

A Comparative Study Between Active Chin Tuck Exercise Versus Versatile Muscle Therapy With Ultrasound Therapy In Subjects Who Have Mechanical Neck Pain

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Abstract

BACKGROUND AND PURPOSE: This research has been conducted for comparing the difference between the impacts of active chin tuck exercises versus versatile muscle therapy with ultrasound therapy in subjects with neck pain.

DESIGN: Quasi-experimental study design

METHODS: 30 computer experts between the ages of 20 and 40 who met the requirements were chosen at random and divided into two groups, each with 15 subjects. Group A was assigned to Active chin tuck exercise with Ultrasound therapy and Group B to Versatile muscle therapy (using a sub-occipital release tool) with Ultrasound therapy. The research has been completed in a period of 3 weeks. Before and after the intervention, neck functionality and range of motion were assessed using the Copenhagen Neck Functional Disability Scale and the Goniometer, respectively, and the results were evaluated.

Result: The study showed an improvement in Neck function and an increase in ROM among desktop professionals treated with Active chin tuck exercises with Ultrasound therapy & also in groups treated with Versatile muscle therapy with Ultrasound therapy for patients with cervical pain. It is concluded that Active chin tuck exercise with Ultrasound therapy revealed an improvement in neck function and Range of Motion.

Keywords: Neck pain; Sub-occipital muscle release; Active chin tuck exercise;

INTRODUCTION

Neck disorder remains a common problem in individuals of desktop workers in these modern industrialized countries. Any of the structures in the cervical area might cause neck discomfort.

These include the cushioning discs, spine, nerves, muscles, and ligaments. When the neck is uncomfortable, you could find it difficult to move it, particularly to one side. Neck discomfort can also come from nearby tissues including the shoulder, jaw, head, and upper arms. The majority of individuals describe it as a stiff neck. The individual may have weakness, numbness, or tingling in the hand, arm, or elsewhere because the neck discomfort affects the nerves. Text neck is the one which is adopted by people working at a desktop by adopting lower cervical flexion and upper cervical extension¹.

Commonly neck pain is caused lower cervical spine and upper thoracic region². If the supportive structure of the head gets affected and then the muscles in these regions become tight and cause neck discomfort. Sixty percent of individuals have neck discomfort (also known as cervicalgia) at some time in their life, making it a common disease³.

Management of mechanical Neck Pain includes active chin tuck exercise⁴, Ultrasound therapy, and Versatile muscle therapy of cervical muscles using a sub-occipital release tool⁵. Correction of posture and training the muscles to correct the bad posture involves exercises that are done regularly to elongate tightened structures and also to provide strength to muscles that are weak⁶.

High-frequency sound waves are used in ultrasound treatment to cure deep tissue injuries by promoting blood flow and cell function with the goal of minimizing pain and spasm as well as accelerating recovery. Versatile muscle therapy is used to increase flexibility. In this Copenhagen neck functional disability scale and Goniometer was the tool used to assess the variables.

METHODS

The research was conducted in the outpatient clinic of the JKK Munirajah Medical Research Foundation College of Physiotherapy in Komarapalayam. 30 subjects within the 20-40 age span with cervical pain were randomly segregated into two groups each having 15 subjects. The active chin tuck exercise using ultrasonography was used to treat the A group. The B group has been treated using versatile muscle therapy using sub-occipital release tool with ultrasound for 3 weeks, 7 days/week. The outcome measures used for this study were CNFDS Scale and Goniometer. Both sexes were taken for this study. Severe degenerative changes around the neck, congenital and acquired torticollis, recent fractures, or any surgery around the neck were not taken for this study.

PROCEDURE

Group – A (Active chin tuck exercise) The subjects were asked to sit upright and look straight ahead with the ears directly over the shoulder, then asked to gently glide the chin straight back until a good pull is felt around the upper neck. The subjects were asked to do this exercise for 30 repetitions in one session with 20 seconds of hold time and 30 seconds of rest time.

Ultrasound therapy: The subjects were asked to sit in front of the couch with their head bent forward. Ultrasound was given with a frequency of 1MHz with a pulsed mode. The intensity given was 1.0 – 2.0 watts/cm². Duration- 8 minutes

Group B (Versatile muscle therapy) The subjects were asked to lie on their back. Then sub-occipital release tool was placed at the base of the skull and then subjects were asked to turn the head from side to side. The position is maintained for 10 – 15 minutes.

Ultrasound therapy: Same as for Group A.

RESULTS

The table illustrates the pre-and post-test mean differences, mean values, standard deviations, and unpaired t values for CNFDS in groups A and B.

Copenhagen Neck Functional Disability Scale (CNFDS)	Mean	Mean Difference	Standard Deviation	Unpaired 't' value
Group A	10.07	5.0	1.62	4.69
Group B	5.07			

Group A's mean value has been 10.07, higher than Group B's mean value of 5.07. The unpaired 't' test result has been larger than the tabular 't' value, coming in at 4.69 at the 0.05 percent level (2.13). It revealed that there was a statistically important variation in the mean values of Group A and Group B.

The table shows the mean difference, mean values, standard deviation, and unpaired 't' values in between pre as well as post-test values of the Group A as well as Group B on Motion Range response.

Range of Motion	Mean	Mean Difference	Standard Deviation	Unpaired 't' value
Group A	35.8	5.4	4.82	3.34
Group B	30.4			

The unpaired 't'-test was 3.34 at a 0.05 percent level, which was higher as compared to the tabulated 't' value. The mean value of Group A was 35.8, which was higher than the Group B value of 30.4. It revealed a important variations between Group A's as well as Group B's mean values.

Discussion:

Cervical ache is common is usual in computer workers due to improper forward-facing position when surfing on a desktop, this causes the soft tissues in that region to constrict as a consequence of the upper cervical structure's continual movement. Hanten et al. concluded that hands-on treatment using an exercise of active chin tuck to perform at home with progressions gives good results for reduction of neck pain and improvement of neck function⁷. Moody M showed that ultrasonic therapy gives good results to treat cervical pain⁸.

Copenhagen Neck Functional Disability Scale⁹ and Goniometer were taken as parameters for functional disability and range of motion in the present study. Jordan, Manniche, Mosdal, Hindsberge, et al., conducted intervention research to determine the reliability and validity of the Copenhagen neck functional disability scale, and Viraj N, Gandbhir; Bruno Cunha, (2022) performed research to search out the validity and reliability of Goniometer¹⁰. The therapeutic strategy for chronic pain may need multimodal therapeutic strategies in order to increase success.

The study was conducted to see the difference between Active Chin Tuck Exercise with Ultrasonic Therapy versus Versatile Muscle Therapy with Ultrasound Therapy for neck function and range of motion among desktop users.

The final findings of this research indicates that the combination of Active Chin Tuck Exercises using Ultrasound therapy ameliorates neck function and range of motion and hence validating the study of Harten et al., whereas Versatile Muscle therapy with Ultrasound therapy decreases pain and does not have any effect on the function of neck and range of motion among computer workers having cervical pain,

According to the analysis of this study shows that there was a good improvement in the level of function and the cervical spine's range of motion when were administered Active Chin Tuck

Exercise with Ultrasound Treatment.

CONCLUSION

The study concluded that active chin tuck exercise with ultrasound treatment was more effective to reduce pain, functional level, and an improvement in patient's range of motion who suffer from mechanical neck discomfort.

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