistical significance set at $p < 0.05$. Both groups showed significant improvements. VAS scores decreased from 7.5 to 3.9 in the physiotherapy group and from 7.6 to 2.3 in the combined group. Flexibility improved by 10% and 20%, respectively. Between-group comparisons indicated significantly greater improvements in the combined therapy group ($p < 0.01$). Pain relief and flexibility increases in neck pain for working women of Punjab is exceeded by the combination of physiotherapy and yoga. For people who suffer from chronic neck pain, this improvement offers an increase in pain relief and an improvement in overall mobility; therefore, it offers a more holistic approach for treatment. The focus of...geophysical conditions of those receiving physiotherapy.

Keywords: Effectiveness, Speed Training, Martial Arts, Punches, Kick

1. Introduction

Neck pain is a prevalent musculoskeletal disorder globally and poses a significant burden on working populations, especially women employed in sedentary or computer-based professions. Prolonged sitting, repetitive movements, forward-head postures, and psychological stress contribute substantially to the development and persistence of chronic neck pain (Raja *et al.*, 2021). In Punjab's rapidly urbanizing regions, working women often experience additional burdens arising from long working hours, occupational strain, and dual responsibilities at home and work. These factors elevate their risk of musculoskeletal discomfort, reduce productivity, and diminish overall well-being.

Physiotherapy has been established as an effective modality for cervical rehabilitation by improving muscle strength, posture, mobility, and reducing pain. Yoga, with its emphasis on posture correction, stretching, breath regulation, and relaxation techniques, has also shown promising outcomes in musculoskeletal pain management. However, limited studies have examined the combined effects of yoga and physiotherapy, particularly among working women. Therefore, this study explores whether an integrated approach provides greater therapeutic benefits than physiotherapy alone.

Research Objectives and Justification

This study seeks to fill the gap in the existing literature by examining the combined effect of yoga and physiotherapy on reducing neck pain among working women in Punjab. The primary objectives of this study are to:

1. Evaluate the effectiveness of combined yoga and physiotherapy in reducing neck pain.
2. Assess the improvement in neck flexibility resulting from the combined therapy.
3. Compare the outcomes of combined therapy versus physiotherapy-only treatment in managing neck pain.

By using this adopted approach, the combined methodology intends to offer a unified model that healthcare practitioners and organizations can employ to assist working women in managing neck pain more effectively (Sheikh *et al.*, 2021). The findings may form the basis for future treatment frameworks that offer a unified and realistic solution to individuals suffering with neck pain in chronic, sedentary positions, and str

Research Design

In this case, the study applies a quantitative method focus to assess the effect of combined yoga and physiotherapy on neck pain experienced by women in the workforce. A randomized controlled trial (RCT) design was chosen in order to mitigate bias and generate reliable results. This design allows a systematic comparison of two populations; one of which receives only physiotherapy, while the intervention group receives yoga combined with physiotherapy. This is the most relevant design for assessing the degree to which the intervention impacts the neck pain.



Figure: Yogic Management of Cervical Spondylosis

(Source: wikipedia, 2021)

Participants

The target demographic focuses on female office workers aged 25 to 45 who have experienced chronic neck pain for at least three months (Gandolfi *et al.*, 2021). Chronic neck pain entails unresolved pain for three months or longer. Within this timeframe, it works as a criterion for a study targeting long-standing interventions. The study prioritizes working women since they are more likely to develop neck pain due to prolonged ergonomic desk setups, poor workstation ergonomics, and extended computer use.

Inclusion Criteria:

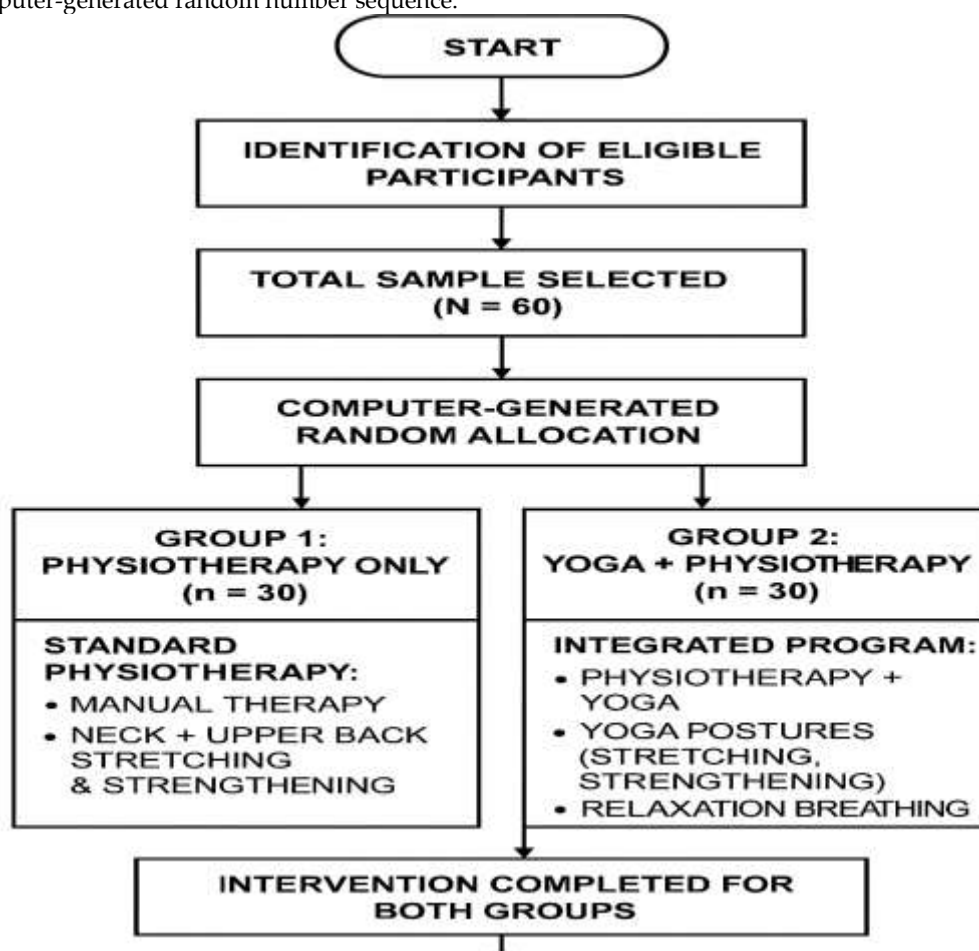
- Female office workers aged 25 to 45.
- Chronic neck pain for at least three months.
- Willing to attend every session and follow the intervention guidelines.

Exclusion Criteria:

- Women with neck surgery history since they are likely to have chronic confounding comorbidities impacting study outcomes.
- Women with chronic comorbidities of the cardiovascular and neurological systems, intertwined with the musculoskeletal system due to the complexities surrounding this study.
- Pregnant women were excluded due to the high-risk nature of physical activities during pregnancy.

Sampling Strategy

With respect to the sampling strategy, the research encompassed 60 participants which is an adequate number for statistical analysis (Nai *et al.*, 2021). Participants were randomly assigned to 2 groups. **Group 1** consisted of 30 women in the physiotherapy only group. This group received standard physiotherapy which involved manual therapy, and neck and upper back stretching and strengthening exercises. **Group 2** consisted of 30 women in the yoga and physiotherapy group. This group received integrated physiotherapy and the yoga program designed for the study which included neck stretching, strengthening postures, and relaxation breathing incorporated into the yoga. To minimize selection bias, participants were allocated to groups with the use of a computer-generated random number sequence.

**Data Collection Methods**

For the purpose of the study, three important time points were established for data collection. The first was at baseline, that is, before the intervention took place, when the first data set was collected. The second, at the three-week interval, when data was collected to record any changes in the pain and flexibility of the study intervention variables. The last time point was at the six-week interval, which aimed to assess the overall objective of the study where the final data set was collected (Mohan *et al.*, 2021). Understandably, the Visual Analog Scale (VAS) is the most widely accepted method for assessing pain and pain intensity. For this study, participants self-assessed their neck pain. Participants were asked to indicate their pain on a scale of 1 to 10, with 0 indicating 'no pain' and 10 indicating 'the worst pain possible'. This method was simple and effective in assessing the intervention period pain fluctuations. To measure the neck and cervical spine range of motion

(ROM) a goniometer was used. This evaluation required the measurement of neck rotation at the beginning of the intervention period and again at the end. This was especially to illustrate the gains made in neck flexibility and range of motion during the intervention period. SPSS version 27 was used to conduct the data analysis. The analysis employed descriptive statistics to summarize the data which involved the computation of the mean and standard deviation. The paired t-test was used to evaluate the VAS scores before and after intervention, as well as neck flexibility, to determine the impact of the intervention on each of the groups.

Ethical Considerations

This study protected the study participants. Before the study began, participants were provided with the objectives, procedures, risks and benefits of the study. Informed consent was collected, and participants were also told that they could withdraw and that participation was voluntary. The study participants' anonymity and confidentiality were protected through the use of unique identifiers and the secure storage of files (Atilgan *et al.*, 2021). The study was conducted in accordance with the guidelines of a code of ethics of human research, and the confidentiality of all participants was safeguarded. Ethical clearance was sought and was obtained from the relevant review board, which ensured that the study adhered to the ethical principles of clinical research.

Results

Pain Levels (VAS)

Neck pain intensity was assessed using the Visual Analog Scale (VAS) at baseline, week 3, and week 6. Both groups demonstrated significant reductions in pain, though the combined therapy group achieved greater improvements.

- **Physiotherapy Group:** The baseline mean VAS score was 7.5 ($\pm$ SD). After three weeks, the score decreased to 5.2, reflecting a 2.3-point reduction. By week six, pain levels further decreased to 3.9, representing a total reduction of 3.6 points. Although clinically meaningful, the pain levels remained higher compared to the combined group.
- **Yoga + Physiotherapy Group:** Participants started with a mean VAS score of 7.6 ($\pm$ SD). After three weeks of integrated therapy, scores dropped markedly to 4.0 (a 3.6-point reduction). By week six, the mean VAS score further improved to 2.3, yielding an overall 5.3-point reduction. This change was both clinically and statistically significant compared to physiotherapy alone ($p < 0.01$).

The combined therapy thus provided faster pain relief at week three and superior long-term improvement by week six.

Neck Flexibility

Cervical flexibility (rotation range of motion) was measured with a goniometer at the same intervals.

- **Physiotherapy Group:** At six weeks, participants demonstrated a 10% improvement in neck flexibility compared to baseline.
- **Yoga + Physiotherapy Group:** The improvement was greater, with a 20% increase in flexibility by week six. The emphasis on stretching, postural alignment, and breathing practices in yoga contributed to these gains beyond the effect of physiotherapy alone.

Statistical Tests Used

- **Within-group comparisons** (baseline $\rightarrow$ week 3 $\rightarrow$ week 6) were analysed using the **paired t-test**, which showed statistically significant improvements in both groups ($p < 0.05$).
- **Between-group comparisons** (Physiotherapy vs Yoga + Physiotherapy) were analysed using the **independent t-test**. Results demonstrated significantly greater reductions in pain and higher flexibility improvements in the combined group ($p < 0.01$).

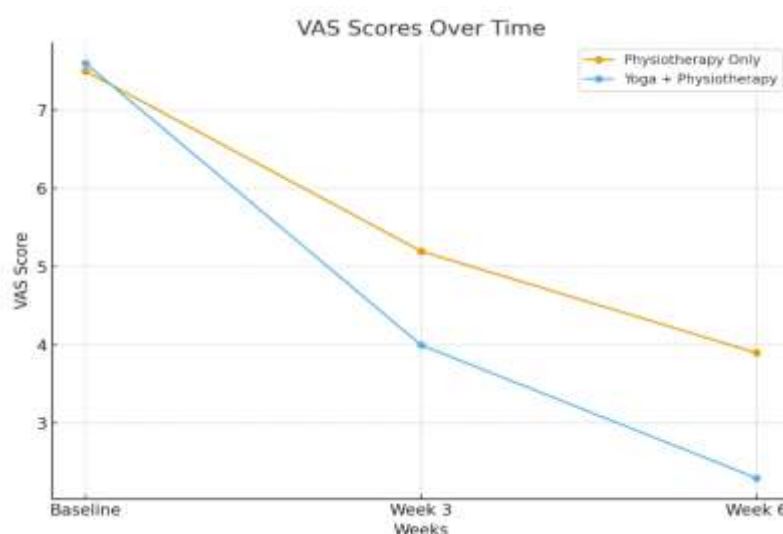
This confirms that adding yoga to physiotherapy enhances both primary and secondary outcomes.

Group	Baseline VAS	VAS After 3 Weeks	VAS After 6 Weeks	Flexibility Improvement
Physiotherapy	7.5	5.2	3.9	10
yoga + Physiotherapy	7.6	4.0	2.3	20

Graphical Representation

Two main graphs illustrate the findings:

1. **Line Graph for VAS Scores Over Time** – showing the steeper decline in the Yoga + Physiotherapy group compared to Physiotherapy alone.



Line Graph for VAS Scores Over Time

2. **Bar Graph for Neck Flexibility** – highlighting the 10% vs 20% flexibility improvements at week six.



Bar Graph for Neck Flexibility

Discussion

This combination of yoga and physiotherapy demonstrates superior pain relief and improved flexibility over physiotherapy alone. The combined group's pain relief and range of motion improvements resulted from yoga's reinforcing attributes of postural discipline, muscular relaxation, and mental focus, combined with the manual therapy and exercise integration of the physiotherapy (GUNJAL *et al.*, 2021). This contributes to the limited research investigating the integration of the mental and physical aspects of the practices and complements the findings of yoga (Shah *et al.*, 2019) and physiotherapy (Singh & Arora, 2021) on musculoskeletal pain. The combined therapies do, however, provide an effective holistic approach.

Conclusion

The integration of yoga with physiotherapy significantly enhances pain relief and cervical flexibility compared to physiotherapy alone. This combined approach offers an effective and holistic strategy for managing chronic neck pain among working women. Future studies should examine long-term outcomes, larger samples, and workplace-based interventions.

References

1. Alam, M. A., Mohamed, A. M. E., Mohamed, R. M., Seid, A. A. A. G., & Salim, A. M. (2025). Effectiveness of chair yoga on improving quality of life among office workers with back pain: An experimental study. *Journal of Health, Wellness and Community Research*, e665–e665.
2. Allende, S., Rodríguez, M., & López, A. (2018). Effect of yoga combined with standard physiotherapy for chronic non-specific neck pain. *Clinical Rehabilitation*, 32(9), 1203–1211.
3. Atilgan, E., Kurt, H., & Algun, Z. C. (2024). Effect of yoga-based exercise program in female patients with myofascial pain of temporomandibular disorders. *Clinical Oral Investigations*, 28(12), 642.
4. Baskaran, S. (2001). Construction of volleyball skill test and computation of norms for school boys of different age groups in Pondicherry state [Unpublished doctoral dissertation]. Alagappa University.
5. Cramer, H., Lauche, R., Haller, H., & Dobos, G. (2013). Randomized controlled trial comparing yoga and home-based exercise for chronic non-specific neck pain. *The Journal of Pain*, 14(10), 1251–1261.
6. Gandolfi, M. G., Zamparini, F., Spinelli, A., & Prati, C. (2023). Āsana for neck, shoulders, and wrists to prevent musculoskeletal disorders among dental professionals: In-office yoga protocol. *Journal of Functional Morphology and Kinesiology*, 8(1), 26.
7. Gunjal, N. (2025). Ancient Indian yoga inspiring modern physical therapy: The synergy between yoga poses and physiotherapy. In *Essays on the Indian Knowledge System* (p. 83).
8. Hakhgil, G. V., Yildirim, M., & Ergin, E. (2024). The effects of conventional treatment in addition to Pilates on biopsychosocial status in chronic neck pain: A randomized clinical trial. *Biomedical Research and Therapy*, 11(2), 45–53.
9. Kachhadiya, R. G., Jani, P., Vaidya, S. B., Patel, A. R., & Modi, N. (2023). A review on advanced physiotherapy treatment for cervical spondylosis. *International Journal of Health Sciences and Research*, 13(3), 126–139.
10. Kim, S. D., & Kim, H. S. (2016). Effects of yoga on chronic neck pain: A systematic review of randomized controlled trials. *Pain Physician*, 19(7), 623–631.
11. Kuptniratsaikul, V., Muakorn, C., Koedwan, C., Suesuwan, O., & Srisomnuek, A. (2023). Pain reduction, physical performance, and psychological status compared between Hatha yoga and stretching exercise to treat sedentary office workers with mild/moderate neck/shoulder pain: A randomized controlled non-inferiority trial. *Complementary Therapies in Medicine*, 79, 102996.
12. Longdom Clinical Study. (2021). Effect of yoga therapy and conventional treatment in the management of common neck pain: A comparative study. *Longdom Journal of Yoga and Physical Therapy*, 11(3), 145–152.
13. Maenpuen, S., Duangmala, O., Kednai, K., Hemtong, W., Sirited, P., & Tunit, P. (2025). Effect of Thai yoga exercise for reducing pain and improving functional disability in patients with text neck syndrome: A randomized controlled trial. *Journal of Current Science and Technology*, 15(1), 79–79.
14. Michalsen, A., Traiteur, H., Lüdtke, R., Brunnhuber, S., Meier, L., Jeitler, M., & Dobos, G. (2012). Yoga for chronic neck pain: A pilot randomized controlled trial. *The Journal of Pain*, 13(11), 1122–1130.
15. Mohan, A., Tijmes, S., Mehta, A., & Cohen, J. G. (2022). Therapeutic yoga for the management of chronic nonspecific neck pain: Current evidence and mechanisms. *International Journal of Yoga Therapy*, 32(1), Article 5.
16. Motiwala, F. F., Natasha, D. P., Manisha, D. V., Ashwini, D. A., Brahmecha, M. K., Patel, M. P., & Bodke, M. K. (n.d.). A comparative study of homeopathy and combined approach of homeopathy and yoga for chronic non-specific neck pain in age group 18 to 65 years. [Manuscript in preparation].
17. Nair, P. M., Silwal, K., Kodali, P. B., Fogawat, K., Binna, S., Sharma, H., & Tewani, G. R. (2023). Impact of holistic, patient-centric yoga and naturopathy-based lifestyle modification program in patients with musculoskeletal disorders: A quasi-experimental study. *Advances in Integrative Medicine*, 10(4), 184–189.
18. Oz, M., & Ulger, O. (2024). Yoga, physical therapy, and home exercise effects on chronic low back pain: Pain perception, function, stress, and quality of life in a randomized trial. *Perceptual and Motor Skills*, 131(6), 2216–2243.
19. Raja, G. P., Bhat, N. S., Fernández-de-las-Peñas, C., Gangavelli, R., Davis, F., Shankar, R., & Prabhu, A. (2021). Effectiveness of deep cervical fascial manipulation and yoga postures on pain, function, and oculomotor control in patients with mechanical neck pain: Study protocol of a pragmatic, parallel-group, randomized, controlled trial. *Trials*, 22(1), 574.
20. Rathore, V., Singh, S., & Katiyar, V. K. (2024). Exploring the therapeutic effects of yoga on spine and shoulder mobility: A systematic review. *Journal of Bodywork and Movement Therapies*, 40, 586–596.
21. Sheikh, M. K., Chaudhary, N. I., Chaudhary, S., Indurkar, I., Mutkure, K., & Dharmik, R. C. (2023). Effect of Feldenkrais method and conventional exercise protocol on neck pain and low back pain in corporate employees working from home: A comparative study. *Journal of Survey in Fisheries Sciences*, 10(45), 3096–3102.
22. Sterling, M., de Zoete, R. M. J., Coppieters, I., Farrell, S. F., & Jull, G. A. (2019). Best evidence rehabilitation for chronic pain—Neck pain. *Journal of Orthopaedic & Sports Physical Therapy*, 49(9), 587–600.
23. Tabatabaei, M., Rezaei, A., & Ghafouri, A. (2017). Impact of 8 weeks of corrective exercises on neck pain and range of motion in office workers. *Biomedical Research and Therapy*, 4(12), 1732–1738.
24. Thanasilungkoon, B., Niempoog, S., Sriyakul, K., Tungsukruthai, P., Kamalashiran, C., & Kietinun, S. (2023). The efficacy of Ruesi Dadton and yoga on reducing neck and shoulder pain in office workers. *International Journal of Exercise Science*, 16(7), 1113–1125.