



The Effect of Transcutaneous Electrical Nerve Stimulation (TENS) and Kinesiology Taping (KT) Therapy on Shoulder Pain on Badminton Athletes at The OK Clinic Pringsewu

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ABSTRACT

Sport is an activity that is generally often carried out by the community, its existence has now become a part of community life. Injuries generally occur due to collisions, whether physical contact or falls. Badminton sport consists of various types of movements, including movements that involve the arms. This movement if done continuously will cause injuries such as shoulder pain. Kinesio taping relieves lower back pain after two up to three days of used. Kinesio taping peaks after 24 hours of use and will decrease in function after four days. Transcutaneous Electrical Nerve Stimulation (TENS) therapy has been shown to reduce various types of pain in 15-30 minutes. The research objective was to determine the effect of TENS and Kinesio taping on shoulder pain of badminton athletes at the OK clinic Pringsewu. This type of research is a quasi-experimental study with a non-equivalent pre and post control group design. The sampling technique was purposive sampling method. The number of subjects was divided into two groups (TENS and Kinesio taping). TENS used digital TENS, kinesio taping used 'Spol Kinematics Tex. The results showed that the mean difference of shoulder pain in badminton athletes before and after being given TENS therapy in badminton athletes at the OK clinic showed that the pre-test and post-test p values were <0.05 . The difference in the mean level of shoulder injury pain in badminton athletes before and after kinesio taping therapy in badminton athletes at the OK Clinic Pringsewu. The results show that the P value is 0.007 ($P < 0.005$), this indicates that there is a difference between before and after the use of kinesio tapping. Based on this, it can be concluded that there is a difference in decreasing the scale of shoulder pain between TENS therapy and kinesio tapping. TENS is better with a p value of 0.006.

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Kata kunci:

Cidera Olahraga
Nyeri Bahu
TENS
Kinesio Taping

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ABSTRAK

Olahraga merupakan kegiatan yang umumnya sering dilakukan oleh masyarakat, keberadaannya kini telah menjadi bagian dari kehidupan masyarakat. Cedera umumnya terjadi akibat benturan, baik kontak fisik maupun jatuh. Olahraga bulutangkis terdiri dari berbagai jenis gerakan, termasuk gerakan yang melibatkan lengan. Gerakan ini jika dilakukan terus menerus akan menimbulkan cedera seperti nyeri bahu. Kinesio taping meredakan nyeri punggung bawah setelah dua hingga tiga hari digunakan. Kinesio tapping mencapai puncaknya setelah 24 jam penggunaan dan akan berkurang fungsinya setelah empat hari. Transcutaneous Electrical Nerve Stimulation (TENS) telah terbukti mengurangi berbagai jenis nyeri dalam 15-30 menit. Tujuan penelitian untuk mengetahui pengaruh TENS dan Kinesio taping terhadap nyeri bahu pada atlet bulutangkis di OK Clinic Pringsewu. Jenis penelitian ini adalah penelitian quasi eksperimen dengan

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desain non-equivalent pre and post control group design. Teknik pengambilan sampel menggunakan metode purposive sampling. Jumlah subjek dibagi menjadi dua kelompok (TENS dan Kinesio taping). TENS menggunakan TENS digital, kinesio taping menggunakan 'Spol Kinematics Tex. Hasil penelitian menunjukkan bahwa perbedaan rerata nyeri bahu pada atlet bulutangkis sebelum dan sesudah diberikan terapi TENS pada atlet bulutangkis di klinik OK menunjukkan bahwa pre-test dan post-test nilai p adalah <0,05. Perbedaan rerata tingkat nyeri cedera bahu pada atlet bulutangkis sebelum dan sesudah terapi kinesio taping pada atlet bulutangkis di OK Clinic Pringsewu. Hasil penelitian menunjukkan nilai P sebesar 0,007 (P<0,005), hal ini menunjukkan adanya perbedaan antara sebelum dan sesudah penggunaan sadap kinesio. Berdasarkan hal tersebut dapat disimpulkan bahwa terdapat perbedaan penurunan skala nyeri bahu antara terapi TENS dan kinesio tapping. TENS lebih baik dengan nilai p 0,006.



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INTRODUCTION

Sport is an activity that is generally often carried out by the community, its existence has now become a part of community life. Nowadays, sport has become a trend in society, including children, adolescents, adults and even parents. Through this badminton activity, teenagers have reaped many benefits, both in their physical, mental and social growth (Depdiknas, 1998).

The outermost part of the structure of our body is musculoskeletal which functions to support the body, protect vital organs and for movement. It is this part that is prone to injury, and can affect the soft tissue (muscles, ligaments, tendons) or hard tissue (bones and joints) (Triono, 2015).

The same movement if done continuously will cause injuries including shoulder injury (rotator cuff injury), tennis elbow, golf elbow, ankle sprain. Shoulder injury (rotator cuff injury) can occur due to excessive use of the arm (Kneale, 2011).

The handling of pain complaints is never simple because the subjectivity factor of pain is very large between individuals and between individuals. The basic principle of pain therapy is to eliminate as much as possible the causative pathological processes that are responsible for the occurrence of pain. Besides that, it is also necessary to add various ways to deal with pain itself which can be divided into conservative therapy, surgery or both. Conservative ways can be in the form of pharmacological therapy and physiotherapy. One of the non-pharmacological

interventions, Transcutaneous Electric Nerve Stimulation (TENS), has shown an effect that approaches or exceeds that of analgesics.

Transcutaneous electrical nerve stimulation (TENS) has an effect on the pain threshold to reduce pain (Zeth, 2016).

Kinesiology Taping (KT) is one of the taping forces that Dr. Kenzo Kase had in Japan about 25 years ago. Taping this t craft for the work of muscles, joints and connective tissues. Taping kinesiology also helps joint motion (ROM), saving time still, as well as pain and viruses (Tomy, 2018).

METHOD

This type of research is a quasi-experimental study, with a nonequivalent pre and post test control group design. The research location was conducted at the OK Clinic Pringsewu. The population in this research were all patients at the OK clinic who were badminton athletes who had shoulder injuries. Data were collected using a questionnaire. The measurement of pain in this study used the Numeric Rating Scale (NRS). Research data in the form of badminton athlete's shoulder pain values in NRS were analyzed using a computer program or software using the Statistical Program for Social Sciences 16.0 (SPSS Inc., Chicago). In this case, to determine the effect of Transcutaneous Electric Nerve Stimulation (TENS) and Kinesiology Taping (KT) therapeutic interventions to reduce badminton athlete's shoulder pain was tested using the Wilcoxon Rank Sumtest Test.

RESULTS AND DISCUSSION

Table 1.
The difference in the mean shoulder pain in badminton athletes before and after being given TENS therapy in badminton athletes at the OK clinic

Treatment	Mean Rank		Q
	Pre-test	Post-test	
TENS	5,00	0,00	0,006

The results show that the p value is 0.006 (<0.05), this indicates that there is a difference in the reduction of shoulder injury pain before and after therapy using TENS in

badminton athletes who experience shoulder injuries at the OK clinic.

Table 2.
The difference in the mean level of shoulder injury pain among badminton athletes before and after kinesiio tapping therapy in badminton athletes at the OK Clinic Pringsewu

Treatment	Mean Rank		Q
	Before	After	
Tapping	5,00	0,00	0,007

The results show that the P value is 0.007 (P <0.005), this indicates that there is a difference between before and after the use of kinesiio tapping.

The results show that the statistical test results with the Mann Whitney test show that the Zhitung is -3.510 and a P value of 0.000. Based on this, it can be concluded that there is a difference in decreasing the scale of shoulder pain between TENS therapy and kinesiio tapping.

The use of TENS in athletes with shoulder injuries shows a difference in pain after therapy using TENS. This is because TENS is a simple analgesic technique. TENS generates a vibration of an electric current generated by a portable pulse generator which is applied to the skin surface through the conductive electrodes. By using conventional TENS which uses electrical characteristics it is able to activate large diameter palpatate fibers (Aβ) without activating smaller diameter nociceptive fibers (Aδ and C) (Carrol et al, 1997).

Table 3.
The difference between the mean difference in the level of pain even among badminton athletes at the OK Clinic Pringsewu.

Group	Zhitung	p-value
TENS		
Kinesiio Taping	-3,510	0,000

The working principle of TENS is based on the use of an electric current, which then works to stimulate the nervous system to initiate pain to decrease. The TENS device will affect the nervous system to immediately cut off the pain signal so that the pain in the athlete will be reduced. TENS will make the body produce natural pain relievers in the body, namely endorphins, which can block pain perception (Yulifah, et.al., 2009)

In this research, the results obtained P value 0.007 (P <0.005) in athletes who have been treated with kinesiio taping, this shows that there is a difference between before and after the use of kinesiio tapping. The use of kinesiio taping was carried out for 24 hours. The theory that kinesiio taping reduces low back pain is consistent with the results of Paoloni et al. (2011) who observed a very significant reduction in pain, as measured by VAS, after 4 weeks of kinesiio taping therapy, although the mechanism of kinesiio taping is not yet clear but presume that kinesiio taping applies to pressure on the skin and external loads that can stimulate skin mechanoreceptors (my elinated nerve fibers) can thus inhibit pain transmission according to the gate control theory (Pijinappel, 2007).

CONCLUSIONS AND SUGGESTIONS

The conclusion of this research is there is a difference on reduction of shoulder injury pain before and after therapy using TENS in badminton athletes who experience shoulder injuries at the OK clinic, There is a difference between before and after the use of kinesiio tapping in badminton athletes who have injured their shoulders at the OK clinic and there is a difference in the decrease in shoulder pain scale between TENS therapy and kinesiio tapping. TENS is more effective in reducing pain in shoulder injuries of badminton athletes at the OK clinic.

Suggestions in this research are suggested continuous research of combination between the use of tens and exercise

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