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Effectiveness of Chin Tuck Exercises in Cervical Spondylosis

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ABSTRACT

Introduction: Cervical spondylosis, also known as cervical osteoarthritis, is a degenerative condition affecting the cervical spine, primarily due to age-related wear and tear of the intervertebral discs and vertebrae. This condition is prevalent in individuals over the age of 40, Modern sedentary lifestyles, prolonged use of digital devices, and poor posture have significantly increased the incidence of cervical spondylosis, even among younger populations.

Chin tuck exercises are designed to strengthen deep cervical flexor muscles, improve posture, and reduce stress on the posterior cervical structures. They help restore the natural curvature of the cervical spine, thereby reducing nerve impingement and alleviating pain.

Aim: The primary objective of this research is to evaluate the 'effectiveness of chin tuck exercises' in the management of cervical spondylosis in sitting/standing vs supine lying position. And comparing their pre-post data with Numerical Pain Rating Scale (NPRS) and Neck Disability Index (NDI).

Also to determine whether chin tuck exercises significantly reduce neck pain and discomfort & to study the role of chin tuck exercises in strengthening the deep cervical flexor muscles and to evaluate the influence of chin tuck exercises on daily activities and quality of life in affected individuals.

Materials and Methods: Following up the randomised controlled trial, the sample size will consist of 10 subjects with pre-diagnosed cases of cervical spondylosis having neck pain from the age group of 40- 60 years old, which will further be randomly allocated for the study. Ten subjects with pre-diagnosed cervical spondylosis who will be fulfilling inclusion and exclusion criteria will be selected for the study.

Ten subjects with pre- diagnosed cervical spondylosis with neck pain. There will be two groups, group A (study group, n= 5) and group B (control group, n =5).

Result:

1. Standard Deviation (Pre vs. Post):
    - For NPRS in Group A, variability slightly increased after the exercise, while Group B maintained a constant variability pre- and post-test.
    - For NDI, Group A showed a noticeable increase in variability post-test, while Group B showed reduced variability, suggesting more consistent outcomes for sitting/standing.
2. T-Statistic and p-Value:
    - The t-statistics and p-values indicate significant improvements ($p < 0.05$) in both NPRS and NDI scores across groups. Group B (sitting/standing) exhibited a much stronger statistical significance than Group A (supine), particularly for the NDI.
    - For NPRS in Group B, the high t-statistic and zero p-values suggest exceptionally consistent pain reduction outcomes.

The significant reduction in NDI scores for both groups (with Group B showing a more pronounced improvement) indicates that chin tuck exercises positively influence neck function, which directly impacts daily activities and quality of life.

Chin tuck exercises improve neck mobility, reduce pain, and enhance muscle strength, enabling individuals to perform everyday tasks with greater ease and less discomfort.

Conclusion: The effectiveness of the chin tuck exercise in Group B (sitting/standing position) showed more consistent and statistically significant improvements in reducing neck pain and disability compared to Group A (supine position).

This suggests that performing chin tuck exercises in a sitting/standing position might be more effective for managing cervical spondylosis. However, Group A still demonstrated substantial improvements.

While both positions are effective, the sitting/standing position is recommended for better outcomes in managing cervical spondylosis.

Chin tuck exercises significantly reduce neck pain and discomfort, strengthen deep cervical flexor muscles, and improve neck function, positively influencing daily activities and overall quality of life in individuals affected by cervical spondylosis. The sitting/standing position is particularly effective for achieving these outcomes, making it the recommended position for chin tuck exercises.

Keywords: Neck disability index, Numeric pain rating scale, Supine lying, Sitting /standing position

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