**Mid-Term Assignment (Spring 2020) (DPT 6th Semester)**

**Course Title: Manual Therapy Instructor: Dr. Maria Feroze**

**Time: 48 hours Max Marks: 30**

**Note:**

* **You can use Google/ Google Scholar as a source of help but refrain from copy pasting the data directly from these sources.**
* **More than 25% plagiarism in your answer will not be acceptable.**
* **Don’t forget to add the references at the end of your answer.**

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13936

DTP 6TH SEMESTER

Q1. Mulligan introduced the concept of Natural Apophyseal Glides (NAGs), Sustained Natural Apophyseal Glides (SNAGs) and Mobilization with movement (MWM) as a way of treating various musculoskeletal conditions. List three conditions where this concept can be used as a therapeutic intervention, elaborate each one of them **separately.** Go through different research studies/articles from the web to support your answer. Summarize your answer in a minimum of 700 words for **each** of the three conditions you list.

**Randomized Controlled Study of Mulligan’s Vs. Maitland’s**

**Mobilization Technique in Adhesive Capsulitis of Shoulder Joint**

In this article comparative study was done to find out the effectiveness of both the exercise for the treatment of frozen shoulder. The exercise which were done for the treatment of frozen shoulder were Mulligan mobilization and Maitland mobilization. Frozen shoulder is a condition in which both active and passive motion are loss. There are many treatment for the frozen shoulder which are heating, stretching exercises or auto stretching exercises by patients. Which improve the strength of shoulder girdle muscle and function. There were two groups made group A and group B in which patients were selected. In group A there were 7 males and 13 females in these patients mulligan techniques were applied and in group B there were 12males and 8 females in this group Maitland techniques were applied. The Maitland group were given oscillation techniques and the mulligan group were treated with mobilization with movement. After the research it was proved that mulligan gives better results than Maitland. Mulligan show good result in improving the range of extension and also in improving the pain and function. The study was done to find out which technique is better for the treatment of frozen shoulder and that two technique were mulligan mobilization (MWM) and Maitland mobilization. It was a two weeks interventions. In which when the mobilization were discontinued and the patients were asked to do these exercise at home for two weeks. And it was for both the groups .after two weeks when they check the results the effect of pain was positive for both the treatment. They both show good results in reliving the patient pain within two weeks. After two weeks when both the group were compared there was difference which show that Maitland mobilization is better than mulligan's mobilization in reliving the pain.

In the present study low mobilization and high grade mobilization exercise were used. In one study the three exercise were compared i.e. end rang mobilization, mid rang mobilization and mobilization with movement. The result was that end rang mobilization (ERM) and mobilization with movement (MWM) show better results than mild rang of mobilization (MRM) In improving the range of motion of shoulder joint pain and function. Mild rang mobilization was also effective in pain relieving. The technique mulligan's mobilization and Maitland mobilization show good result in the treatment of frozen shoulder.

The result also tells that mobilization with movement also improve scapulohumeral rhythm in three weeks. It was also found that mobilization with movement is also effective for immediate pain relief and range of motion of the shoulder. They were also looking for the response of the patient to the mobilization and were assessed and exercise were given accordingly. The patients were complaining about soreness after the treatment. The conclusion for both the treatment techniques mulligan's mobilization and Maitland mobilization which show improvement in the pain but the response to mulligan's mobilization was better. Both the technique were effective in improving the function mulligan's mobilization is better than Maitland mobilization because the mulligan's show good results for improving the rang of extension

The improvement was almost seen in both the groups but in Maitland mobilization group except the extension and internal rotation, flexion, abduction and external rotation ranges improved post interventions. In the mulligan's mobilization group the improvement in the range for flexion Extension abduction and external rotation in frozen shoulder the capsule is tight. This capsule tightness pulls the head of the humerus towards glenoid fossa

This glenohumeral mechanism leads to scapulothoracic and acromioclavicluar joints which lead to felt in positional in the joint. Kalternborn say that for normal motion at joint proper kinetics is necessary. Any restrictions in joint capsule can be restore by general or specific mobilization technique. In similar study conducted by Nicholson in which they used grade 2 and grade 4 of Maitland glides and the results show improving in the pain and passive shoulder abduction but there were not change in rotation. Joint mobilization technique show beneficial effects. When resistance is given to the joint the force should be bearable. That much force should be given which the patient can bear it. Hence it was proved that Mulligan mobilization give better results than Maitland mobilization.

Another case having the same condition of Adhesive Capsulitis of Shoulder Joint now here the physiotherapists diagnosed 40 patients with adhesive shoulder pain. Now here they also apply mulligan technique.

Now there were 40 patients which were divided into two groups, the group 1 named n=1 and group 2 named n=2. The group 1 (n=1) was treated with hot pack (HP), transcutaneous electrical nerve stimulation (TENS), and passive stretching exercises in 4 directions flexion, abduction, internal and external rotation. And group 2 (n=2) was treated with hot packs, TENS, and Mulligan’s technique. The patients were treated for four months.

Here they applied hot packs to deliver superficial heating and hot packs used because before treatment, hot packs is good for increase the extensibility of the collagen. And the temperature was adjusted to a suitable level for patients. Each treatment was of twenty minutes. After hot packs stretching was done, Conventional passive stretching included abduction in the scapular plane, flexion with the patient in the supine position, and rotations during abduction here they increased the abduction to that much level which patient can bear each stretch was provide for 30 second and rest for 15 seconds within stretches.

TENS session were applied were applied for twenty minutes with a frequency of 100Hz and the pulse duration was 0.05 to 0.07ms the patients were in a seated position and their shoulder were in neutral position. The intensity of the current was increased to the point of observation of no contractions, but with a light tingling sensation, while ensuring the patient was comfortable.

Now the group were treated with Hot Packs, TENS and Mulligan’s technique, the mulligan technique was applied in flexion, elevation and internal rotation. They have done three steps of ten repetition with having rest of 30 seconds after every set. They were treated for five in a week. For three weeks. All patients were advised to do shoulder exercise daily.

After 3 months both groups improves significantly after a treatment but group 2 patients show much better results after a treatment.

Another patient with frozen shoulder were also treated with mulligan technique MWM. Here the techniques were used are ERM, MRM and MWM, 30 patients were recruited and divided them into three groups A, B and C. Group A receive MRM, groups B receive ERM and group C receive MWM. After treatment of 12 weeks. No positive results were shown in MRM patients, and the results of ERM were better but the group C patients were much better when treated with mulligan technique MWM.

**Links**

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<http://www.medreha.com/wp-content/uploads/2011/11/IJPOT-OCT-DEC-2011.pdf#page=16>

<http://www.mdpub.net/fulltext/172-1551218868.pdf>

**Comparison of Mulligan Sustained Natural Apophyseal Glides and Maitland Mobilizations for Treatment of Cervicogenic Dizziness: A Randomized Controlled Trial**

**Cervicogenic dizziness:**

It is s condition in which the person feels that they are spinning it is neck related sensation. Tt is a treatable condition it show the symptoms of neck pain headache and loss of balance while walking and standing.

In this article they have done comparison between mulligan's concept natural Apophyseal glides and Maitland mobilization for the treatment of Cervicogenic dizziness. This research was done Australia on Newcastle University. In this study eighty six patient of Cervicogenic dizziness were participants. The patients which were in the study were given three interventions which were mulligan's concept (NAGS) self-NAGS, Maitland mobilization and range of motion exercises

The aim p

Of this was to check the effeteness of nags Maitland mobilization for Cervicogenic dizziness.

The dizziness is imbalance which aggravate with movement and position of the neck .the cervical spine is considered as the cause of dizziness mulligan's (NAGS) show good effect in reducing the neck pain and in reducing the dizziness and disability that was caused by cervical spine dysfunction. However Maitland is also used for cervical pain but there is no prove that it also treat dizziness.

Cervicogenic dizziness is related to cervical degeneration and neck injury that is whiplash.

Three groups were made group one received mulligan's mobilization NAGS ( self nags) and group two received Maitland mobilization and group three received placebo intervention.

The physical therapist also asked about the type of dizziness they were having neck pain and stiffness or both and their ages were 18to 90 and was suffering from dizziness from three months or more. In this people were also removed if they were having other cause of dizziness e.g vertigo, light headache etc. And other cause of poor balance (strock parkison diease)and also some people were removed in which manual therapy is contraindicated.

The group 1 patient which received NAGs were seated and were asked to move their head in the direction in which they have dizziness and they perform the glides at C1 and C2 it was repeated six times the second group received Maitland mobilization and passive joint mobilization at stiff or painful joints it was for 30second.

After the treatment the patient were asked to do range of motion exercise at home once a day

The third group which have placebo intervention which was applied for 2 minutes to three sides on the neck with the distance of 0.5 to 1 CM from the skin

Most of the people were removed because they did not meet the symptoms in which the Cervicogenic dizziness having after physical examination by physical therapist more 51 people were also remove bye Neurologist. The most people which were removed were having rotatory dizziness and cardiovascular cause of dizziness.

Which one is not related to neck problem after the screening 86 people were having Cervicogenic dizziness which were included in the study 29 patient were in Mulligan mobilization NAGS and Maitland mobilization and 28 patient were in placebo group the average age of the patient was 62 years and the patient was female

he response of the patient for treatment intervention was positive they were giving good response for the treatment which the physical therapist were giving them the dizziness was reduced with the manual therapy and give good effect for 12 weeks there was no effect in the placebo group for the effect of dizziness both the group for mulligan's mobilization NAGS and Maitland mobilization show less effect for dizziness there was no difference in the dizziness after 12 week there was significant reduction in the frequency of dizziness after the treatment and also there was no change in the placebo group also

When mulligan's mobilization (NAGS) and Maitland mobilization were compared with placebo group there was no difference in mulligan's concept NAGS and Maitland mobilization. They were give same results

in this study 34 patient were having mild pain in their lower cervical spine or upper arm after Mulligan mobilization nags or self-nags this was the adverse effect the symptom was for 24 hours after that they were fine and my mobilization and placebo group show no adverse effect after exercise hence the study shows that both the NAGS and Maitland passive joint mobilization are safe to be applied in effective for the treatment of Cervicogenic dizziness

Both manual therapy reduce the dizziness and frequency of pain whereas the placebo show no effect . Hence the result give strong evidence for the treatment of cervicogenic dizziness with mulligan’s NAGS and Maitland and mobilization.

Another study done on Cervicogenic dizziness. As above i explain what is Cervicogenic dizziness and in that article it was proved that Mulligan mobilization have shown good results for the treatment of Cervicogenic dizziness in that article 90 people were taken and they were divided into three groups which were Mulligan mobilization group and other group was Maitland mobilization and the Three third was the placebo group the study was to see the effect of exercise in patient suffering from dizziness and the position of head in balance of the body and was also to check the adverse effect.

The article was checked effect of the manual therapy exercise in the survivors find range of motion in position of the head and balance of the body and also in this three group were made. It was a six weeks treatment. The patient were given the exercise hence the conclusion was that NAGS treatment given to patient shown improvement in range of motion after 12th week of treatment and passive joint mobilization show no effect in range of motion and also there were no effect in the joint position with NAGS and passive joint mobilization

**Links**

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<https://bmcmusculoskeletdisord.biomedcentral.com/articles/10.1186/1471-2474-13-201>

<https://academic.oup.com/ptj/article/94/4/466/2735602>

**Effect of SNAGS Mulligan Technique on Chronic Cervical Radiculopathy: A Randomized Clinical Trial**

The neck or cervical spine is a coordinated network of nerves, bones, joints, and muscles. It is the necessary job of providing support and mobility for the head, however sometimes it can become painful.

As we know that neck pain is one of the most common musculoskeletal disorders in most people, neck pain mostly developed in those people who are spending most of the time in non-active positions like sitting all day and, working at a desk for too long without changing position, poor posture, sleeping with your neck in a bad position, jerking your neck during exercise and in some cases is due to car accidents, other traumatic events or sports because the muscles and ligaments of the neck are forced to move outside of their normal range and it can cause severe neck pain, Other causes of pain are ligament rupture or damage to a disc. Global Burden of Disease study, ranked neck pain 4th highest in terms of disability as measured by years lived with disability.

Cervical radiculopathy is the clinical description and when a nerve root within the cervical spine becomes inflamed or damaged, leading to a change in neurological function. Neurological deficits, like numbness, altered reflexes, or weakness, might radiate anywhere from the neck into the shoulder, arm, hand, or fingers. Pins-and-needles tingling or pain, which might vary from achy to shock-like or burning, may radiate down into the arm or hand.

The technique used was **SNAGs Mulligan technique**.

SNAGs can be applied to all the spinal joints, the rib cage and the sacroiliac joint. The therapist applies the proper accessory zygapophyseal glide whereas the patient performs the symptomatic movement.

This will result in full range pain free movement. SNAGs are most successful when symptoms are aggravated by a movement and are not multilevel. They are not the choice in conditions that are extremely irritable.

However SNAGs are typically performed in weight bearing positions they can be adapted for use in non-weight bearing positions.

Mulligan techniques are used for both an increase in range of motion and also the relief of pain, by joint mobilization. Mulligan techniques claim to enhance the signs and symptoms. The use of manual therapy highlights the value of movement in maintaining health and strength of collagenous, muscular and bony tissue. Mulligan's principle techniques are natural Apophyseal accessory glides (NAGS) and sustained natural Apophyseal accessory glides (SNAGS). In SNAGS the patient attempts to actively move a painful or stiff joint through its range of motion while the therapist overlays an Accessory glide parallel to the treatment plane.

50 patients with cervical radiculopathy, their age range was forty to fifty five years old were selected from Abo Queir Health Insurance Association Hospital North West Delta branch and Patients signed a consent form which was approved by the Faculty of Physical Therapy Ethical Committee, to participate voluntarily within the study. After a brief orientation session about the nature of the study, they were randomly assigned into two groups. Study group was consisted of 25 patients 14 females and 11 males. This group received standard physical therapy program for chronic cervical radiculopathy in addition to Mulligan technique SNAGs. All participants were referred from a similar orthopedic surgeon who was informed of patient inclusion and exclusion criteria. Patients were included in the study if they were diagnosed as unilateral cervical radiculopathy at level of C5/C6 and/or C6/C7, in chronic stage.

Both groups received standard physical therapy program for neck pain which include hot pack, TENS, stretching and strengthening exercises for cervical spine 3 times per week for one month whereas the study group additionally to the traditional physical therapy program received Mulligan technique SNAGS.

Electric hot pack was placed over the neck and upper part of shoulders musculature. This was being applied for 10 minutes. Transcutaneous 2 channel Electrical Nerve Stimulation (TENS) was used with pulse width 100-150, pulse rate 60-100 Hz, and output adjust to the most comfortable intensity level. Patients were sitting on chair during session. Two electrodes Para spinal on upper fibers of trapezius of the affected side and the other two electrodes on dermatome according of the affected level of spine C5/6 and/or C6/C7 were used. Patients received 30 minutes per session for three sessions per week for four weeks.

Stretching exercises for neck muscles:

Upper trapezius muscles stretching: The patient sat on a stool in an erect position. The therapist stood behind the patient with one hand on the patient’s shoulder for stabilization, while the other was on the side of the patient's head. The stretching was applied by moving the head in side bending with holding for 30 seconds and rest for 30 seconds and repeated three times to both sides.

Stretching exercises for neck rotators: The patient was sitting on a stool. The therapist stood behind the patient with one hand on patient's shoulder whiles the other on head laterally.

Stretching exercise was applied by application of passive full neck rotation toward right and left directions as much as possible but within limit of pain. The patient was asked to hold for 30 seconds, rest for 30 seconds and repeated three times. Isometric strengthening exercises for neck muscles (the exercise was repeated for ten repetitions per session).

Results:

Sustained natural accessory Apophyseal glides SNAGs provides an additional objective and measurable effective in treatment of chronic cervical radiculopathy patients because it improves dermatomal somatosensory evoked potential than conventional physical therapy program alone.

Here is a case of cervical radiculopathy this condition is mostly caused by the compression of nerve root in the spine and as known as neck pain, here are fifty patients suffering from neck pain thirty female and 20 male which are divided into 2 groups (A) and (B). Group (A) patients treated with SNAG mulligan technique and group (B) were treated with low level laser technique.

They were treated 3 sessions per week and for 4 weeks. After the treatment group (B) patients of low level laser technique shown good results and improved much better but group (A) patients who were treated with SNAGs were shown much better results and more improved.

In this article there were 42 patents having low back pain and divided them into two groups.

Group 1 receive a physical therapy program of stretching and strengthening exercises plus SNAG on the affected area of lumbar, and the group 2 receive same treatment without SNAGs and the duration of the treatment was three times per week for one month after the treatment they compared both groups post treatment and pretreatment tests. Both groups were improved but the group having SNAG treatment were resulted higher improvements, hence the SNAG technique is showing more good results.

**Links**

<http://medicaljournalofcairouniversity.net/home2/images/pdf/2017/march/a49.pdf>

<https://www.researchgate.net/publication/319067277_EFFECT_OF_SNAGS_MULLIGAN_TECHNIQUE_VERSUS_LOW_LEVEL_LASER_THERAPY_ON_PATIENTS_WITH_UNILATERAL_CERVICAL_RADICULOPATHY>

<https://www.sciencedirect.com/science/article/abs/pii/S1556370716301286>