

The effects of Kinesio®taping, prophylactic knee brace and knee brace plus Kinesio®taping on muscle strength and functional performance in healthy subjects

Gulcan Aktas, Gul Baltaci

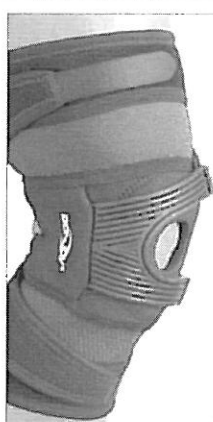


Hacettepe University, Faculty of Health Sciences, Department of Physiotherapy and Rehabilitation 06100 Ankara-Turkey

Background : Knee braces and including Kinesio®taping; and preventative and rehabilitative athletic taping techniques are widely used to prevent injuries in sports and to increase the functional performance. However; there was no study to show both of their effects on muscle strength and functional performance.

Objective: The aim of this study was to investigate the effects of Kinesio®taping (KT) application, prophylactic knee brace and KT plus knee brace on muscle strength and functional performance on healthy subjects.

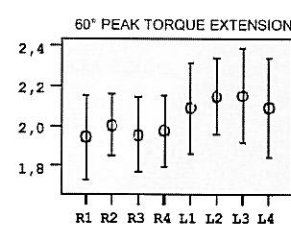
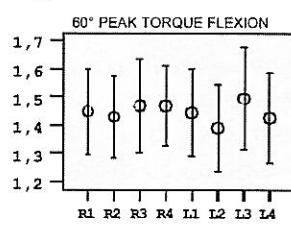
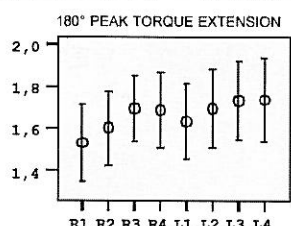
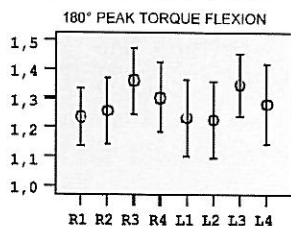
Method: Twenty healthy subjects (11F, 9M) (average age, 23,8 ± 1,6) with no previous history of lower extremity injuries and using of knee braces and KT applications included in this study. Tests were applied to all subjects as bare, with knee brace (DonJoy tru-pull advanced system), KT application (quadriceps muscle technique and patellar mechanical correction technique) and KT application plus knee brace in different dates. Muscle strength was measured by ISOMED 2000 isokinetic dynamometer at 60°/s and 180°/s. Functional performance was assessed by one leg hop test, single-leg vertical jump and single-legged balance test. Statistical analysis included in the significance of any differences between two conditions (bare-brace, bare-KT, bare-KT plus brace, brace-KT, brace-KT plus brace) by paired t-test, with the level of significance set at p=0.05.



Results: There were significant differences in one leg hop test between bare and KT application (p=0.03) and knee brace and KT application (p=0.03). Significant differences were found between KT application and KT plus knee brace (p=0.014) in vertical jump; between brace and KT (p=0.02) and brace and KT plus brace (p=0.02) in opened eyes balance test. There were no significant differences in closed eyes balance scores among bare, knee brace, KT and KT plus knee brace. Significant difference was found between bare and KT application, knee brace and KT application, KT and KT plus knee brace, knee brace and KT plus knee brace at 180°/s and 60 °/s.

Statistical Analysis of the subjects

	Mean (X)	Standard deviation (sd)
Age (yrs)	23.8	0.6
Weight (kg)	63.5	10.2
Height (cm)	169.7	7.7
Body mass index (kg/m ₂)	22.3	3.1



Conclusion: The results of this study showed that KT application would be more effective than knee brace and KT plus knee brace on muscle strength and functional performance in healthy subjects. Therefore, we think that the application of KT in both athletes and injured subjects can be very important to increase muscular strength and functional performances during daily activities and/or sports.

References Birmingham et al.-Effect of a functional knee brace on knee flexion and extension strength after anterior cruciate ligament reconstruction. Arch Phys Med Rehab-2002
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 Wu GK, Ng GY, Mak AF- Effects of knee bracing on the functional performance of patients with anterior cruciate ligament reconstruction-Arch Phys Med Rehab-2001

Correspondence: aktasgulcan@yahoo.com