



Post Facilitation Stretch over Trapezius and Suboccipital Region Along with Cervical Mobilization in Patient with Chronic Neck Pain: A Case Report

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ABSTRACT: Stretching seeks to increase performance by promoting flexibility. In addition to muscle strength and endurance training, flexibility training is a crucial part of physical conditioning programs. A joints or group of joints' potential range of motion can be used to describe flexibility. Post-facilitation stretching techniques are important to increase muscle flexibility and may be the technique of choice in therapeutic practice. It uses a mechanical stimulus in order to trigger several neurophysiological responses, which may include hypoalgesia sympathetic responses, neuromuscular adaptations, kinesthetic sensibility improvements and changes in biomarkers levels. A 28-year male patient came to OPD with pain in suboccipital region and right-side upper neck since last 6 days. He was having history of heavy weight lifting in gym and due to repeated weight lifting patient is having severe pain. On observation patient right shoulder is elevated due to hyperactive right upper trapezius muscle. Tenderness is present over suboccipital region and over right upper trapezius. On examination left cervical side flexion Range of motion is restricted and having spasm of upper trapezius and suboccipital muscles. Physiotherapy treatment was given for 6 days. This case report shows the application of post facilitation stretching over upper right-side trapezius and suboccipital muscle along with cervical spine mobilization to have a greater improvement.

KEYWORDS: chronic neck pain, trapezius, suboccipital region, cervical spine mobilization, post facilitation stretch

INTRODUCTION

A social and health issue is cervicgia. In various tissues, including nerve trunks and neck muscles, patients with persistent neck pain (CNP) show reduced neck range of motion and hyperalgesia with increased mechanical sensitivity.^[1] Peripheral sensitization has been proposed to account for these phenomena. Due to peripheral facilitation, the nociceptive afferences may remain, which could lead to central sensitization.^[2] When treating patients with craniocervical pain disorders, the suboccipital region has frequently been targeted because of postural, mechanical, and neurological factors.^[3] Therefore, spinal manipulation (SM) and post facilitation stretching are frequently used to treat back pain. For pain issues, spine manipulation is a frequently utilized intervention.^[4] Spinal manipulation is hypothesized to function through a number of pathways, some of which may be addressed in great detail using PFS.^[5] It employs a mechanical stimulus to elicit a variety of neurophysiological reactions, such as hypoalgesia sympathetic responses, neuromuscular adaptations, enhanced kinesthetic sensitivity, and adjustments in the levels of biomarkers.^[6] Stretching seeks to increase performance by promoting flexibility. Post facilitation stretch is also commonly used intervention for hypertonicity of muscle.^[7]

The upper cervical spine (UCS), which is made up of the occipital-atlas (C0-C1) and atlas-axis (C1-C2) segments, has a unique structure that allows for sophisticated three-dimensional movements, making it the most mobile part of the spine.^[8] These segments have the most axial rotation of any spine segments, producing around 60% of the



cervical axial rotation.^[9] Patients with chronic neck pain (CNP) have reduced neck range of motion and have more sensitive tissues, such as nerve trunks and neck muscles, to mechanical stimuli. Peripheral sensitization has been proposed to account for these phenomena. Stretching is neutrally based because it is based on the same principles of movement that govern neuromuscular control. There are two basic categories of stretch-sensitive neuroreceptors in muscle.^[10] Due to peripheral facilitation, the nociceptive afferences may remain, which could lead to central sensitization. The suboccipital region has been commonly targeted when treating individuals with craniocervical pain issues because of postural, mechanical, and neurological aspects.

Therefore, spinal manipulation (SM) and post facilitation stretching are frequently used to treat back pain. A typical intervention for pain issues is spinal manipulation. Spinal manipulation is hypothesized to function through a number of processes, some of which could be comprehensively treated with PFS. It employs a mechanical stimulus to elicit a variety of neurophysiological reactions, such as hypoalgesia sympathetic responses, neuromuscular adaptations, enhanced kinesthetic sensitivity, and adjustments in the levels of biomarkers. Stretching seeks to increase performance by promoting flexibility. Physical conditioning programs must include flexibility training in addition to muscle strength and endurance exercises. Flexibility can be defined as the potential range of motion of a joint or collection of joints.^[11] Stretching after facilitation is another typical remedy for too tight muscles. With the application of post facilitation stretch, piriformis syndrome has been proven to be affected.^[12] Stretching is essential for increasing muscle flexibility after exercise and may even be recommended in therapeutic conditions.^[13] Since the post facilitation method research on autogenic inhibition indicates an increase in the inhibitory signal originating from the same muscle's Golgi tendon organs (GTOs), a decrease in the excitability of a contract or stretched muscle that was previously entirely due to that rise^[14]

CASE PRESENTATION

A 28-year male patient came to OPD with pain in suboccipital region and right-side upper neck since last 6 days. He was having history of heavy weight lifting in gym and due to repeated weight lifting patient is having severe pain. On observation patients' right shoulder is elevated due to hyperactive right upper trapezius muscle. Tenderness is present over suboccipital region and over right upper trapezius. On examination left cervical side flexion Range of motion is restricted and having spasm of upper trapezius and suboccipital muscles. Physiotherapy treatment was given for 6 days.

METHODOLOGY

POSTFACILITATION STRETCH FOR RIGHT UPPER TRAPEZIUS

The clinician reclines the patient and lays one hand on the shoulder's point on the affected side. The patient's head is supported by the opposite arm while being flexed, laterally turned away from, and rotated towards the side of involvement. The muscle is kept in a neutral posture throughout. The patient contracts the muscle strongly by pushing up against the clinician's hand as if trying to shrug. This contraction is held for 10 seconds, after which the patient lets go and a fast stretch is applied to the muscle by carefully moving the shoulder straight inferior ward. Hold the stretch for 10-15 second and repeat 3-5 times. Figure 1 shows the post facilitation stretch for upper trapezius muscle.



POSTFACILITATION STRETCH FOR SUBOCCIPITAL MUSCLE

With the patient supine, blocks the C2 articular pillar with one hand and rotates and laterally flexes a few degrees away from the side being treated to place focus on that side. then flexes the upper cervical spine with the other hand to take up slack and meet the restrictive barrier.

Ask patient to full contract muscle by doing capital extension and hold it for 10 second and give fast stretch and hold it for 10-15 seconds and repeat it for 3-5 times. Figure 2 shows the post facilitation stretch for suboccipital muscle.



CERVICAL SPINE MOBILIZATION

Patient position in prone - posteroanterior glide was given 10 times with 10 repetitions. Figure 3 and 4 shows cervical spine mobilization.



FIGURE 3: CERVICAL SPINE MOBILIZATION



FIGURE 4: CERVICAL SPINE MOBILIZATION

DISCUSSION

This present study assessed effectiveness of post facilitation stretch and cervical mobilization in patient with pain in suboccipital region and upper trapezius. PFS implies the application of a low load, long duration force which has classically attempted to achieve its goal by stretching the connective tissues with the aim of improving their properties and restoring their optimal length, and thereby diminishing pain and increasing range of motion.^[15] Cervical manipulation can have a regulating effect on muscle tone, as the normalization of joint function, and thus mechanoreceptor input, allows for appropriate afferent information influencing the activity of the gamma motor neurons.^[16] In addition, by stimulating the large-diameter mechanoreceptive afferents, cervical manipulation is theorized to cause inhibition of spinothalamic projection neurons both via inhibitory synapse onto the projection neuron and by synapse onto an inhibitory interneuron which in turn synapses with the projection neuron. This is the well-known "gate control" theory of pain.^[17] Partly as a result of this effect, pain threshold is increased after manipulation and the patient experiences pain relief.^[18] If nociception is of sufficient intensity to cause reflex muscle spasm, the inhibition of spinothalamic projection of nociceptive impulses created by manipulation may lead to a decrease in alpha motor neuron activity, leading to relief of muscle spasm ^[19]

CONCLUSIONS

The chronic neck pain when given the post facilitation stretch over upper right trapezius and suboccipital area and cervical spine mobilization showed a significant improvement the range of motion and released the muscle spasm within 6 days. Hence PFS is recommended in chronic neck pain.



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