

ORIGINAL ARTICLE

TO COMPARE THE EFFECTS OF SUSTAINED NATURAL APOPHYSEAL GLIDES ON PAIN AND CERVICAL MOBILITY IN TENSION HEADACHES AMONG STUDENTS

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ABSTRACT

Objective:

Sustained Natural Apophyseal Glides are mobilization techniques, used as part of the Mulligan Concept. Sustained Natural Apophyseal Glides can be applied on the neck to the spinous process if pain is central or the articular pillar if pain is one sided. The purpose of this study was to compare the effectiveness of Sustained Natural Apophyseal Glides in pain and cervical mobility among individuals with tension headaches.

Methodology:

Randomized controlled Study was designed to find the effectiveness of Sustained Natural Apophyseal Glides mobilization. 30 patients divided in two groups mean aged was 20 to 50 with neck pain gathered from different hospitals and institutes were randomly take to see the effects of Sustained Natural Apophyseal Glides in Tension Headaches among Students.

Results:

Sustained Natural Apophyseal Glides group showed a significant outcome in just two weeks sessions while placebo group does not show good outcome in pain and cervical mobility. In our study we were tried to aware people about the Tension headache due to study pressure. Sustained Natural Apophyseal Glides show good outcome in our study to improve the tension headache due to study in university students.

Conclusion:

Conclusion shows that 90% of patient got the desired outcome from Sustained Natural Apophyseal Glides just in two week sessions.

Methodology:

Data was administered by the measuring scale based on visual analogue scale. Timeframe for the study is 1 year and the data was analyzed by using SPSS 21 descriptive data statistics.

Keywords: Tension headaches, Natural Apophyseal Glides, Sustained Natural Apophyseal Glides, Pain, Headache, Cervical Mobility.

INTRODUCTION:

A tension headache is the most common type of headache. It can cause mild, moderate, or intense pain in your head, neck, and behind your eyes. Some patients say that a tension headache feels like a tight band around their forehead¹. Tension-type headache pain is often described as a constant pressure, as if the head were being squeezed in a vise. The pain is

frequently present on both sides of the head at the same time. Tension-type headache pain is typically mild to moderate, but may be severe. Tension-type headaches can be episodic or chronic². Episodic tension-type headaches are defined as tension-type headaches occurring fewer than 15 days a month, whereas chronic tension headaches occur 15 days or more a month for at least 6 months. Tension-type

headaches can last from minutes to days, months or even years, though a typical tension headache lasts 4–6 hours³.

Tension headaches are caused by muscle contractions in the head and neck regions. A variety of foods, activities, and stressors can cause these types of contractions. Some people develop tension headaches after staring at a computer screen for a long time or after driving for long periods. Cold temperatures may also trigger a tension headache. Other triggers for tension headaches include: alcohol, eye strain, dry eyes, fatigue, smoking, a cold or flu, a sinus infection, caffeine, poor posture, emotional stress⁴.⁵ Patients with chronic tension-type headache have increased muscle and skin pain sensitivity, demonstrated by low mechanical, thermal and electrical pain thresholds. Hyper excitability of central nociceptive neurons (in trigeminal spinal nucleus, thalamus, and cerebral cortex) is believed to be involved in the pathophysiology of chronic tension-type headache⁶. Recent evidence for generalized increased pain sensitivity or hyperalgesia in CTTH strongly suggests that pain processing in the central nervous system is abnormal in this primary headache disorder. Moreover, a dysfunction in pain inhibitory systems may also play a role in the pathophysiology of chronic tension-type headache⁷.⁸ The first-line treatment for chronic tension type headache is amitriptyline, whereas mirtazapine and venlafaxine are second-line treatment options. Biofeedback techniques may also help. People with tension-type headache often use spinal manipulation, soft tissue therapy, and myofascial trigger point treatment⁸.

Studies of effectiveness are mixed. A 2006 systematic review found no rigorous evidence supporting manual therapies for tension headache⁹. A 2005 structured review found only weak evidence for the effectiveness of chiropractic manipulation for tension headache, and that it was probably more effective for tension headache than for migraine¹⁰. A 2004 Cochrane review found that spinal manipulation may be effective for migraine and tension headache, and that spinal manipulation and neck exercises may

be effective for cervicogenic headache¹¹. Two other systematic reviews published between 2000 and May 2005 did not find conclusive evidence in favor of spinal manipulation¹². A 2012 systematic review of manual therapy found that hands-on work may reduce both the frequency and the intensity of chronic tension-type headaches. Tension headaches that do not occur as a symptom of another condition may be painful, but are not harmful. It is usually possible to receive relief through treatment. Tension headaches that occur as a symptom of another condition are usually relieved when the underlying condition is treated. Frequent use of pain medications in patients with tension-type headache may lead to the development of medication overuse headache or rebound headache¹³.

Natural Apophyseal Glides and Sustained Natural Apophyseal Glides are mobilization techniques and are used as part of the Mulligan Concept¹⁴. The main difference between a Natural Apophyseal Glides and Sustained Natural Apophyseal Glides is the physiological movement which occurs with the mobilization in the latter. Sustained Natural Apophyseal Glides can be applied to the spinous process if pain is central or the articular pillar if pain is unilateral. If on the articular pillar the technique can be performed on the side of pain¹⁵.

This technique can be applied to the cervical, thoracic and lumbar spine. They are weight bearing techniques. They are mobilizations with active movement followed by passive over pressure which is essential to gain the maximum benefit. They must follow the treatment plane rule, if not this may cause pain. SNAGS should be pain free. The mobilization component is sustained: the facet glides are sustained while active movement, then overpressure, is taking place and these glides are maintained until the joint returns to the starting position. They are carried out at end range¹⁶.

Cervicogenic headache pain has been mostly related to joint, disk, and ligament pain from the upper cervical spine. However, the upper cervical spine also receives afferent inputs from muscles¹⁷. The role of referred pain to the head elicited by muscle

tissues has received particular interest in recent year. A Trap is usually defined as a hyperirritable spot within a taut band of a skeletal muscle that elicits a referred pain upon examination. From a clinical point of view, Traps can be classified as active or latent. Active Traps are those which local and referred

pain reproduces the pain symptoms, for example, reproduce the headache pattern (Fig.1.)¹⁸⁻²⁰. Myofascial pain and its relation to so-called ‘trigger points’ is controversial. It has been difficult consistently to demonstrate supposed trigger points, and response to treatment varies¹⁹.

DIFFERENTIAL DIAGNOSIS OF HEADACHE			
Clinical Features	Cervicogenic Headache	Migraine	Tension – Type Headache
Female: Male	50:50	75:25	60:40
Lateralization	Unilateral without side shift	60% unilateral with sideshift	Diffuse bilateral
Location	Occipital to Frontoparietal and orbital	Frontal, Periorbital, temporal	Diffuse
Frequency	Chronic, episodic	1-4 per month	1-30 per month
Severity	Moderate-Severe	Moderate/Severe	Mild/Moderate
Duration	1 hour to weeks	4-72 hours	Days to Weeks
Pain Character	Non-throbbing and non-lancinating, pain usually starts in the neck	Throbbing, pulsating	Dull
Triggers	Neck movement and postures, limited Range of motion, pressure over C0-C3	Multiple, neck movement not typical	Multiple, neck movement not typical
Associated Symptoms	Usually absent or similar to migraine but milder, decreased Range of motion	Nausea, Vomiting, Visual changes, phonophobia, photophobia	Occasionally decreased appetite, phonophobia or photophobia

Fig 1. “Differential Diagnosis of Headache”¹⁸.

2. METHOD

Randomized controlled Study was designed to find the effectiveness of Sustained Natural Apophyseal Glidesmobilization. The sample of about 30 students being selected from a different hospitals and educational institutes. All the students were filled a consent form, whether they want to be a part of research or not.

2.1 Implementations

The study was designed to assess the pain and cervical mobility. Process of research as stated above started after selecting the 30 patients’ sample. All the 30 patients matched inclusion criteria which is 20-50 years of age with condition of a traumatic,

nonspecific neck pain, both male and female students and no known co-morbid(Diabetes, Hypertension)

2.2 Procedure

2.2.1. SNAG GROUP

This study used the Mulligan Sustained Natural Apophyseal Glidetechniques as a means of relieving from headache and neckpain. First, a manual therapist sat next to a patient. The therapist held the patient with his trunk, and wrapped the patient’s head lightly with his arm on the patient’s side, and placed the ring finger on the trouble spot right above the small vertebral joint. The therapist placed the thenar eminence of his opposite hand on the ring finger, which was touching the lesion site. On the site, the

therapist performed gliding in the upward direction of the front pupil (45 degrees). The hand, which was touching the spinous process, should be relaxed in order not to squeeze too hard. Gliding was applied rhythmically (three times per second) and the width of gliding starts from the middle to the end³⁴. The therapist kept on gliding the small joint, and made the patient turn his head to the side of limited mobilization, and pain. When the patient was turning his head, the therapist fixed the head stably with his hand on the spinous process following the treatment spot in order to maintain the Sustained Natural Apophyseal Glides technique, and remained in the position for at least 10 sec. At the last stage of actively rotating the neck, the patient used his own hand to make a passive rotation (over press). After holding in the position of newly obtained painless range of motion for 2 sec, the glide should be maintained until the neck slowly returns to the original position. The Mulligan Sustained Natural

Apophyseal Glides techniques were applied to participants in the Sustained Natural Apophyseal Glides group, with three 20-min sessions per week, for a period of four weeks

2.2.2. Placebo SNAGs GROUP

A manual therapist who used the placebo effect for headache stood next to a patient. The therapist did not apply any other techniques, but the contacting pressure of the hand, which was touching the dysfunctional joint. The therapist remained in the position for at least 10 sec.

2.3. Frequency

This treatment was administered 10 times repeatedly, 20 min per performance and three times per week, a total of 12 times in four weeks.

Data was administered by the measuring scale based on visual analogue scale (Fig. 2). The data was analyzed by using SPSS 21 descriptive data statistics.

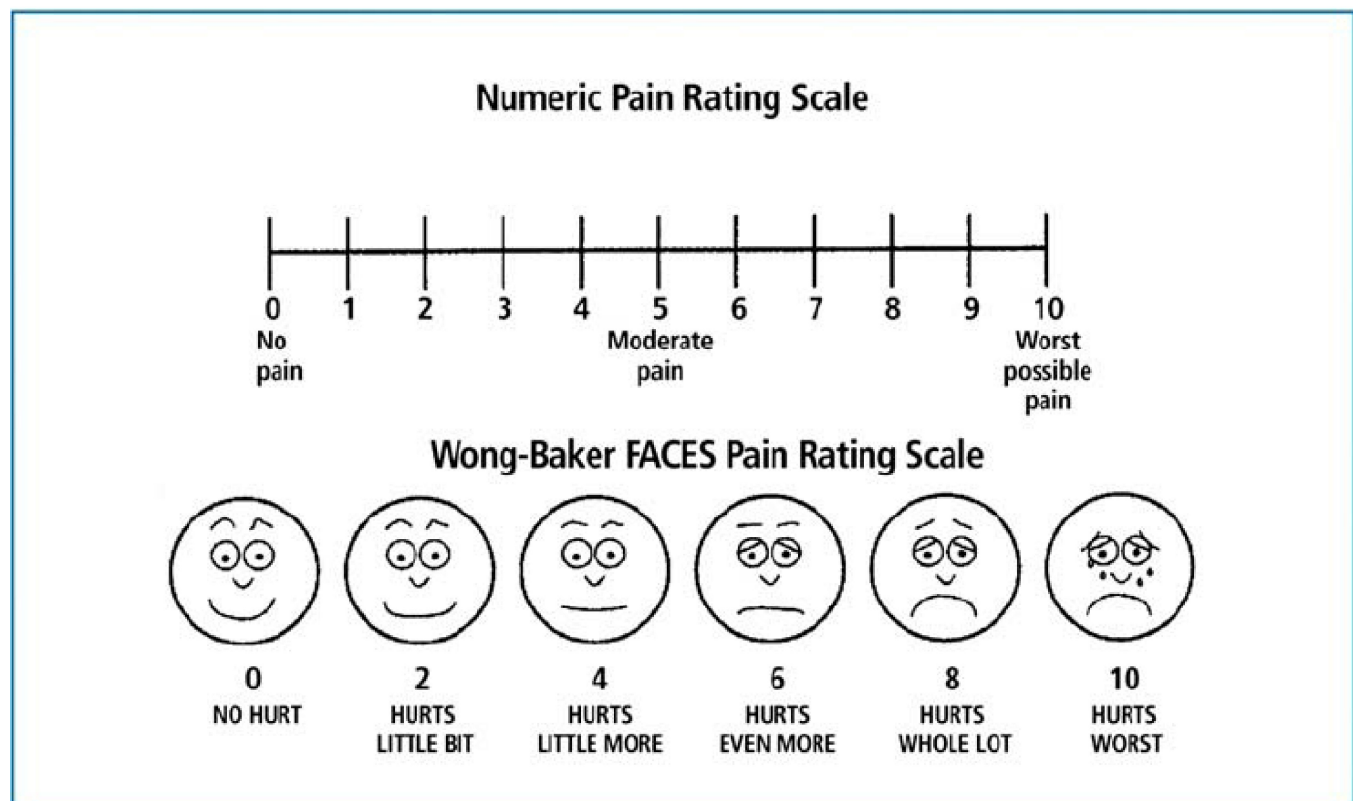


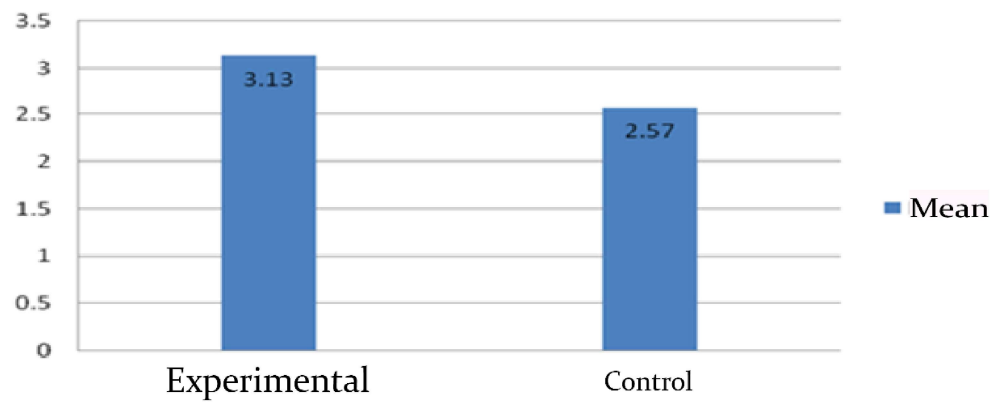
Fig. 2. Visual Analogue Scale

3. RESULTS AND DISCUSSION

Total 30 patients were evaluated to determine pain and cervical mobility. SPSS version 21 was used and Independent t-test was used for the comparison of mean. Total 30 patients were evaluated to determine

the improved pain and movement through SNAGS (n=30, Mean=3.13) and controlled group (n=30, Mean=2.57) (Table-1 and Graph-1) Independent T-test revealed ($p=0.58$) is not significant.

Visual	Groups	Number	Mean	Standard deviation	Significance level
Analogue Scale (pain)	Experimental	30	3.13	1.137	P value= 0.58
	Control	30	2.57	1.135	

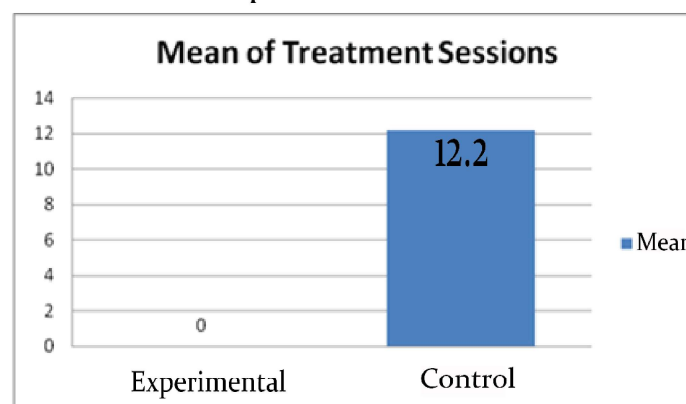


Independent T-test on (Table-2 and Graph-2) provides the significant improvement in treatment sessions in the following areas following NDT compared

with periods before (experimental n=30, mean= 0.00) and after (controlled n=30, mean= 12.20) NDT.

Treatment sessions	Group	Number	Mean	Standard deviation	Significance level
	Experimental	30	0.00	0.00	P-value= 0.00
	Control	30	12.20	4.664	

Graph 2. Mean of Treatment sessions



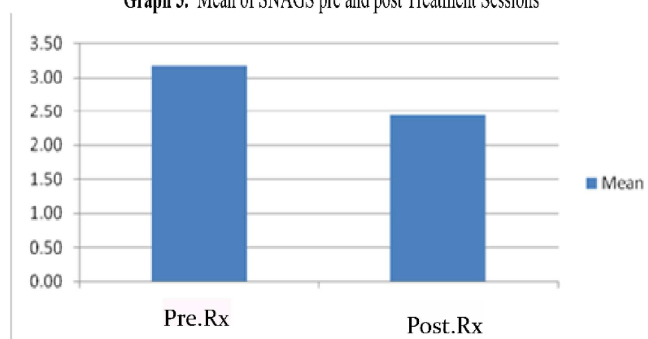
(Table-3 and Graph-3) Difference in before and after treatment showed significant effects in performing the normal and pain free cervical movements. It enables to make large, general movements (such as lifting neck up). After proper

coordination and function of muscle, bones, and nerves. P-value = 0.00 is significant, that shows the Sustained Natural Apophyseal Glides (SNAGS) is effective in enhancing the mobility and daily activities and hence enhance the quality of life.

Table 3. Difference in before and after treatment

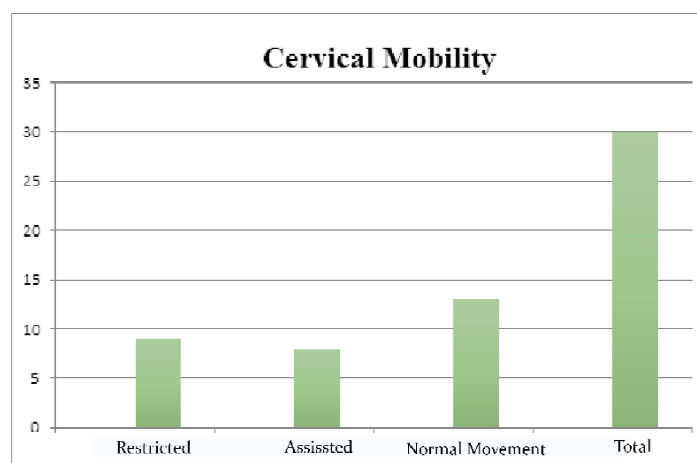
Pain and Cervical mobility (Pre and Post Treatment)				
Group	Mean	Number	Standard Deviation	P-value
Pre. Rx	3.17	30	1.085	0.00
Post. Rx	2.43	30	1.165	

Graph 3. Mean of SNAGS pre and post Treatment Sessions



Cervical Mobility Pre & Post Treatment			
Mean	Number	Standard Deviation	P-value
0.733	30	0.106	0.00

Graph 4.



A tension headache is the most common type of headache. It can cause mild, moderate, or intense pain in your head, neck, and behind your eyes. Some patients say that a tension headache feels like a tight band around their forehead. Sustained Natural Apophyseal Glides are mobilization techniques and are used as part of the Mulligan Concept. A sustained natural apophyseal glide is a mobilization technique commonly used in the treatment of painful movement restrictions of the cervical spine. In the manual therapy literature, the biological basis and empirical efficacy of cervical Sustained Natural Apophyseal Glides have received scant attention. In particular, an examination of their potential biological basis in order to stimulate informed discussion seems overdue.

It discusses the likely biomechanical effects of both the accessory and physiological movement components of a unilateral cervical Sustained Natural Apophyseal Glides applied Ipsilateral to the side of pain when treating painfully restricted cervical rotation. The use of flexion and extension Sustained Natural Apophyseal Glides and rotation Sustained Natural Apophyseal Glides performed contralateral to the side of pain are not considered. Although a cervical Sustained Natural Apophyseal Glides may clinically be able to resolve painfully restricted cervical spine movement, it is difficult to explain biomechanically why a technique which first distracts (opens) and then compresses (closes) the zygapophyseal joint Ipsilateral to the side of pain, and perhaps slightly distracts the uncovertebral cleft, would be superior to a technique which distracts the articular surfaces with both accessory and physiological movement components. Therefore, the reported clinical efficacy of cervical Sustained Natural Apophyseal Glides cannot be explained purely on the basis of the resultant biomechanical effects in the cervical spine.

In my study I am trying to aware people about the Tension headache due to study pressure. Sustained Natural Apophyseal Glides show good result in my study to improve the tension headache due to study in university students. Calculation shows that 90%

of patient got the desired result from Sustained Natural Apophyseal Glides just in two week sessions. Although these exercise can be started in acute stage. These exercise are less expansive can be done in small area not need any heavy equipment and also can be done in small amount of time i.e. 15-20 minutes. The significance of this study may play a vital role in managing the problem of tension headache. It may also improve the risk Factors, life style and quality of life after severe headache. The main point is that it illustrates poor continuity of care in the Treatment of tension headache. This may be attributing to the stand-alone nature of rehabilitation programs. Improvement in Patients lifestyle and daily routine.

4. CONCLUSION

Sustained end range holds or overpressure can be applied to the physiological movement and subjects in the control group received just light contact to the occipital area for the same amount of time as the SNAGs group, which is three times per week for a period of weeks. Visual Analogue Scale (VAS), Headache Duration and Neck mobility were evaluated by patients before and after the intervention. Neck movement in the Sustained Natural Apophyseal Glides group showed significantly greater improvement, compared to the control group, in which only the Sustained Natural Apophyseal Glides placebo technique was applied. In addition, a significantly greater improvement on the visual analogue scale was also observed in the Sustained Natural Apophyseal Glides group compared with the control group. In this study, application of the Sustained Natural Apophyseal Glides technique to patients with neck pain was confirmed to be effective in reducing the pain duration time. Therefore, applications of the Sustained Natural Apophyseal Glides technique on the pain generating segmentum can be considered effective in reducing pain duration time in a positive way.

FUNDING

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CONFLICT OF INTEREST

The authors declare no conflict of interest

ETHICAL APPROVAL

A prior consent was taken in writing from the all patients.

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