

Evidence-Based Treatment Strategies For “Text Neck Syndrome”: A Review

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ABSTRACT

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Introduction: Text neck syndrome is an overuse condition or repetitive stress injury in which the cervical spine is flexed forward or down for extensive stretch while gazing at a smartphone or other electronic device. Individuals with this syndrome usually present with neck pain, restricted cervical range of motion, reduced muscle strength and endurance, and altered cervical joint position error along with postural alterations like forward head posture and rounded shoulders as well.

Methods: We performed a systematic review of the Text Neck Syndrome and discussed the evidence-based studies. For the review, an electronic search for relevant articles using PUBMED, MEDLINE, Pedro, Research Gate, Google Scholar, and CINHALL databases up to March 2022 was done wherein MeSH search terms and free words were used. In addition to the electronic search, articles were searched manually for relevant studies. Articles were selected based on the author's expertise, self-knowledge and reflective practice.

Results: The current study included 17 articles that fulfilled the inclusion criteria suggesting that Text Neck Syndrome is an upcoming concern and requires attention. The above-reviewed studies provided evidence that physiotherapy as a mode of treatment is effective in treating Text Neck Syndrome.

Conclusion: This review spoke about the text neck syndrome and its rising consequences and also about the treatment approaches available in treating and minimizing the symptoms of this syndrome. Further research is required over what more preventive strategies can be adopted in the case of the Text neck syndrome.

Keywords: Cervical Joint Position Error, Cervical Range of Motion, Physical Therapy, Postural Correction, Text Neck Syndrome.

Introduction

By now, we know the result of smartphones and their impact on numerous businesses, health, social life, and education. Students are taking online lessons from institutions and studying on their phones; in addition, the use of smartphones for amusement has surged during the lockdown.¹ When looking down at their mobile devices' screens, users commonly adopt a prolonged forward head posture.^{2,3} Dr. Dean L. Fishman, a chiropractor in the United States, created the term "text neck." Text neck is a term used to describe a repetitive stress injury or overuse condition in which a person has his or her head hanging or flexed forward and is stooped down for lengthy periods looking at his or her mobile phone or other electronic devices.^{3,4,5} The prevalence of Text Neck Syndrome is 32% in India.⁶ The prevalence of Academic staff in one of the Malaysian Universities with frequent smartphone use was 41%,⁷ prevalence among the medical students of Jeddah and Saudi Arabia was seen was 68.1%.⁸ According to a recent research, 79 % of those aged 18 to 44 keep their phones with them virtually all of the time, with only 2 hours of their waking day spent without them.^{9,10}

In the neutral position, an adult's head weighs 10-12 pounds. With the flexion of the head, the load increases towards the neck, and the weight is calculated to be 27, 40, 49, and 60 pounds at 15°, 30°, 45°, and 60°, respectively. People who use a smartphone frequently have a downward gaze to focus on lowered things and keep their heads in a forward position for lengthy periods, which can cause neck strain.⁹

In addition, maintaining a forward head posture reduces cervical lordosis in the lower cervical vertebrae and provides a posterior curve in the upper thoracic vertebrae, which helps to maintain balance. Forward Head Posture is the term for this.^{6,9} Neck pain and soreness are the most typical symptoms of Text Neck Syndrome. Furthermore, shoulder pain and stiffness, as well as upper back pain ranging from persistent, nagging pain to sudden and severe upper back muscular spasms, may result in painful shoulder muscle spasms.^{9,10} As a result, people with Text Neck Syndrome have

less strength and endurance in their neck muscles, as well as postural alterations. Text neck, if ignored and untreated, can result in serious long-term consequences, such as flattening of the spinal curvature, early onset of arthritis, spinal misalignment, spinal degeneration, disc compression, disc herniation, nerve or muscle damage, inflammation of cervical ligaments, nerve irritation, and an increase in spine curvature.^{5,10,11}

When it comes to the treatment of Text Neck Syndrome, to date only symptomatic treatment has been given. Physiotherapy interventions can be done to treat text neck syndrome, some of which include ultrasound, manual traction, manual exercise, cervical muscle stretching, cervical joint manipulation, and McKenzie. But all of these only provide subsequent relief in symptoms of Text Neck Syndrome. There is an increasing need for a structured treatment protocol in such individuals to avoid long-term complications which are mostly seen at an early age.

Methods

Search Strategy: We performed a narrative review on Text Neck Syndrome and the possible treatment strategies and discussed the evidence-based studies. For the review, an electronic search for relevant articles using PUBMED, MEDLINE, Pedro, Research Gate, Google Scholar and CINHAL databases up to March 2022 was done wherein MeSH search terms and free words like "Text Neck Syndrome", "Desktop workers ", "Medical Management" "Physical Therapy", "Physiotherapy Treatment", "Forward Head Posture", "Cervical Proprioceptive Training ", "Strengthening Exercises", "Resistance Training" were used. Boolean operators like "AND", "OR" and "AND NOT " were used. In addition to the electronic search, articles were searched manually for relevant studies. Articles were selected based on the authors' expertise, self-knowledge and reflective practice.

Study Selection: A systematic review was undertaken. We included studies published in English up to March 2022, which focused only on

physiotherapy as one of the choices of treatment in individuals with Text Neck Syndrome. The studies included adults between 18-44 years of age who were diagnosed with Text Neck Syndrome.

Data Extraction: All steps in the selection and extraction processes were assessed. The titles and abstracts of the references were screened. Full texts of relevant publications were reviewed and were included if they met the inclusion criteria. One researcher collected the database and included the relevant ones based on the inclusion criteria.

The inclusion criteria for the study were databases in the form of randomized clinical trials, randomized control trials, comparative studies and cross-sectional studies. Also, the studies included individuals who were falling in between the age group of 18-44 years and diagnosed with Text Neck Syndrome. The studies used for this review ranged from symptoms, medical treatment and physiotherapy treatment strategies of Text Neck Syndrome. Then these databases were studied by researcher 2 and were analyzed and discussed. Then both researchers read and reviewed the final data to avoid any bias.

Results

The current study included 17 articles that fulfilled the inclusion criteria focusing on the treatment approaches that are available in individuals with Text Neck Syndrome.

A systematic review regarding the conservative management of Mechanical Neck Disorders (MND) was carried out in the year 2007 by Anita R. Gross et al; which included 88 randomized controlled trials which were undertaken and studied by two authors. The results of this study revealed that there was strong evidence supporting that multi-modal approaches including stretching/strengthening exercise and mobilization/manipulation for subacute/chronic MND reduced pain and helped to, improve function. Moderate evidence was seen in exercises where stretching and strengthening exercises had an intermediate to long-term effect on managing MND. Also, intravenous glucocorticoids for pain reduction and reduced sick leave in cases of acute

WAD (Whiplash Associated Disorders), and epidural injections for pain reduction and improved function in cases of chronic neck disorder with radiculopathy were seen to be beneficial.¹²

Jill Shah et al. spoke about the effects of Pilates along with the Conventional Exercise Program and Conventional Exercise Program Alone in Subjects with Text Neck Syndrome. The participants in this study ranged in age from 18 to 22 years old and used their smartphones for at least 4 hours per day. The participants were placed into two groups: Group A received a conventional exercise program, whereas Group B received a Pilates exercise program in addition to a conventional exercise program for five sessions per week for six weeks. The findings of this study revealed that after a six-week treatment program, both groups, Group A, which received only conventional exercises, and Group B, which received Pilates along with conventional exercises, improved their neck flexor muscle strength and endurance, as well as pain and disability. However, in comparison to Group A, Group B showed a statistically significant improvement (p value < 0.05).⁶

Divya Jain et al; carried out a study in the year 2021, named "Effectiveness of Progressive Resisted Exercise along with Conventional Exercise and Conventional Exercise Program alone in Subjects with Text Neck Syndrome". There were 80 participants in this study, who were randomly assigned to one of two groups: Group 1 or Group 2. For four weeks, group one received a normal exercise program, whereas group two received Progressive Resisted Training in addition to a conventional exercise program. The severity of the discomfort, the strength of the neck muscles, and functional activity will all be assessed. Post-treatment results suggested that a combination of progressive resisted exercise training and a traditional exercise program was effective in treating Text Neck Syndrome.¹³

A study done by Ozan Soyer et al; in 2020 spoke about the effect of Postural Correction and Exercise on Neck Pains in Cell Phone Users where

49 participants were included who had neck pain and had been spotted using a mobile phone for at least two hours per day for at least five years and were between the ages of 15 and 40. Patients in group 1 were given a planned exercise program that included neck muscular stretching and posture exercises, and they were told to do 10 repetitions of each exercise for two sets every day for a month. In addition to exercises, participants were given tips on how to improve their posture and set limits on how much time they may spend on their phones. For a month, Group 2 patients did not get any treatment. The neck pain score in group 1 was found to be considerably lower ($p < 0.001$). According to the findings, reducing the amount of time spent on a mobile phone, exercising regularly, and correcting the head forward position by raising awareness can help avoid the development of text neck syndrome.¹⁴

Harshadeep Kothare et al; performed a study called "Immediate effects of kinesio taping on upper trapezius muscle on subjects having text neck". A total of 50 people aged 20 to 22 took part in the study. Students who had used a smartphone for at least 2 hours per day for more than 6 months and complained of neck pain during and after use, as well as an NDI score of 30 percent to 48 percent, indicating significant disability, were included in the study. For three days, Kinesio Taping was administered to the bilateral Upper Trapezius muscle. Before removing the tape, the NPRS and NDI were taken on the third day. With a p-value of ($p < 0.0001$), there was a significant difference between before and post-NPRS and NDI scores. As a result, it was established that applying KT to the bilateral Upper Trapezius muscle for three days was useful in Text Neck students.¹⁵

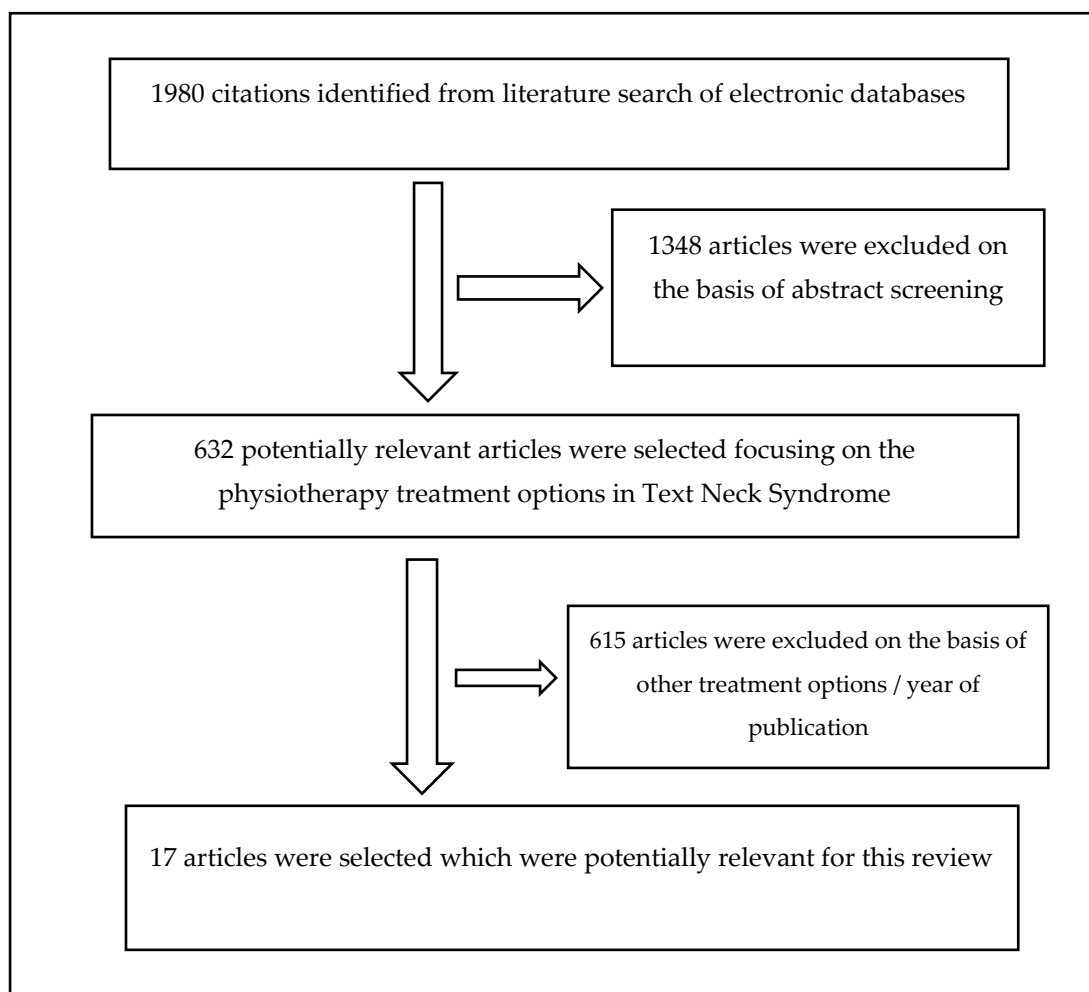


Figure 1: Flowchart depicting the selection of database for the review.

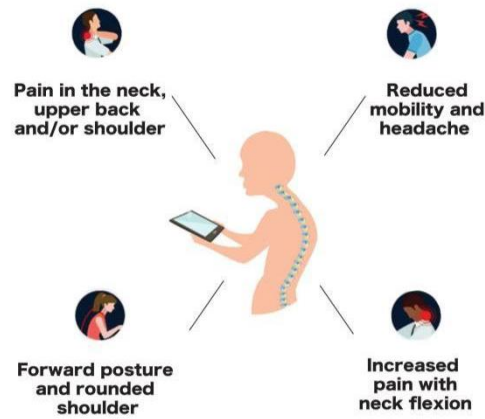


Figure 2: Pictorial representation of symptoms seen in Text Neck Syndrome.

Table 1: Studies summarizing Text Neck Syndrome and Evidence-based physical therapy in Text Neck Syndrome.

STUDY TITLE	NAME OF THE AUTHOR, YEAR OF THE STUDY	RESULTS	REMARKS
Assessment of Co-Morbid Factors Associated with Text-Neck Syndrome among Mobile Phone Users ⁹	M. Vijayakumar, Sanika Mujumdar, Aishwarya Dehadrai , 2018	Forward head posture, Grip strength, Active cervical joint ROM and Neck muscles’ strength were assessed. The results revealed evidence of neck pain, upper back pain, forward head posture, reduced grip strength and reduced range of motion and muscle strength.	Text Neck-induced co-morbidities are chronic and progressive in nature.
Effectiveness of Pilates along with Conventional Exercise Program and Conventional Exercise Program Alone in Subjects with Text Neck Syndrome ¹	Jill Shah, Krupa Soni, 2019	Group A: Conventional Exercise Program Group B: Pilates exercise along with the conventional exercise program Sessions were given 5 times per week for 6 weeks.	The study concluded that Pilates along with the conventional exercise program was more effective in treating patients with Text Neck Syndrome.
Effectiveness of Progressive Resisted Exercise along with Conventional Exercise and Conventional	Divya Jain, Swapna Jawade and Neha Chitale, 2021	Group A: Cryotherapy, active range of motion exercises, isometric exercises and chin tuck. all these were given for 4 weeks. Group B: Progressive Resisted Exercises using Elastic therabands, free weights, and	The Progressive Resisted Exercise Group showed better results in treating the Text Neck Syndrome than the conventional group

Exercise Program alone in Subjects with Text Neck Syndrome ¹³		exercise machines were given for a duration of 4 weeks.	
The McKenzie Exercise Methods For Prevent Text Neck Syndrome Due to Gadget Overused ¹⁶	Desti Kurniawati, 2021	-	The use of McKenzie in providing effective exercise to improve the cervical range of motion
Immediate effects of kinesio taping on upper trapezius muscle on subjects having text neck ¹⁵	Harshadeep Kothare, Chanakya Patil and Revati Muley, 2019	Kinesio Tape was applied over the bilateral Upper Trapezius muscle for three days.	Application of KT for three days over bilateral Upper Trapezius muscle was found to be beneficial in Text Neck students.
Effects of work-from-home use of laptop or mobile phone causing Text neck syndrome during the quarantine period COVID-19 ¹⁷	Baba Mastnath University, Asthal Bohar, 2021	This study supports that 46% suffering from discomfort, mild to moderate neck pain, and stiffness related to working from home who use laptops on daily basis.	The prevalence of neck pain in laptop users was mild to moderate in these individuals.
Effect of an office ergonomic randomized controlled trial among workers with neck and upper extremity pain ¹⁸	Jonathan Dropkin, Hyun Kim, 2014	A 7-month office ergonomic intervention study evaluated the effects of 2 engineering controls And training on neck/UE pain and mechanical exposures. A 3 month follow-up was also taken.	The intervention reduced non-neutral postures in the non-dominant upper extremity and also increased hand activity in the distal aspect of the same extremity.
The Effect of Postural Correction and Exercise on Neck Pains in Cell Phone Users ¹¹	Ozan Soyer, Zeynep Ülkü Akarırmak, 2020	Group 1: Structured exercise program including neck stretches, neck range of motion exercises and postural advice was given of 10 repetitions × 2 sets daily for a month. Group 2 : No treatment was given	Group 1 showed significant improvement in posture and helped in the treatment of Text Neck Syndrome as compared to Group 2.
A Study to Assess the Prevalence of Text Neck	Amninder Kaur , Simran Makker, 2021	Data was gathered using Neck Disability Index and Pittsburgh Sleep Quality Index to assess the quality of sleep.	Text Neck Syndrome is associated with neck disability and quality of sleep.

Syndrome and Quality of Sleep among Smartphone Users in Selected Colleges of District Ludhiana, Punjab ¹⁹		The results revealed that nearly half of the smartphone users had mild neck disability and subjects had good sleep quality whereas poor sleep quality.	
Cervical Proprioception in a Young Population Who Spend Long Periods on Mobile Devices: A 2-Group Comparative Observational Study ²⁰	Andrew Portelli, and Susan A. Reid, 2018	Assessment of the recruits was done based on VAS and head repositioning accuracy (HRA) test. Results revealed a significant correlation between time spent on electronic devices and cervical pain intensity and between cervical pain intensity and HRA during flexion.	There was a greater proprioceptive error noted during cervical flexion in the Text Neck Participants.
Prevalence and awareness of text neck syndrome & addiction to smartphones in the doctor of physical therapy students of Peshawar ²¹	Shamaal Khattak , Mashal Gul , Hoor Ali Kakar , Ghazanfar Ullah, Mujeeb Ur Rahman, 2020	Participants were given a questionnaire regarding neck pain and the knowledge about Text Neck Syndrome and a Smartphone Addiction Scale to measure self-reported addiction to smart phone use.	Around one-fourth of the students were suffering from text neck pain with overuse of smartphone and low level of awareness regarding it.
Text neck: An adverse postural Phenomenon ²²	Ira Fiebert, Fran Kistner, Christine Gissendanner, and Christopher DaSilva, 2020	Results showed that prolonged use of hand-held devices leads to adverse anatomical and biomechanical changes in the cervical and the thoracic spine along with postural changes and, muscular imbalances.	Proper postural advice while using hand-held devices is mandatory for such individuals.
The impact of home office setup due to COVID-19 pandemic on IT professionals' physical health: a systematic review ²³	Oana-Ruxandra STÎNCEL, Andreea NIȚĂ, Mihaela ORAVIȚA, 2021	The research was conducted based on PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyzes) methodology.	The study confirmed that in the case of IT professionals, there is a strong association between working from home, poor ergonomic workstations and high prevalence of musculoskeletal complaints, and, especially, an increased occurrence of neck pain.
Musculoskeletal Disorders among Video Display Terminal Users:	Rivu Basu , Aparajita Dasgupta , Gautam Ghosal, 2014	The study included 206 individuals from the Software Company of Sector V, Kolkata, the IT hub of West Bengal.	Results revealed that 90.78% of the population showed some form of musculoskeletal symptoms

A Cross-Sectional Study in a Software Company ¹⁴			which were highest in fingers, elbows, wrist, shoulder, upper and lower back.
Correlation between the Guyon Canal Syndrome and the Forward Head Posture in Prolonged Smartphone Users ⁶	Shinde SB, Vaidya AA, Bhore PR, 2022	80 respondents from a college and the data that was collected included demographic details, smartphone usage characteristics, the severity of pain, the presence of FHP, and mechano-sensitivity of the ulnar nerve.	Results revealed a positive correlation between forwarding head posture and Guyon canal syndrome in prolonged smartphone users.
Conservative Management of Mechanical Neck Disorders: A Systematic Review ¹²	Anita r. Gross, Charlie Goldsmith, Jan Hoving, Ted Haines, Paul Peloso, Peter Aker, Pasqualina Santaguida, Cynthia Myers, 2006	88 unique Randomized Clinical Trials were studied to study the effect of various treatment strategies for the management of Mechanical Neck Disorders (MND)	Exercise with mobilization/manipulation, exercise alone, intramuscular lidocaine, intravenous glucocorticoid, low-level laser therapy, and intravenous glucocorticoid for acute whiplash-related illnesses all showed intermediate or long-term advantages in the treatment of chronic MND.
Medicinal and Injection therapies for mechanical neck disorders ²⁴	Peloso P, Gross A, Haines T, Trinh K, Goldsmith CH, Aker P, Cervical Overview Group, 2004	32 randomized controlled trials were included that examined the effects of oral NSAIDs, psychotropic agents, injections of steroids, and anesthetic agents	Results revealed that treatments for acute whiplash and chronic MND included intravenous methylprednisolone injection and lidocaine intramuscular injection.

Discussion

This systematic review highlights the current evidence on the Text Neck Syndrome and the treatment strategies that are taken to treat this syndrome. Speaking treatment options range from conservative management, medical management, and physiotherapy treatment which does help in improving range of motion, reducing pain, and increasing muscle strength, functional capability and quality of life in such individuals. Studies by M. Vijayakumar et al; stated that there were 100% samples with neck pain and Forward head posture while 94.91% samples with upper back pain, 89.83% with headache and poor grip strength and 59.32% with shoulder pain. This study showed that the severity of neck pain

among Text-neck syndrome patients was more followed by upper back, headache and then shoulder pain. This study also focused on the assessment of the grip strength in such individuals which revealed below-average to poor grip strength after prolonged hours of texting. Ewa Gustafsson et al also commented on the differences seen in texting velocity between men and women, with women texting with higher velocity.²⁵ This would further result in wrist and thumb pain associated with below-average to poor grip strength. Thus, Text Neck Syndrome is susceptible to causing a loss in grip strength eventually leading to a loss of ability to perform functional activities. Prolonged shearing of the vertebrae from the forward head posture sooner

or later irritates the small facet cervical joints as well as soft tissues and ligaments which causes neck and upper back pain leading to trigger points in the trapezius, sternocleidomastoid and rhomboids muscles, along with limited cervical joint range of motion. Also, due to hypomobility of cervical joints, chronic neck pain and ultimately spinal degeneration will occur at an early age.²⁶ Similarly, the forward head posture resulted in adaptive shortening of the occipital muscles causing the cervical spine to change alignment resulting in increased stress on the facet joints and posterior discs and other posterior elements. This position may in turn lead to weakness of deep cervical flexors.⁹

Text Neck Syndrome has been termed as an adverse postural phenomenon by Ira Fiebert et al²², specifically because of the changes that are seen after prolonged use of hand-held mobile devices (HHMD) which results in adverse anatomical and bio-mechanical changes in the cervical and thoracic spine, muscular imbalances, and postural compensations, all of which contribute to muscular overuse and fatigue resulting in pain. It's mentioned the cervical posture and thoracic posture while texting. About cervical posture, those using an HHMD at an average of 2 hours/day for 10 years are at high risk for developing decreased cervical lordosis, thereby greatly increasing their risk for future neck pathologies. Studies have also found that the neck flexion angle tends to increase more significantly while using an HHMD in a sitting versus a standing position. On average, the neck flexion angle while sitting is 10- 14% greater than when standing.^{22,27} The placement of the device also appears to play a factor in changes in head and neck flexion angles. Using devices placed on a person's lap, for example, leads to increased head and neck flexion angles.^{22,28} Even though bilateral texting task shows increased cervical flexion rather than single-hand texting; still texting with only one hand was associated with more asymmetrical cervical spine postures, including an increase in cervical rotation and side bending.^{22,29}

Also, differences seen in posture when it comes to HHMD are not only limited to the cervical spine

but also affect the kinematics of the thoracic spine. The Cranio-vertebral Angle (CVA) is a measurement of the degree of forward head posture and lesser CVA values are indicative of an increased degree and severity of forward head posture. The upper thoracic angle is a measurement of the degree of thoracic kyphosis. Lau et al. found that subjects with neck pain displayed a smaller CVA and a larger upper thoracic angle, demonstrating a higher degree of forward head posture and thoracic kyphosis compared to the asymptomatic subjects.^{22,30} Likewise, the change in the thoracic angle predicted neck pain more accurately than changes in CVA. As the upper thoracic angle increased the degree of thoracic kyphosis also increased, and there was a simultaneous increase in perceived neck pain which was seen. These findings indicate that the anatomical and postural changes associated with HHMD use are not limited to just the cervical spine, but musculoskeletal changes taking place in the thoracic spine may contribute to pain and the development of other symptoms commonly seen with text neck.^{22,31}

Discussing the treatment protocols or regimes followed when it comes to Text Neck Syndrome they are very limited. As it is an upcoming syndrome, usually only symptomatic treatment has been given importance. A study was conducted on individuals with Text Neck Syndrome which compared the effect of Pilates along with conventional exercise program and conventional exercise program alone which showed evidence that greater improvement was in reducing pain, neck disability, increasing cervical muscle strength and endurance in individuals who received the combination of Pilates along with conventional exercise program rather than the conventional exercise program group. They stated that Exercise is the most effective way to treat patients with neck pain and in case of neck pain, the majority of treatment protocols focus on the deep neck flexors, as they play a major role in stabilizing the proper alignment of the cervical spine. Similarly, Pilates and spinal extension exercises helped in re-educating the stabilizing (postural) muscles of the spine and shoulder girdle, and have beneficial

effects to manage back pain and restore function. It also helps by encouraging activation of the deep neck flexor muscles with a neutral position of the cervical spine which in turn helps to build strength and endurance of the cervical muscles and thus reducing pain and disability.^{6,32}

Evidence state that Upper Trapezius is usually the most affected and fatigued

muscle due to prolonged smartphone use under electromyogram. Smartphone use for more than 30 minutes showed that pain increased with increased muscle fatigability.^{15,33} Kinesio Taping(KT) is effective in treating the upper trapezius in individuals with Text Neck Syndrome. The pressure and stretching effect of kinesio tape on the skin is believed to stimulate cutaneous mechano-receptors, which in turn conveys information about joint position and movement, and therefore may enhance proprioception.^{15,34} It also helps in alleviating the workload on the trapezius muscle and allows the subject to maintain the shoulder and neck in their neutral position. Likewise, it is known that blood and lymph circulation may be enhanced at sites where kinesio tape was applied, thus muscular and myofascial function at those sites was affected which helped in reducing the tension over the muscles and helped in improving functional ability.¹⁵

Studies done previously showed that postural correction with the help of a specifically structured exercise program has shown a positive effect in individuals with neck pain in prolonged cell phone users. The focus was on three of the frequently involved muscles, trapezius, sternocleidomastoid and levator scapulae (LS). The exercise program included a structured regime consisting of neck muscle stretching and posture exercises. Also, they were informed to perform exercises for 10 repetitions and 2 sets every day. Neck exercises included a variety of movements namely, neck rotations, neck extension, LS stretch, lateral neck stretch in standing and lying positions, standing chest stretch, shoulder roll, corner chest stretch and trapezius muscle stretch in lying position. In addition to exercises, they received written advice for posture correction and limitations during cell

phone usage. The written postural advice consisted of instructions like taking a break after every 20 minutes of phone usage, maintaining the neck angle while using the phone and avoiding high repetitive typing and scrolling the screen for a long time. One month of the above-mentioned exercise program combined with postural correction depicted a significant reduction in neck pain and cervical lordosis and increased the cervical range of motion along with neck muscle strength.²³

Also, certain studies have given evidence that intravenous glucocorticoids and epidural injections have helped reduce pain intensity and function in individuals who experience neck pain or mechanical neck disorders. Similarly, oral psychotropic agents like Cyclobenzaprine, Diazepam and Tetrazepam have been found to reduce pain and increase range of motion. Oral anti-inflammatories and oral analgesics were found to be ineffective in reducing neck pain intensity.^{12,24} Also we know that neck pain is the most common symptom of Text Neck Syndrome and hence this above-mentioned evidence of medical management will show the same effect on these individuals in terms of pain, range of motion and function.

From the above-discussed studies, we can see that there are a major amount of limitations when it comes to treating this syndrome as a whole. The limitations found in the above-reviewed studies were unstructured treatment protocols, the duration of the therapy session to be given and the total regime of the entire treatment protocol. Future studies should consider meta-analysis on the Text Neck Syndrome and randomized control study designs with appropriate control groups focusing on all aspects of the treatment protocol, such as type, and dosage in terms of volume, intensity, and duration of the same.

Conclusion

The above-reviewed literature regarding Text Neck Syndrome and its effects and available treatment options revealed that it is definitely an upcoming concern for white-collar workers. When it comes to occupational stresses, the above-reviewed studies concluded that visual stress,

pain in the neck and upper back region, altered neurodynamics and tightness in neck muscles due to strain have been reported as the main concern. Also, prior screening of these workers is mandatory to see those who are at risk of developing the syndrome and who have already started to experience the symptoms. The symptom can result from due improper workstations, poor ergonomics, inadequate breaks and prolonged improper postures. For the treatment of this syndrome needs to be a combination of various treatment approaches which will focus on every aspect of the syndrome. Integrated postural training in such cases can be a beneficial approach in such individuals which will combine pain management and focus on increasing the cervical range of motion, strengthening, stretching, and postural correction. Physical therapy methods that include a patient-centered approach, home exercises and postural correction are the prime aspects of managing this syndrome at an early age to avoid the later consequences.

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