

## Text Neck Syndrome in Adolescents: How to Stem the Tide?

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### Abstract

Text neck syndrome has recently been popular all over the world. Text neck syndrome is a term that is used to describe pain in neck and shoulders those who use mobile phone a lot. As we know that there has been a radical change in the world of technology and using of mobile phones all over the world. Due to this revolutionary change mobile phones are available to each and every one, so people started using mobile phones widely. There are other devices like computers, tablets, e-readers has been used daily. Nowadays, people got habituated to use mobile phones as soon as they get form their sleep; moreover they feel it is fashion. There is also other reason that people are using because of the data charge and talk time. Both of them have been available for the low rate that people can afford to them. It is true that children and adolescents are most preoccupied and always busy in texting, talking and interacting through social media from dawn to before going to bed. While using mobile phone people keep their heads forward bending position for a long time; so it affects the cervical spine and its curvature, the muscles, supporting tendons and ligaments. Text neck syndrome has been increasing day by day as mobile phone users doubling all over the globe. It is high time that universal awareness should be spread among the people and medical community. There are some preventive measures for text neck syndrome like right position of holding mobile phone and right exercise etc. This article will certainly give you some of the reasons for text neck syndrome and its effects and protective measures.

**Keywords:** Text neck; turtle neck posture; overuse syndrome; adolescents; mobiles; neck pain.

### Introduction

Adolescents refer to the young people between the ages of 10-19 years [1]. According to UNICEF there are 20 percent of adolescents worldwide. In India there are almost 243 million adolescents [2]. An android mobile is the most popular device along with computers, tablets, and e-readers [3]. Almost all the adolescents got habituated to use mobile phones for a long time irrespective of the time that causes text neck syndrome [4]. It is very harmful condition as the text neck syndrome affecting both men and women in all ages around the globe and it has become a burden to all people because of continuous forward flexion of head while looking into the mobile [5].

A recent study by Neupane which was conducted in 2017, there are 79 percent of people between 18 and 44 years holding mobile phones all the time in their hands [6]. Another research study conducted by Fares in 2017 revealed that children who were suffering from neck pain and the youth showed that all the participants spent their time with mobile phones or other electronic devices on an average five to seven hours in a day. The participants were observed that they bent their neck at an angle greater than 45 degrees. They all said that they had been suffering from the neck and shoulder pain for over six months due to radiation of the mobile phones [7]. Moreover, adolescents and growing children were found that they totally damaged their cervical spine and got life time neck pain as they addicted to mobile phones [8].

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### Definition

The term "Text neck" was coined by US chiropractor; Dr. Dean L. Fishman [9]. It is also sometimes referred as Turtle neck posture [10].

Text neck syndrome is defined as a repetitive stress or overuse syndrome with pain experienced from prolonged forward head flexion while watching or texting electronic devices [11].

### Adverse Effects of Excessive use of Mobiles

Most of the youth lose a lot of time as they spend their valuable time on social media by watching sports, checking mails or texting. These days it has turned to be an addiction. Here are the some effects included [12].

- Headache
- Stress
- Nervousness
- Lack of concentration
- Poor academic performance
- Eye strain
- Pain in the hands, neck and back
- Lack of socialization
- Disturbances while sleeping

### Head Posture and Angles of Flexion

It is true that the human head average weight is 4.5 kg but the weight is will be doubled when it is bent forward for every inch. In the upright position, when the ears are brought into the shoulder line, the weight of the average head increases roughly around 10-12 lbs. However, when your head is bent forward by an inch away from the upright posture, the weight of the head will increase by approximately six times, the same weight as the average 8 year old child or 6-10 pin bowling ball [14].

The below image shows how the cervical spine is exposed in various angles of flexion of head. Forward head posture (FHP) always depends up on prolonged approach [4].

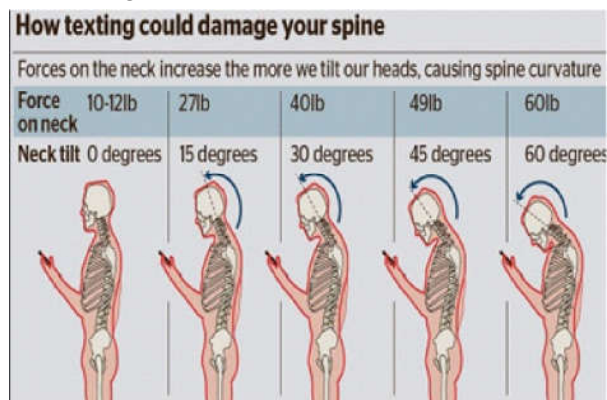


Fig. 1: "Text Neck is Painful – Avoid it!"

(Source: <http://www.hilaryking.net/blog/health/avoid-developing-text-neck.html>)

### Clinical Manifestations

#### Most common presentations

- *Neck pain and soreness:* People get neck pain and soreness if they keep on bending their heads forward and the force applied on neck muscles which leads to severe pain and soreness in neck. This stimulates stress and strain in neck most of the time. Neck pain differs from person to person; it depends on the head posture and degrees of flexion.
- *Shoulder pain and stiffness:* If persons hold their mobile phones stiffly and in a stable position, it leads to shoulder pain and stiffness [5,8].
- *Upper back pain:* The pain radiates from the neck down to the upper back because of overusing mobile phone.

#### Main symptoms

- *Stiff neck:* Children and adolescents experience stiff neck in case they use electronic gadgets continuously for hours. While using there will be a lot of pressure on neck muscles, so it leads to stiff neck. Sometimes it is very difficult to even move the neck as long as there is pain.
- *Pain:* Pain is a primary symptom that is experienced in text neck those who use electronic gadgets a lot. Sharp or dull or stabbing pain especially in the lower neck, sometimes it may be diffused over an area. It varies from mild to severe.
- *Radiating pain:* Pain radiates from neck to shoulders, arms to fingers and it may move to the upper back because of forward head position.
- *Muscular weakness:* Trapezius, rhomboid and shoulder external rotator muscles will often become weak.
- *Headache:* Sub-occipital headache can be seen on constant looking down onto the electronic gadgets. Sometimes an irritation in the neck also affects muscles and nerves to the head which causes tension headache [5].
- *Numbness:* It happens when people keep themselves stiff without any movements. Shoulder muscles like trapezius, scalenus, rhomboid and sternocleidomastoid may be involved. It results in the compression of the nerves which leads to numbness [6].

### Other symptoms

- *Thoracic kyphosis:* It is the increased curvature of spine in the thoracic region which is developed due to excessive use of the electrical gadgets by keeping themselves in stooped posture.
- *Early onset arthritis:* It is the inflammation of joints which causes pain and stiffness. It may develop in early stages of life.
- *Spinal degeneration:* It can be seen in extreme cases when proper preventive measures were not implemented at the right time. It may result in the deviation of curvature of spine.
- *Disc compression:* Due to the pressure exerted on the spine, the disc compression can occur anywhere on the spine. In this condition, disc compression can be seen in the neck or lower back.
- *Loss of lung capacity:* There is a possibility that may affect loss of lung capacity too due to forward head posture.
- *Muscle weakness or spasm:* The pressure exerted on the muscles of the neck, shoulders and lower back causes weakness or spasm [5].
- *Cervical Radiculopathy:* It is the irritation of the nerve especially from the neck on the cervical vertebrae. It results in the compression of the cervical vertebrae which leads to pain, numbness and weakness radiating to the arm [4].

### Diagnosis

- *A complete medical examination:* Thorough history must be gathered prior to medical examination such as duration of electrical gadgets usage and onset of manifestations. The main priority should be given for pain; its intensity, character, frequency and radiation either to the neck or lower back [15].
- *Investigations:* After performing the medical examination and gathering the history of a patient, X-ray can be advised. An x-ray of neck indicates curvature (typically curves backward) [16].

### Treatment

Treatment for text neck syndrome is done in two ways.

1. Conservative management
2. Surgical intervention

#### 1. Conservative Management

##### Acute cases

Relieving pain is an important objective for turtle neck syndrome. It is gained through

- *Frequent warming up of neck muscles:* It is very vital to move the neck while using mobile phone for every 30 to 40 minutes. Perform regular rotations of the head and neck. Moreover changing the posture of neck at least for every 10 minutes relaxes the muscles.
- *Stretches:* Stretching of neck helps to allow free movement of blood flow to the muscles by relieving pain. Stretch the neck to both sides, front and back for at least 10 to 30 seconds. Stretch arms and upper back frequently to relieve muscle pain [17].
- *Chin and scapula retraction:* In order to have relief from pain, retract the chin and scapula and hold it for 20 to 30 seconds which strengthens the neck muscles. It benefits in strengthening the deep neck flexor muscles.
- *Ice or heat packs:* Ice or heat packs can be used when the person has severe swelling or pain. Firstly cold packs can be used as it closes the pores of the small blood vessels and thus reduces worsening swelling at the site of pain in the neck. Later either ice or heat packs can be applied. If pain is reduced, heat packs have to be avoided as it increases the severity of swelling.
- *Massage:* Smooth rubbing can be done as soon as the ice or heat packs were applied because rubbing gently reduces the pain and muscle spasm.
- *Analgesics:* These drugs give relief from pain in the neck, shoulders and upper back. Non-steroidal anti inflammatory drugs also can be used.

##### Chronic cases

In severe cases administration of opioids, physical therapy, injections to the facet joint or trigger point and acupuncture can be suggested.

#### 2. Surgical Intervention

Surgical Intervention can be suggested in

very rare cases. If the pain is unbearable, there is chance for postural deformity [6]. It may lead to inflammation of neck ligaments, muscles and nerves with bending of spine in case it is not treated [18].

### Prevention

It is true that prevention is better than cure. Prevention is the key to text neck. It can be prevented by following some of the measures. Here are some of the measure which include

- *Good posture:* Good posture of neck always helps to ease pain. Right biomechanics is primary measure in stopping the text neck. It gives relief from pain and reduces the stress on spine [19]. Changing the position regularly when using mobile phones for prolonged period of time, If not else it gives lot of stress on the muscles of neck and shoulders. Spend the day mindfully to posture one's self when using the mobiles for a constant period of time. Otherwise, Try to sit or stand in upright position while using mobiles. Do maintain perfect posture to stop the text neck. Do not be stiff for a long time in a single position [20].
- *Position the device:* It plays a vital role in preventing text neck. It is very essential in our day to day life to practice holding the devices in a right way. Each time do remember that inappropriate holding of the devices in the same position brings a lot of pressure onto the neck because of tilting the head or forward head posture. It is better to hold mobile phone higher while texting, surfing and watching any videos. Keep an eye on one's self to look forward with your head when working on the electronic gadgets. Moreover, keep the electrical gadgets at distance for some time. Hold the electronic gadgets at eye level, so that it is in correct alignment with your neck which reduces stress and pain on the neck and eye muscles even [21].
- *Take frequent breaks:* Keep in your mind to take frequent breaks while using electrical gadgets. Take some small breaks for every 20 minutes while using mobile phones. On the other hand take 5 minute break for 25 minutes if you use laptops and desktops [21]. Try to set some alarm or reminders in the devices that are used. It is very important to walk for some time while using any electrical gadgets, as it allows the blood to flow freely to all parts of the body which reduces the pain. Stretching of the neck, shoulders and back is important. Take two to three breaks for every hour to avoid text neck syndrome. Don't do it for once a blue moon. Make it a habit and practice daily [13].
- *Change the hand:* Try not to use the e-gadgets for a long time which are heavy to hold. Do not hold the mobile only in one hand for extended period of time as it leads to even severe pain radiating to arms and fingers. Stretch your hands in between as it enhances relaxation to the muscles which further does not lead to spasm, numbness and stiffness. It also relieves stress on the muscles which aids in the prevention of text neck. Use both the hands equally not only to hold even to text to get rid of pain while using mobile phones for such a long duration [21].
- *Neck and shoulder exercises:* Avoid bending of the neck forward for a long period of time. Exercise of the neck and shoulders makes the muscles free and get rid of pain, stiffness and soreness. Extension of the neck enhances stamina, good posture and stretch, and strengthens the neck muscles. Periodic neck movements like rotation and bending to one side certainly alleviates the pain. Perform simple rotations and stretching of the shoulders regularly.
- *Ice/heat packs:* Pain, swelling and soreness can be reduced by using ice or heat packs. They are readily available everywhere these days and are cost effective. Cold packs must be used primarily since they close the pores of the small blood vessels. Therefore, they reduce the swelling and pain of the neck. Alternate application of ice/heat packs also can be applied. It improves circulation and relieves discomfort. It also enhances the muscle flexibility. It is essential to some precautions when we use the ice or heat packs; such as avoiding continuous usage of these packs, and applying them firmly. Ice or heat packs give relief from the severe pain and make muscles flexible. Try to use moderate ice or heat packs. Do not use either too hot or too cold ice packs.
- *Massage:* Massage is one of the oldest and finest methods of pain relieving method as it provides good health and well-being of a person. After applying ice packs or heat packs gentle rubbing can be applied, this enhances soothing of muscles which further

aids in the reduction of pain and muscle spasm. Smooth massage brings pleasure to the nervous system. It diminishes stress by promoting relaxation even to the whole body. Massage further reduces discomfort, muscle tension and stiffness. It provides a sense of pleasure from aching. It also relieves headache. Regular massage boosts wellness.

- *Talk more and text less:* Most of the people prefer to text instead of talking but talking is far better than texting. Even though the texting is fun, it should be avoided to control the text neck syndrome as the risk is very high. In this tech world, it causes a long run effect. Texting brings lot of pain in the neck. Nowadays adolescents are very eager to chat with others but it is not safe as it leads to text neck. In case anyone wants to communicate, it is better to talk and avoid texting as he or she wastes spending a lot of time with e-gadgets. There are several apps for voice control instead of texting messages. It gives relief from stress of neck, upper back, shoulders and even fingers. Keep a time limit while texting to get rid of text neck easily.
- *Stay fit:* A strong, flexible back and neck are more capable of handling extra stress. So, it is very important to practice neck and shoulder exercises, bending head up and down and to both sides frequently. It's also essential to practice yoga to have a good posture [22].
- *Reduce Screen Time:* As people are very busy with the electrical gadgets there must be a time limit for using the gadgets and keep the screen time limited.

Apart from these measures; as technology advances new apps and devices have come through to have a track on text neck syndrome.

- *Intuitive apps:* There are some apps in order to get rid of text neck syndrome in Google play store for the android mobile users. Those apps are really helpful by giving signals or alarms or vibrators time to time to the users by detecting bad postures. These android apps play a vital role while using the electronic gadgets. They give a clear picture about the right postures during usage of the mobiles. Moreover, they give feedback according to the postures of person through red and green light. They can also analyze the time of stooped posture while using mobile phones [21].

## Conclusion

Using the mobiles only when necessary and maintaining correct posture in such a way that prolonged flexion of head over the mobiles should be avoided. Make sure to position the mobiles in proper alignment which minimizes stress on the neck muscles which further prevents severe neck pain and spasm. Correcting posture is the root cause to prevent pain and stress over the muscles of neck, shoulders, lower and upper back. The time has come to bring awareness among adolescents as they are most vulnerable and affected by text neck syndrome through various social media. Moreover, parents should keep an eye on the adolescents when using mobiles for an extended period of time. Apart from the parental control, self-realization is also very important. It is must to have individual realization about their health. In acute Text neck syndrome cases, diagnosis, conservative management, surgical intervention and timely treatment are essential. In general, mobile users have to follow the preventive measures in order not to fall victims of Text neck syndrome.

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