The Mckenzie Exercise Methods For Prevent Text Neck Syndrome Due to Gadget Overused

Desti Kurniawati
Physiotherapy Department, Health Polytechnic of Makassar, Indonesia
Email : destikurniawati@poltekkes-mks.ac.id

ABSTRACT
Text neck syndrome is disease that occurs due to excessive overused of the neck muscles, back muscles and shoulder muscles. This is due to a person's bowing position for a long period of time. Nowaday, it is usually done when someone is using a gadget, this condition is included in the category of musculoskeletal disorders. The purpose of this study were to find out how the impact caused by gamers for using gadgets for a long time and to find out how the implementation of McKenzie in reducing pain and increasing cervical range of motion. This research was a study case with 26 gamers respondents (Titan's Gamers Community). The method of activity that will be carried out includes an initial survey by filling out forms via Google Form by respondents to get early detection. Approaching community members, especially those who experience neck pain in the "Titans" Gamers Community, by asking about their condition online. Held education about the importance of posture correction to all members of the "Titans" Gamers Community The instrument is buble inclinometer for assessment cervical range of motion. The results of this study is the increasing the cervical range of motion for all respondents(26 gamers). The use of McKenzie in providing effective exercise to improving the cervical range of motion for gamers.
Keyword: *Text neck syndrome, McKenzie exercise, range of motion*

INTRODUCTION

Text neck syndrome is a neck disease that occurs due to excessive use of the neck muscles, back muscles and shoulder muscles. This is due to a person's crouching position for a long period of time. In today's era, it is usually done when someone is using a cell phone. This condition is included in the category of musculoskeletal disorders.

Text neck syndrome is categorized as a musculoskeletal disorder which is a series of discomfort, danger, and pain caused by various factors in various parts of the body, and in the long term, interferes with the sufferer to carry out daily activities as usual (Collins JD and O'Sullivan LW, 2003). 2015). It is a multi-factorial phenomenon created as a result of multiple risk factors. One of the risk factors is improper posture. Even if the situation is appropriate, a prolonged static position can still increase the damage (Bonzini M, et al, 2014).

Reporting from a survey on the use of Teknologi dan Informasi Komunikasi (TIK) in 2017, more than half of Indonesians already own a smartphone, 66.31 percent to be exact. Data from the Ministry of Industry (Kemenperin) in 2018 noted that currently there are 24 companies manufacturing components for mobile phone and tablet products in the country. Meanwhile, based on the e-Marketer report, active smartphone users in Indonesia will grow from 55 million people in 2015 to 100 million people in 2018. With this number, Indonesia will become the country with the fourth largest active smartphone users in the world after China, India, and America.

In a case report (Hiroshi Takasaki, 2016) a teacher experienced neck pain that radiated to the arm due to staring at a laptop screen to work for more than 3 hours with a forward head posture. Repetitive flexion (bending) movements can also cause pain from research conducted at the University of Sydney (Helen A Clare, 2005). In Indonesia, every year around 16.6% of the adult population complains of a bad feeling in the neck, even 0.6% starting from a bad feeling in the neck to severe neck pain. The incidence of neck pain increases with age, which is more common in women than men with a ratio of 1.67:1 (Prayoga, 2014).

Many 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. McKenzie exercise in several studies can reduce pain due to text neck syndrome.

McKenzie Exercise is an exercise technique using body movements, especially in the direction of extension, usually used for strengthening and stretching the extensor and flexor muscles of the lumbosacral joint and can reduce pain. This exercise was created by Robin McKenzie. The principle of the McKenzie exercise is to improve posture to reduce lumbar hyperlordosis. While operationally the provision of exercises to strengthen the lower back muscles is intended for the flexor muscles and for stretching is intended for the back extensor muscles (McKenzie, 2008; Jumiati, 2015).

This is in accordance with the opinion of Kisner (2011), stretching contained in the Mc.Kenzie exercise can prevent tissue adhesion, maintain elasticity and contractility of muscle tissue and prevent the formation of inflammation in the joint cavity so that the range of motion of the joint can be improved and maintained. Passive stretching is done when the patient is relaxed, using an external force, in McKenzie exercise it is more likely to rest the lower back in the form of relaxation which can have a pain-reducing effect. Light and slow movements stimulate proprioceptors which are the activation of large diameter efferent fibers that result in the closing of the spinal gate.

MATERIAL AND METHOD

This research was a case study with 26 gamers respondents Titan's Gamers Community. The reserach is carried out from July until August 2020. The location is in the Department of Physiotherapy and online.

The method of activity that will be carried out includes an initial survey by filling out forms via Google Form by respondents to get early detection. Approaching community members, especially those who experience neck pain in the "Titans" Gamers Community, by asking about their condition online. Held education about the importance of posture correction to all members of the "Titans" Gamers Community.

Train the McKenzie exercise to members of the "Titans" Gamers Community. Range of motion check with bubble inclinometer. Provide physiotherapy services to each member who has been identified as having problems experiencing complaints of limited Range of Motion (ROM). Train members to perform McKenzie exercises independently. Conduct periodic evaluations of the progress of this activity.

RESULT AND DISCUSSION

Table 1. Normal value of cervical ROM

Cervical movements		
Flexion - Extension	**Lateral Flexion (Dextra – Sinistra)**	**Rotation**
90^0- 0^0- 70^0	45^0-0^0-45^0	90^0-0^0-90^0

David J Magee, 2014

Normal value which is the comparison value for each cervical ROM measurement. be the basis of normal or not ROM.

Table 2. Pre-test cervical ROM

No	Name	Cervical Movement					
		F - E		L F		Rot	
		Dx	Sn	Dx	Sn	Dx	Sn
1	RA	80^0	60^0	70^0	55^0	85^0	85^0
2	SB	55^0	50^0	40^0	50^0	80^0	90^0
3	MF	75^0	75^0	70^0	55^0	95^0	100^0
4	MFW	85^0	65^0	50^0	50^0	85^0	90^0
5	AA	80^0	75^0	45^0	50^0	80^0	85^0
6	MN	50^0	70^0	40^0	45^0	85^0	80^0
7	MA	40^0	45^0	25^0	35^0	85^0	80^0
8	DA	80^0	55^0	50^0	45^0	70^0	60^0
9	H	70^0	75^0	60^0	60^0	90^0	90^0
10	MNP	60^0	85^0	60^0	50^0	90^0	90^0
11	MNN	75^0	85^0	75^0	55^0	10^0	85^0
12	S	60^0	65^0	30^0	35^0	75^0	80^0
13	KT	80^0	70^0	40^0	45^0	85^0	90^0
14	KA	85^0	65^0	50^0	45^0	60^0	70^0
15	AAK	75^0	80^0	55^0	45^0	60^0	70^0
16	PS	75^0	85^0	75^0	55^0	100^0	85^0
17	AS	70^0	85^0	70^0	55^0	100^0	85^0
18	AI	70^0	75^0	60^0	50^0	90^0	90^0
19	MAF	85^0	60^0	60^0	50^0	80^0	85^0
20	HF	75^0	85^0	70^0	75^0	85^0	90^0
21	MZ	55^0	80^0	55^0	60^0	60^0	75^0
22	MF	40^0	45^0	25^0	35^0	55^0	70^0
23	HMM	70^0	60^0	40^0	45^0	70^0	60^0
24	AK	65^0	70^0	40^0	50^0	75^0	70^0
25	FA	50^0	70^0	40^0	45^0	85^0	80^0
26	MNH	60^0	65^0	40^0	45^0	80^0	85^0

Pre-test cervical ROM examination showed that there was limited ROM in all respondents because they did not reach the normal value of cervical ROM.

Table 3. Pre-test cervical ROM

No	Name	Cervical Movement					
		F - E		L F		Rot	
		Dx	Sn	Dx	Sn	Dx	Sn
1	RA	90^0	70^0	65^0	70^0	95^0	95^0
2	SB	85^0	90^0	60^0	65^0	90^0	90^0
3	MF	85^0	100^0	75^0	70^0	100^0	100^0
4	MFW	90^0	75^0	60^0	65^0	90^0	100^0
5	AA	85^0	70^0	50^0	45^0	90^0	90^0
6	MN	90^0	75^0	60^0	75^0	85^0	90^0
7	MA	80^0	50^0	40^0	55^0	70^0	85^0
8	DA	90^0	80^0	45^0	45^0	85^0	90^0
9	H	85^0	90^0	75^0	65^0	95^0	95^0
10	MNP	75^0	85^0	60^0	65^0	90^0	90^0
11	MNN	90^0	70^0	65^0	50^0	100^0	90^0
12	S	90^0	70^0	40^0	45^0	90^0	90^0
13	KT	90^0	70^0	40^0	45^0	90^0	90^0
14	KA	90^0	70^0	50^0	50^0	90^0	90^0
15	AAK	90^0	85^0	55^0	50^0	85^0	90^0
16	PS	90^0	70^0	65^0	50^0	100^0	90^0
17	AS	90^0	70^0	65^0	75^0	100^0	90^0
18	AI	85^0	90^0	75^0	65^0	95^0	95^0
19	MAF	90^0	70^0	50^0	50^0	90^0	90^0
20	HF	80^0	90^0	70^0	70^0	95^0	95^0
21	MZ	90^0	70^0	75^0	75^0	90^0	90^0
22	MF	80^0	75^0	60^0	60^0	85^0	90^0
23	HMM	80^0	60^0	40^0	45^0	75^0	90^0
24	AK	90^0	70^0	45^0	45^0	85^0	90^0
25	FA	80^0	70^0	45^0	50^0	85^0	90^0
26	MNH	90^0	75^0	45^0	50^0	80^0	90^0

Post-test cervical ROM examination showed that there was an increase in ROM in all respondents after three treatments because the value almost reached the normal value of cervical ROM.

CONCLUSION

Gamers totaling 26 people are less aware of the dangers of using gadgets for a long time without any exercise for the muscles in the neck. Gamers who take part in the McKenzie exercise can apply the exercise and the McKenzie exercise can increase cervical ROM on excessive use of gadgets.

ACKNOWLEDGEMENT

This research is a research proposed in the selection of Outstanding Student Poltekkes, Ministry of Health of the Republic of Indonesia. the financing of this research was funded by Poltekkes Ministry of Health Makassar.

REFERENCES

Bonzini M, Veronesi G, Conti M, Coggon D, Ferrario MM. (2015). Is musculoskeletal pain a consequence or a cause of occupational stress? A longitudinal study. International archives of occupational and environmental health. 2015;88(5):12-67. https://doi.org/10.1007/s00420-014-0982-1, PMid: 25261316, PMCid: PMC4437793 2014

Carol P. Dionne, et al. (2006). Inter-rater reliability of McKenzie assessment in patients with neck pain. Elsevier.

Collins JD, O'Sullivan LW. (2015). Musculoskeletal disorder prevalence and psychosocial risk exposures by age and gender in a cohort of office based employees in two academic institutions. International Journal of Industrial Ergonomics. 2015;46(3):85-97. https://doi.org/10.1016/j.ergon.2014.12.013 2)

El-Bandrawy, A. M & Ghareeb, H. O (2016). Influence Of Mckenzie Protocol On Postmenopausal Low Back Pain, International Journal of Therapeutic Applications, (33), 20-2.

Hansraj KK. (2014). Assessment of stresses in the cervical spine caused by posture and position of the head. Surgical technology international.

Helen A. Clare, et al. (2005). Reliabiity of McKenzie Classification of Patients with Cervical or Lumbar Pain. Journal of Manipulative and Physiological Therapeutics Clare et al Volume 28, Number 2.

Herawati. A. (2015). Segmentasi Mahasiswa Program Studi Ilmu Komunikasi Universitas Atma Jaya Yogyakarta

(UAJY) Dalam Menggunakan Gadget. E-journal UAJY, 2, 1-16

Hiroshi Takasaki, Scott Herbowy. (2016). Immediate improvement in the cranio-cervical flexion test associated with MDT-based interventions: a case report. Journal of Manual & Manipulative Therapy.

J. Klaber Moffett, et al. (2006). Randomized trial of two physiotherapy interventions for primary care neck and back pain patients: 'McKenzie' vs brief physiotherapy pain management. Rheumatology Journal.

Jhon M. Mayer, PhD., Lee Ralph, MD, Michele Look, MD, Geetha N. Erasala, MS, Joe L. Verna, DC, Leonard N. Matheson, Phd, Vert Mooney, MD., (2005). Treating acute low back pain with continuous low level heat wrap therapy and or exercise: a random control trial. The Spine Journal 5. Hal.395-403.

Jumiati, J. (2015). Penambahan Core Stabilization Exercise Lebih Menurunkan Disabilitas Di Bandingkan Dengan Penambahan Latihan Metode Mckenzie Pada Traksi Manipulasi Penderita Nyeri Pinggang Bawah Mekanik Di Kota Yogyakarta. Tesis. Denpasar: Program Pascasarjana Studi Fisiologi Olahraga Universitas Udayana.

Kementerian Komunikasi dan Informatika RI. (2015). Indonesia Raksasa Teknologi Digital Asia. Access 25th May 2020, from https://kominfo.go.id/content/detail/6095/indonesia-raksasa-teknologi-digital-asia/0/sorotan_media

Kementerian Perindustrian Republik Indonesia. (2018). Tentang Perusahaan Manufaktur Komponen Produk Ponsel dan Tablet di Dalam Negeri. Jakarta: Penulis. Diakses dari https://www.kemenperin.go.id/artikel/18827/Impor-Ponsel-Turun-Drastis,-Produksi-Nasional-Tembus-60-Juta-Unit

Kisner, C. dan L.A. Colby. (2007). Therapeutic Exercise-Foundations and Techniques fifth Edition. Philadelphia: F.A. Davis Company

Manumpil. M.Dkk. (2015). Hubungan Penggunaan Gadget dengan Tingkat Prestasi Siswa di SMA NEGERI 9 Manado. Ejoural Keperawatan, (Online), Vol. 3, No. 2, dalam http://ejournal.unsrat.ac.id diakses 18 Juni 2020).

Neupane S, Ifthikar Ali UT, Mathew A. (2017). Text-Neck Syndrome-Systemic review.Imperial journal of Interdisciplinary Research 2017;3(7):141-148.

Prayoga,C.R. (2014). Penatalaksanan Fisioterapi Pada Cervical Syndrome E.C Spondylosis C3-6 Di Rsud Dr.Moewardi. Tersedia dari e-prints Universitas Muhammadiyah Surakarta.

Sara Luetchford, et al. (2018). Diagnosis of cervical and thoracic musculoskeletal spinal pain receptive to mechanical movement strategies: a multicenter observational study. Journal of Manual & Manipulative Therapy. Diakses 20 Mei 2020, dari PubMed database.

Stöppler, M.C. (2011). Neck Pain, Access 25th May 2020, dari http://www.medicinenet.com/neck_pain/article.htm

Toh SH, Coenen P, Howie EK, (2017). Straker LM. The associations of mobile touch screen device use with Musculoskeletal symptoms and exposures: A systematic review. PLoS One 2017; 12(8).

Vate-U-Lan P. (2015). Text Neck Epidemic: A growing problem for smart phone users in Thailand. Proceedings of the twelfth internaitonal conference ofn eLearining for Knowledge based society; 2015 December 11-12; Thailand.