

EFFECTS OF TAPING MATERIALS ON ISOKINETIC PERFORMANCE AT THE ANKLE MUSCLES

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INTRODUCTION

Athletic taping has been one of the most popular methods to support the weakened joint. Although there have been the positive effectiveness of ankle taping on the range of ankle motion there are few reports about the effect of taping materials on the joint performance such as muscle activity. The purpose of this study was to examine effects of different taping materials on isokinetic performance of the ankle muscles. The null hypotheses was proposed as taping could not affect significantly neither the isokinetic performance of the underlying muscles nor those in accordance with different taping materials.

METHODS

Forty-five young healthy adults (mean age=24.7 ± 3.4 yr) without any history of ankle sprain within past six months were volunteered to participate in this study and randomized into three groups as a non-elastic taping group (n=15) with athletic white tape, an elastic taping group (n=15) with kinesio tape and a control group (n=15). Tapings was done along the tibial anterior and the peroneal group according to the principles provided by Illustrated Kinesio-Taping [1]

CYBEX NORM™ system was used to measure isokinetic performance of ankle muscles with concentric dorsiflexion-plantarflexion and eversion-inversion movements of the ankle, which were interpreted as ratio of peak torque to body-weight values ratio for reciprocal concentric contraction at angular velocity of 60°/sec and 120°/sec. There were three conditions to be tested as (1) untaped condition, (2) taped condition, and (3) untaped condition for the two groups with using two different tape materials

Each subject did three repetitions of contraction at each condition with assigned slow and fast speeds. The data were examined with ANOVA to determine the statistical significance of the factors of conditions and groups.

RESULTS AND DISCUSSION

Types of taping material did not show the significant difference in isokinetic peak torque of ankle muscles except ankle invertors with non-elastic taping compared with that in the control group without any taping (Table 1.). The isokinetic peak muscle torque significantly affected by the testing speed as previous studies but did not show a combined effect by the taping materials used.

Regardless the taping materials were used, the isokinetic peak torque of ankle evertors at slow speed and fast speed showed significantly better performance under taped condition than those showed under untaped condition (Figure 1.), which occurred in the ankle invertors at fast speed as well.

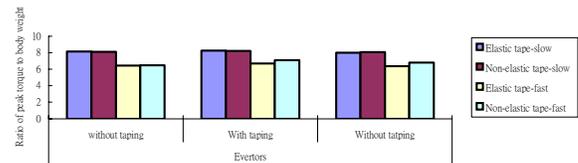


Figure 1. Isokinetic peak torque of ankle evertor under taped vs untaped condition

CONCLUSIONS

In this study, taping materials did not demonstrated significant effects on the isokinetic peak torque of ankle muscles. When the ankle was taped the ankle evertors showed significantly increased isokinetic peak torque, which was compared with those under untapped conditions before and after.

REFERENCES

1. Kase K. *Illustrated KinesioTaping*. KMS LLC.

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Table 1: Isokinetic performance of ankle muscles with different taping materials interpreted as ratio of peak torque to body weight.

Groups	Ankle Muscles				
	Slow speed	Dorsiflexors	Plantar flexors	Evertors	Invertors
Elastic tape		5.95±1.72	22.71±9.37	8.23±2.63	10.28±3.03
Non-elastic tape		6.34±2.39	17.15±8.27	8.21±3.20	9.15±2.99*
Control		6.58±2.64	24.63±13.85	8.75±2.19	13.87±7.76*
	Fast speed				
Elastic tape		5.59±1.33	16.37±8.08	6.70±2.31	8.24±2.76
Non-elastic tape		5.86±1.88	14.00±6.43	7.07±2.71	7.52±2.74
Control		5.94±1.63	20.78±13.96	7.16±2.19	10.70±5.93