

Supplementary material

Proprioceptive Training Reduces Headache Burden and Center of Pressure Path Length in Patients with Cervicogenic Headache: A Randomized Controlled Trial

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Doi: <https://doi.org/10.1556/2060.2026.00769>

Table: Detailed Exercise Programs for TG and CG Groups

Component	Control Group (CG) (60 min/session)	Experimental Group (TG) (70 min/session)	Rationale/Literature Support
Warm-up (5 min)	- Gentle neck ROM: Slow flexion/extension, rotation, lateral bending (5 reps each). - Shoulder rolls/circles (10 reps).	Same as CG.	Prepare tissues, reduce stiffness [1].
Modalities (25 min)	- Hot pack: 20 min to neck/shoulders. - TENS: 20 min (50 Hz, 100 μs pulse) to cervical area. - Ultrasound: 5 min (1–1.5 W/cm², continuous mode) to affected muscles.	Same as CG.	Common for pain modulation in CGH [2].

Component	Control Group (CG) (60 min/session)	Experimental Group (TG) (70 min/session)	Rationale/Literature Support
Therapeutic Exercises (30 min)	1. ROM Exercises: - Active neck movements (all planes, 10 reps × 2 sets). 2. Postural Correction: - Chin tucks (10 reps × 3 sets, 5-sec hold). - Scapular retraction (10 reps × 2 sets). 3. Isometric Strengthening: - Resistance against hand (e.g., lateral flexion, extension; 10 reps × 2 sets, 5-sec hold).	Same as CG.	Improves cervical stability and function [3].
Proprioceptive Training (10 min)	Not applicable.	Gaze Direction Recognition (GDR): 1. Task: Observe therapist's neck rotations → identify gaze direction (30 trials). 2. Progression: - Week 1–4: 5-sec response window. - Week 5–8: 3-sec window + reduced verbal cues. 3. Posture: Seated, trunk immobilized.	Enhances proprioception and motor control in CGH [4].
Cool-down (5 min)	- Static stretching: Upper trapezius, levator scapulae (30-sec hold each side).	Same as CG	Reduces post-exercise soreness [5].

References

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