



PREVENTION OF FORWARD HEAD POSTURE ON STUDENTS DURING ONLINE LEARNING IN THE COVID-19 PANDEMIC

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ABSTRACT

To prevent the spread of highly contagious coronavirus, the government regulates the health protocol, such as limitation of gathering, close the school and changing the education system from conventional to virtual started level elementary to even college level. As one of the solutions to learn media learning, the use of smartphones is increasingly significant. The longer duration of using a smartphone will cause a condition named Forward Head Posture. Forward head posture is one of the most common types of postural abnormalities. It is caused by the repetitive position while using a smartphone.

The mechanism can be explained by the motion of looking down such as when using a smartphone. As a result, it encourages repetitive use of the head and neck muscles. Anatomically, it can be explained that the upper cervical vertebrae are hyperextended and shifted forward. Exposure to constant loads on craniovertebral extension muscle and non-contractile structure cause changes in biomedical motion, with every one inch the increase in distance from the head and neck, it will increase the gravitation tenfold. Increase stress eventually caused musculoskeletal damage or pain.

Keywords: Forward Head Posture, Online Learning, Covid-19



INTRODUCTION

The use of gadgets over time has significantly increased. In 2016, about 62,9% of the population worldwide already owns a smartphone. In the Republic of Indonesia, smartphone users reach more than 66,3 % of its people. The smartphone is a mobile phone device developed by implementing a computer-based operating system. The development of smartphones is not limited to communication tools but also as media to support learning.^{1,2}

As a learning support media, the use of smartphones is the solution during the covid19 pandemic in 2020. The global situation in the form of di coronavirus pandemic is one of the important factors that increase the use of gadgets in every activity of life. Coronavirus disease is considered highly contagious directly through droplets by human-to-human transmission. Prevention of the pandemic clothes health protocols. One of them is limiting gathering activities. It has changed the education world signed by the closure of the conventional school and replaced it with an online or virtual school. In Indonesia, the ministry of education and culture has made this policy stated in Ministry letter Number: 36962/MPK.A/HK/20, March 17, 2020, regarding online learning and working from home in the context of preventing the spread of Covid 19.^{4,5}

The minister of education policies is the regulation for the implementation of online learning in every level of education from elementary to university. Online learning is a learning activity that requires an internet network with connectivity, accessibility, flexibility, and the ability to bring up the various types of learning interaction. Online learning requests supporting facilities such as smartphones, laptops, tablets. The activities by using this gadget in the end not only provide the benefits but also negative impact, others by increasing reports of musculoskeletal disorder that is forward head posture.⁶

Forward head posture is one of the most common types of postural abnormalities that occurs at all ages. Especially those of productive age. This situation is described as an anterior position of the head and neck. This mechanism can be explained by the motion of looking down such as when using a smartphone. As a result, it encourages repetitive use of the head and neck muscles. Anatomically, it can be explained that the upper cervical vertebrae are hyperextended and shifted forward. Exposure to constant loads on craniovertebral extension muscle and non-contractile structure cause changes in biomedical motion, with every one inch the increase in distance from the head and neck, it will increase the gravitation tenfold. Increase stress eventually caused musculoskeletal damage or pain.^{6,7}

Several studies have reported that symptoms such as neck pain, headache, temporomandibular pain, and musculoskeletal disorders are associated with FHP. Research conducted by Wiguna et al, regarding the relationship between fhp and Smartphone use in junior high school student north Denpasar, which was conducted on 56 subjects, found a positive relationship between the two variables that based on the result of the chi-square test data analysis, with $p=0,037$, which indicates that is a significant relationship between FHP and smartphone addiction.⁸⁻¹⁰



METHODS

This community service activity is carried out in the form of an online educational seminar through the Zoom conference application on Wednesday, 17 November 2021 in commemoration of the 59th DIES Natalis of the Faculty of Medicine, Sriwijaya University. This activity was also held in collaboration with the Research and Community Service Unit of the Faculty of Medicine, and Anatomy Department Faculty of Medicine, Sriwijaya University. The participants of this online educational seminar were 156 students.

DISCUSSION

Forward head posture is the condition head is anterior to the sagittal plane. This increases extension of the Atlantic occipital and upper cervical vertebrae end fraction of the lower cervical and upper thoracic vertebrae which in turn can cause persistent and abnormal contraction of the suboccipital muscle of the neck and shoulder. Its shifts the center of gravity of the head in an anterosuperior direction and causes a change spatial between the spine and the line of gravity. The overburden of muscles, connective tissue resulting dysfunction of the musculoskeletal, nervous, and vascular systems. It increases the length of the external moment by moving the center of gravity in front of the load-bearing Axis. Exposure to this content load cranium vertebral extension muscles and non-contractile structure will cause changes in biomechanical movement.

FHP causes lengthening and weakness of the anterior cervical muscles and shortening of the posterior cervical muscles. A prolonged muscle imbalance due to misalignment caused an excessive load at the joint and muscles, thereby creating problems caused by chronic fhp. Such as. the limitation of functional movement in the head and neck region. It is also found that the chronic condition decreases the number of sarcomeres which can affect muscle contraction. The role of cervical flexors and deep cervical extensors is considered important to maintain correct posture in the cervical region.

It is known that active exercise methods can restore the damage of the fhp. The combination action will include the strengthened practice of deep neck flexor and self-stretching extensor. The muscle stretching can lengthen the soft tissue experience shortening, thereby increasing the flexibility motion.

CONCLUSION

Forward head posture is one of the most common posture disorders that is often overlooked. By practicing the appropriate exercise hopefully can prevent the disorder from becoming chronic and even restore the normal posture.



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