

Deep Cervical Flexor Muscle Activation for Rehabilitation of Cervicogenic Headache

SUNITA MARDI¹, RUCHIKA KALRA²

ABSTRACT

Introduction: Cervicogenic Headache (CEH) disorder, linked to dysfunction in the cervical spine, is often mistaken for migraine or tension-type headache. CEH is caused by nociceptive input from cervical tissues that refers pain to the head. Because of overlapping symptoms, CEH is frequently misdiagnosed as migraine or tension headaches. Epidemiology data suggest a prevalence of 0.17-4.1% in the general population. But the incidence rises significantly in patients with chronic or severe rising to 17.5% among individuals with severe headache. Recent studies in younger age groups highlight lifestyle contributors such as prolonged smartphone and laptop use, which contribute to sustained neck flexion, muscular strain and cervical dysfunction. In individuals aged 15-24 years, CEH prevalence has been reported at 10.4%, underscoring its growing clinical relevance in modern sedentary lifestyles.

Aim: To explore the evidence regarding the effectiveness of Deep Cervical Flexor (DCF) training to reduce pain and disability in patients of CEH.

Materials and Methods: An electronic literature review search was performed using the keyword deep cervical flexor training. Articles identified with the search were screened for the following inclusion criteria: Human subjects, randomised controlled trials, deep cervical flexor groups and cervicogenic headache. The diagnostic approach relies on patient-reported outcomes and validated assessment tools. The Neck Disability Index has been validated in CEH patients,

demonstrating strong psychometric reliability (Cronbach's $\alpha=0.87$; ICC=0.93). The cervical flexion rotating test is widely used to assess C1-C2 mobility deficit.

Results: Physiotherapy is consistently identified as the first-line management strategy for CEH. Randomised controlled trials demonstrated deep flexor training. Significantly reduces pain and disability compared to conventional isometric exercises, particularly in dentists and CEH patients. Strengthening cervical flexors and extensors in migraine populations has also been shown to improve cervical range of motion, reduce pain intensity, and decrease reliance on medication, highlighting the overlap between CEH and migraine-related cervical dysfunction. Furthermore, pressure biofeedback-guided DCF training produced superior outcomes in reducing headache disability and pain intensity compared to conventional exercise programmes.

Conclusion: CEH is clinically relevant yet an under-recognised condition. Reliable assessment tools such as the NDI- RU, careful application of CFRT, and targeted physiotherapy intervention—especially DCF strengthening and biofeedback—are essential for improving diagnostic measures with evidence-based rehabilitation strategies that enhance CEH management, reduce disability and promote long-term functional recovery.

Keywords: Cervicogenic headache, Deep cervical flexor strengthening training, Disability, Neck Disability Index, Neck pain.

PARTICULARS OF CONTRIBUTORS:

1. MPT Student, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.
2. Teaching Associate, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Noida, Uttar Pradesh, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Ruchika Kalra (PT),
Teaching Associate, Department of Physiotherapy, Amity Institute of Health Allied Sciences, Amity University, Sector-125, Noida-201313, Uttar Pradesh, India.
Email: rkala1@amity.edu