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# A Literature Review to Find the Effectiveness of Suboccipital Myofascial Release Technique in Reducing Cervicogenic Headache

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**Abstract:** ***Aim: To investigate the effect of suboccipital myofascial release in reducing cervicogenic headache. Methods: A comprehensive search on PubMed, MEDLINE, Cochrane, Google Scholar, CINAHL, and clinical keys database using keywords cranial base release, myofascial release, secondary headache, suboccipital release, cervicogenic headache, physiotherapy by using Boolean AND. Physiotherapy Evidence - Based Database was utilized for quality assessment. Results: 8 studies were included.6 RCT, 2 comparative studies. The result of this review provides evidence that suboccipital myofascial release has a significant positive effect on the improvement of cervicogenic headaches. Conclusion: The result of this review provides evidence that the suboccipital myofascial release technique is helpful in releasing cervicogenic headaches. Implications: We can optimize recovery by using suboccipital myofascial release in computer professionals having cervicogenic headaches due to wrong posture or forward head posture, working for more than 8 hours.***

**Keywords:** Cranial base release, myofascial release, cervicogenic headache, secondary headache, suboccipital release, physiotherapy, treatment

## 1. Introduction

Headache is the pain or discomfort which arises from the pain - sensitive structures in the head and neck. (1) According to the International Headache Society (IHS), cervicogenic headache is defined as a secondary headache, which means a headache caused by a disorder of the cervical spine and its component bony, disc, and soft tissue elements, usually but not invariably accompanied by neck pain. (2)

Various studies concluded that cervicogenic headache is a unilateral and non - throbbing head pain that gets aggravated with head and neck movements. (3) It is the pain in the head referred from the cervical spine. The convergence between trigeminal afferents and afferents from the upper cervical spine is the physiological basis for this type of headache. The structures innervated by C1 to C3 spinal nerve, and include upper cervical synovial joints, the upper cervical muscles, the C2 - C3 disc, the vertebral and internal carotid arteries, and the dura mater of the upper spinal cord and postcranial fossa is the possible sources of CEH. (4) (5) (6) The prevalence of CEH is 15 - 20% among all types of chronic headaches and in the adult population is 22 - 25% with females four times more affected than men. (3) (7) It leads to decreased functional activity, quality of life, and functional disability, and thus its essential to treat cervicogenic headaches. (8)

Workplace - related risk factors cause repetitive strain or overuse injuries. Computers are used in various sectors such as administration, finances, management, education health services to increase productivity and eliminate insufficiencies. People using computers for a longer duration have more complaints of WRMD such as neck and head pain. Neck and head pain is most often caused by forward head posture while using a computer and thus resulting in tightness of sub occiput muscles and reducing cervical mobility. People with a forward head posture and working for long hours in the wrong posture lead to more complaints of headaches. (8) (9) (10) (11) (12) Treatment of cervicogenic headache needs a multimodal approach including pharmacological and non - pharmacological intervention. The invasive treatment options for cervicogenic headache are dry needling, surgery, and injections while the non - invasive treatment approaches are TENS, massage, manipulation, or mobilization. (7) (13)

Myofascial release (MFR) is a therapeutic technique facilitating the release of fascial restrictions by using gentle pressure and stretching with the intention of restoring range, decreasing pain, and optimizing length. (14). Suboccipital myofascial release is also known as a cervical base release or nuchal line inhibition. It is a technique to release the fascia or muscles which get tightness or trigger points due to wrong posture or due forward head posture while using a computer for a long period of time. Suboccipital muscles help in connecting the C1 - C2 spine with the base of the skull and are responsible for producing the upper cervical extension and rotation movement. Because of forward head posture and subsequent upper cervical extension, these muscles and their fascia becomes tight and thus they are responsible for producing cervical pain, stiffness, and cervicogenic headache. (15) (16) (17)

The objective of my study is to elicit evidence for the effect of the suboccipital release technique in reducing cervicogenic headaches.

## 2. Literature Review

### Methodology

### Source

A comprehensive search on PubMed, MEDLINE, Cochrane, Google Scholar, CINAHL, and clinical keys database using keywords cranial base release, myofascial release, secondary headache, suboccipital release, cervicogenic headache, and physiotherapy by using Boolean AND. Physiotherapy Evidence - Based Database was utilized for quality assessment.

### Study selection

RCTs studies related to cervicogenic headache and suboccipital myofascial release techniques published in English since 2010 are included in the study. The studies having at least one outcome measure have been taken.

### Objective

The objective of the study is to find out the effectiveness of Suboccipital myofascial release in reducing cervicogenic headaches.

### Data extraction

Studies objectives, methods, subjects, participant characteristics, interventions, outcomes, and results are reviewed by the reviewers separately, and the final data summary is made by consensus.

| S. No | Authors and Published year | Title | Methodology | Outcome measures | Result |
|---|---|---|---|---|---|
| 1 | B. Kannabiran (2016) (11) | Comparative study between a combination of ultrasound therapy with chin tuck - in exercises and suboccipital muscle release in the management of non - specific neck pain in computer professional | 20 computer users of age between 22 - 30 years were randomly selected and assigned to 2 groups of 10 subjects each. Group A was given ultrasound therapy with Active chin tucking exercise while Group B was given ultrasound therapy with suboccipital muscle release for a period of 7 days. | Pain and neck function was measured using Visual Analog Scale and Copenhagen Neck Function Disability Scale respectively | Both groups show a reduction in both outcome measures among computer professionals. But Sub Occipital Muscle Release Technique was found to be more effective than Active Chin Tuck Exercises in the management of non - specific neck pain due to suboccipital muscle tightness among computer professionals. |
| 2 | A. Arab, E. Ramezani (2017) (18) | Effect of suboccipital MFR on cervical muscle strength of patients with CEH | Randomized controlled trial and single - blinded trial.34 patients, aged between 15 - 75 years with CEH were selected and randomly assigned to two groups. Group A exercise group and group B suboccipital MFR group.10 Rx sessions, 6 times a week for each group. | Isometric cervical muscle strength (flexors, extensors, right and left rotators, and lateral flexors) | Both groups showed significant improvement in cervical muscle strength. But CEH patients with exercise treatment protocol show more significant improvement in flexors, rotators, and lateral flexors muscle strength than the MFR group. |
| 3 | E. Ramezani, A. Arab (2017) (14) | Suboccipital myofascial release in cervicogenic headache | Randomized controlled and blinded trials having 34 subjects fulfilling inclusion criteria with CEH were selected. A total of 10 treatment sessions were given 6 times a week. | Frequency, duration, intensity, and pressure pain threshold of the spinous and transverse process of the upper cervical region. | MFR find to be effective to reduce headache frequency and intensity but not effective to reduce the duration of headaches in CEH patients. |
| 4 | Dae Jung Yang (2017) (19) | Comparative study of muscular fatigue and tone of neck according to craniocervical flexion exercise and suboccipital relaxation in cervicogenic patients. | 30 patients with cervicogenic headaches were divided into 3 groups with 10 patients in each group control group, craniocervical flexion exercises, and sub occipitalis relaxation group respectively. Treatment was given 5 times a week for 4 weeks. | Muscular fatigue, tone, and headache intensity | Myofascial release for sub occipitalis and Sternocleidomastoid is more effective than conventional therapy in improving Forward head posture and reducing neck pain. |
| 5 | Amita Aggarwal, Sanika V Shete, Tushar J Palekar (2018) (20) | Efficacy of suboccipital and sternocleidomastoid release technique in forward head posture patients with neck pain | Randomized control trial 60 subjects, aged 20 - 30 having FHP and neck pain were divided into 2 groups experimental and control Intervention given for the experimental group was MFR for suboccipital and SCM muscle, and the control received resisted chin tucks, Neck isometrics, Scapular sets, Hot packs, ergonomic advice (2 weeks/ 3 sessions). | Craniovertebral angle (CVA), shoulder angle, NPRS, NDI, Cervical ROM | Myofascial release for sub occipitals and Sternocleidomastoid is more effective than conventional therapy in improving Forward head posture and reducing neck pain. |

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| 6 | V. Naveen Kumar, S. Saini, J. Palekar (2020) (21) | Effect of suboccipital Release, Myofascial Release with IASTM tool on CEH. | In the randomized controlled trial study, 34 patients were selected based on inclusion criteria and assigned randomly by chit method in the experimental group (N=17) and conventional group (N=17). Experimental group received sub occipital release, MFR with IASTM and exercises, and in the conventional group sub occipital release, MFR manually and exercises were given for twelve sessions i. e., three sessions in a week to each group. | Pain (Visual analogue scale (VAS)), headache intensity (Headache disability index), cervical flexion rotation test (CFRT), and cervical range of motion. | Suboccipital MFR was given manually or with an IASTM tool and showed almost the same improvement in VAS, HDI, and CFRT at the end of treatment sessions in both groups. |
| 7 | Ramya, K Senthilkumar, M Prabhakaradoss, (2021) (22) | The Effect of Myofascial Release Technique on Pain and Neck Disability Over Conventional Neck Exercises on Patients with Cervicogenic Headache | Randomized control trial with 36 females, aged between 35 - 45 years selected based on inclusion criteria and divided randomly into two groups. Group A (control) was given conventional exercises and Group B, (experimental) was given suboccipital release. | Pain and Neck Disability. | The suboccipital myofascial release technique is more effective than conventional exercise in the treatment of CEH patients with pain and neck disability. |
| 8 | Maryam and Shabbir (2021) (23) | Comparison of suboccipital MFR and Cervical mobilization in managing cervicogenic headache. | Randomization clinical trial study where 22 patients, aged between 20 - 50 years included in the study and randomization by lottery method. Group A received suboccipital MFR with conventional therapy and Group B received cervical mobilization with conventional therapy. | Neck disability and Pain (Visual analogue scale (VAS)), headache intensity (Headache disability index), cervical flexion rotation test (CFRT), and cervical range of motion. | Suboccipital MFR was given manually or with an IASTM tool and showed almost the same improvement in VAS, HDI, and CFRT at the end of treatment sessions in both groups. Suboccipital MFR found to be significant in improving neck disability and pain in carcinogenic people. |

## 3. Conclusion

Computer users using computer or laptop has a high prevalence of head and neck pain because of prolonged use of them in the wrong posture. Various studies reported that forward head posture during work on a computer can cause balance problems too. Because of forward head posture and subsequent upper cervical extension, the suboccipital muscles and their fascia becomes tight and responsible for causing a cervicogenic type of headache. Based on the selected articles. It is found that the suboccipital myofascial release technique is helpful in releasing cervicogenic headache

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