Effectiveness of Janda's Approach Versus Comprehensive Corrective Exercise Program on Posture and Muscle Imbalance in Individuals with Upper Crossed Syndrome

Priya B. Gadara¹, Amit Kumar Singh²

¹PG Scholar, Krishna School of Physiotherapy & Rehabilitation, (KPGU) Vadodara, Gujarat, India ²Assistant Professor, Krishna School of Physiotherapy & Rehabilitation, (KPGU) Vadodara, Gujarat, India

Corresponding Author: Amit Kumar Singh

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ABSTRACT

Background: Upper Crossed Syndrome (UCS) is a common postural imbalance caused by muscle dysfunction in the upper body.

Objective: This study compared the effectiveness of Janda's Approach and a Comprehensive Corrective Exercise Program (CCEP) in individuals with UCS.

Methods: A total of 30 participants with UCS were randomly divided into Group A (Janda's Approach) and Group B (CCEP). Interventions were administered 5 days/week for 6 weeks. Outcome measures included the Targus-to-Wall Test (TWT), Scapular Index (SI), Pectoralis Minor Index (PMI), and Neck Flexor Strength (NFS).

Results: Both groups showed significant improvement; however, Group A (Janda's Approach) demonstrated statistically greater improvements (p<0.01) across all parameters. **Conclusion:** Janda's Approach is more effective than CCEP in correcting posture and muscle imbalance in individuals with UCS.

Keywords: Upper Crossed Syndrome, Janda's Approach, Comprehensive Corrective Exercise Program, Posture, Muscle Imbalance

INTRODUCTION

Upper Crossed Syndrome (UCS) is a prevalent musculoskeletal disorder characterized by muscle imbalances around the neck and shoulders, resulting in forward head posture, rounded shoulders, and thoracic kyphosis. These postural issues often stem from prolonged poor posture, sedentary lifestyles, and repetitive activities (Kutz, 2009; Bayattork et al., 2020). The syndrome is marked by tightness in the upper trapezius, levator scapulae, and pectoral muscles, and weakness in the deep neck flexors, lower trapezius, and serratus anterior (Page, 2007).

The clinical implications of UCS are affects significant, as not only it musculoskeletal alignment but may also contribute to functional impairments including pain, restricted mobility, and impaired respiratory efficiency (Feldenkrais, 1972; Karkousha et al., 2023). It has been reported that UCS affects a wide range of individuals. including office workers. students, athletes, and drivers, with prevalence rates ranging from 11% to 60%

depending on the population (Nasser et al., 2021).

Janda's Approach emphasizes restoration of motor control and proprioception, classifying muscles into tonic and phasic groups. It follows a systematic four-phase protocol: peripheral normalization, muscle balance restoration, sensorimotor training, and endurance development (Page, 2007). Techniques such post-isometric as relaxation and post-facilitation stretch are employed to address hypertonicity and inhibition before progressing to functional movement retraining.

The CCEP, as described by Seidi et al. (2014), is structured in three phases—initial, improvement, and maintenance—focusing on postural alignment, neuromuscular reeducation, and long-term correction. It combines stretching, strengthening, and control-based exercises progressing in load and complexity.

Although physiotherapy techniques like stretching, strengthening, and postural education are commonly employed in managing UCS, limited studies have integrated directly compared neuromuscular intervention strategies. There is a paucity of evidence directly contrasting the effectiveness of Janda's sensorimotor-based method with biomechanically grounded corrective approaches such as the CCEP. As existing literature suggests benefits from both methods independently, there is a need for a comparative study to determine which approach yields superior clinical outcomes (Zad & Patil, 2021; Seidi et al., 2020). This study, therefore, seeks to assess and compare the efficacy of these two comprehensive interventions in improving postural alignment and reducing muscle imbalances in individuals with UCS.

AIM & OBJECTIVES Aim:

To investigate the effectiveness of Janda's Approach versus Comprehensive Corrective Exercise Program on posture and muscle imbalance in individuals with Upper Crossed Syndrome.

Objectives:

- To examine the effectiveness of Janda's Approach on posture and muscle imbalance in individuals with UCS.
- To examine the effectiveness of CCEP on posture and muscle imbalance in individuals with UCS.
- To compare the effectiveness of Janda's Approach versus CCEP in improving postural parameters and muscle balance in UCS.

MATERIALS & METHODS

Study Design: Interventional comparative study

Sample Size: 30 participants, randomized into two groups (n=15 each)

Inclusion Criteria: Age 18-28 years, both genders, presence of UCS with specific postural deviations and muscle imbalance metrics

Exclusion Criteria: History of spinal or shoulder surgery, visible lower extremity malalignment, pregnancy

Outcome Measures:

- Targus-to-Wall Test (TWT)
- Scapular Index (SI)
- Pectoralis Minor Index (PMI)
- Neck Flexor Strength (NFS) using dynamometer

Intervention:

Group A received Janda's Approach for 30 minutes/day, 5 days/week for 6 weeks. The protocol included:

- Post-isometric relaxation (PIR) for pectoralis major, upper trapezius, and sternocleidomastoid
- Post-facilitation stretch (PFS) for tight tonic muscles
- Strengthening of deep neck flexors and lower trapezius using resistance bands and isometric holds
- Sensorimotor training using unstable surfaces and body-weight postural drills

Group B underwent the CCEP protocol for the same duration. The intervention consisted of:

- Static and dynamic stretching for overactive muscles (pectoralis minor, upper trapezius)
- Strengthening of inhibited muscles using TheraBand and dumbbell exercises (serratus anterior, rhomboids, deep neck flexors)
- Postural correction and functional retraining with wall slides, foam roll routines, and scapular stabilization drills

RESULT

The study included 30 participants (15 per group), aged between 18 and 28 years. Group A (Janda's Approach) consisted of 8 males and 7 females, while Group B (CCEP) had 9 males and 6 females. The mean age in Group A was 22.6 ± 2.1 years, and in Group B, it was 23.1 ± 1.9 years. No statistically significant differences were observed in age, gender, or baseline outcome scores between the two groups (p > 0.05).

Pre- and Post-Intervention Comparison:

Both groups showed statistically significant improvements in all outcome measures following the 6-week intervention program. In Group A, the mean TWT decreased from 13.5 \pm 1.2 cm to 9.1 \pm 1.0 cm (p<0.001), indicating a significant reduction in forward head posture. The SI increased from 62.4 \pm 3.8 to 69.7 \pm 4.1, reflecting improved scapular positioning (p<0.001). PMI showed a reduction from 17.8 \pm 0.7 cm to 15.6 \pm 0.8 cm (p<0.001), and NFS improved significantly from 11.3 \pm 1.5 kgf to 14.9 \pm 1.4 kgf (p<0.001).

In Group B, improvements were also observed: TWT reduced from 13.2 ± 1.3 cm to 10.6 ± 1.1 cm (p<0.01), SI increased from 63.0 ± 4.0 to 66.2 ± 3.9 (p<0.01), PMI decreased from 17.6 ± 0.6 cm to 16.3 ± 0.7 cm (p<0.01), and NFS improved from 11.6 ± 1.4 kgf to 13.0 ± 1.6 kgf (p<0.01).

Between-Groups Comparison of Post-Values:

Post-intervention comparisons revealed that Group A performed significantly better than Group B across all outcomes. The betweengroup p-values indicated highly significant differences in TWT (p<0.01), SI (p<0.05), PMI (p<0.05), and NFS (p<0.01), favoring the Janda intervention.

Parameter	Group A Pre	Group A Post	Group B Pre	Group B Post	p-value (Between Groups)
TWT (cm)	13.5 ± 1.2	9.1 ± 1.0	13.2 ± 1.3	10.6 ± 1.1	< 0.01
SI (index)	62.4 ± 3.8	69.7 ± 4.1	63.0 ± 4.0	66.2 ± 3.9	< 0.05
PMI (cm)	17.8 ± 0.7	15.6 ± 0.8	17.6 ± 0.6	16.3 ± 0.7	< 0.05
NFS (kgf)	11.3 ± 1.5	14.9 ± 1.4	11.6 ± 1.4	13.0 ± 1.6	< 0.01

 Table 1: Comparison of Pre- and Post-Intervention Results across Both Groups

DISCUSSION

This study provides evidence supporting the superior effectiveness of Janda's Approach over the Comprehensive Corrective Exercise Program (CCEP) for addressing posture and muscle imbalance in individuals with Upper Crossed Syndrome (UCS). These findings are consistent with studies by Zad & Patil (2021) and Kage et al. (2015), which highlight the role of Janda's sensorimotor-based techniques in improving neuromuscular coordination and muscle synergy.

The significant improvement in TWT and PMI values in Group A can be attributed to

targeted relaxation of tight muscles and activation of inhibited ones, as per Janda's principles (Page, 2007). The sensorimotor training component enhances proprioception and postural control, aligning with findings by Bayattork et al. (2020) and Seidi et al. (2014), who demonstrated lasting neuromuscular adaptations through integrated corrective training. In contrast, while the CCEP showed

moderate improvements, its reliance on biomechanical and segmental correction strategies may be less effective for participants with entrenched neuromuscular deficits. This supports the assertion by

Hajizadeh et al. (2021) that isolated strengthening may not address the systemic compensation patterns associated with chronic postural disorders.

The inclusion of dynamic balance and endurance components in Janda's Approach likely contributed to better functional outcomes. This resonates with the findings of Arshadi et al. (2019), who emphasized the importance of eccentric control and reflexive muscle engagement in correcting UCS.

Despite promising results, the study's limitations include a relatively small sample size and short-term follow-up. As noted by Hughes et al. (2023), long-term retention of postural gains requires extended intervention periods and behavioral reinforcement strategies.

Future research should consider larger randomized controlled trials, long-term follow-up, and the incorporation of objective kinematic assessments to validate and extend these findings.

CONCLUSION

This study concludes that Janda's Approach is significantly more effective than the Comprehensive Corrective Exercise Program in addressing postural deviations and muscle imbalances associated with Upper Crossed Syndrome. The integration of proprioceptive training, post-isometric relaxation, and coordinated motor control appears to vield exercises superior improvements in key clinical parameters such as forward head posture, pectoralis minor length, scapular positioning, and neck flexor strength.

These findings emphasize the importance of a neuromuscular approach to postural rehabilitation. Janda's method not only targets muscular tightness and weakness but also enhances sensorimotor coordination, which is crucial for long-term postural correction and injury prevention.

Clinical Implications: The results of this study support the adoption of Janda's Approach in clinical physiotherapy practice

for the effective management of UCS. Clinicians can incorporate its structured progression to restore muscle balance, improve posture, and reduce associated symptoms such as neck pain, fatigue, and functional limitations. Given the approach's emphasis on motor pattern re-education, it may also reduce recurrence rates by addressing the root cause of postural dysfunction. Future programs should focus these techniques into on integrating preventive protocols for at-risk populations, such as students, office workers, and athletes.

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