

Effects of Kinesio and Traditional Tape on Motor Perception and Basic Soccer Skills

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Introduction

The knee is the largest and one of the most complex joints of the body, bears the majority of body weight, and is activated by powerful muscle groups. Owing to the functional relationship between knee and body motion, the knee injury occurs commonly in sports, especially in soccer players by trauma and overuse. Almost knee injury cause instability, and that related an abnormal translation of joint opening that is a direct result of disruption of one or more of the knee soft tissue restraints. A neuromuscular-related instability usually occurs in the absence of any measurable abnormal motion and is manifest by instability of the joint under load resulting from muscular and proprioceptive deficits. Perla and associates (1995) tested 54 knee healthy subjects. It was found that application of the elastic bandage improved the ability of an individual to replicate knee joint position by 1 degree. McNair and associates (1996) found an 11% improvement in error was seen when normal subjects wore a knee sleeve. A literature review revealed no information on the effect of knee bracing on motor perception.

Methods

Seventeen volunteers were include in this study., The group include eight male and seven female college soccer players with injured knee, average age, 20.88 ± 1.97 ys · weight 70.38 ± 3.29 kg · height 177.18 ± 5.96 cm. Subjects were tested under 3 knee conditions: non -taping, kinesio -tape, and traditional -tape, and the motor perception were measured and analyzed the accuracy and the variability by Kin -Com dynamomter system that the participant performed the tasks of knees to reproduce the position in 29, 39, and 49 degree. Distance kicking and dribbling in S - shape were used to test the performance of movement control under three conditions for basic soccer skills.

Data analysis

One way ANOVA, $3 \times 2 \times 3$ three - way ANOVA and the least significant difference post hoc test with an alpha level of .05 were adopted to analyze the

statistical differences.

Results and Discussion

Table 1(6) and Table 2(7) displays , coefficient of relative variable error, VE – CV for the position reproduce, knee conditions and treatment three test conditions and post hoc test with an alpha level of .05. The results showed that the position matching variability for kinesio – tape was significantly less than traditional – tape($p < .05$), and the condition of kinesio –tape is subservient to the accuracy of position matching. Variable error in 29 degree was showed the kinesio – tape was smaller than non –taping ($p < .05$).

Knee position reproduce、Treatment and Knee condition Mean and SD

表 1：模擬角度、處理方式與膝關節狀態原始資料之平均數與標準差

模擬角度	正常膝		受傷膝	
	平均數	標準差	平均數	標準差
	未貼貼布			
29 度	30.73	4.26	30.89	3.45
39 度	40.69	2.29	39.71	3.27
49 度	49.38	3.37	49.58	3.96
	機能貼布			
29 度	28.91	1.71	29.03	2.29
39 度	39.11	2.19	39.46	2.47
49 度	48.29	2.86	49.04	2.31
	傳統貼布			
29 度	30.80	4.06	30.05	3.94
39 度	40.64	2.44	40.61	3.24
49 度	49.46	3.94	49.66	3.85

單位：度

Difference treatment and Basic soccer skill mean and SD

表 2：不同處理方式的基本足球動作技能測試平均數與標準差

測試項目	未貼貼布	機能貼布	傳統貼布
S 型盤球 (秒)			
平均數	21.53	20.29	20.41
標準差	2.35	1.86	2.53
足球踢遠 (米)			
平均數	29.24	33.35	35.53
標準差	4.68	6.73	6.06

表 7：處理方式之變異誤差主要效果事後比較分析摘要表

處理方式	未貼貼布	機能貼布	傳統貼布
	1.77	1.35	1.71
未貼貼布	1.77	--	0.42*
機能貼布	1.35	--	0.36
傳統貼布	1.71		--

*p<.05

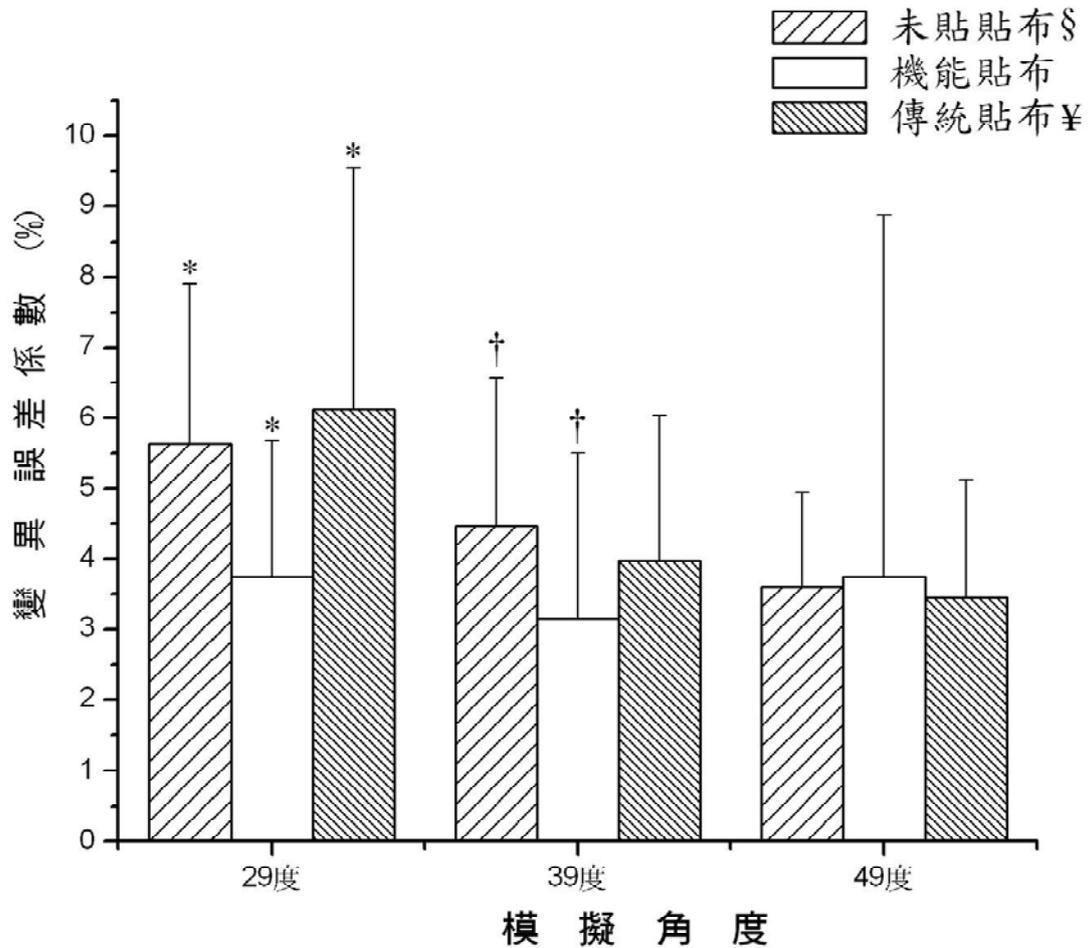


Figure1(12) showed coefficient of relative variable error of reproduce position and treatments. * treatment significant difference in 29 degree; ◎ treatment significant difference in 39 degree; ※ significant difference of non – taping in difference angler($p < .05$), so as 29 > 39 > 49 degree; & means significant difference of traditional –tape in difference angler($p < .05$), 29 > 39 degree、29 > 49 degree.

Summary

The finding indicated that kinesio –tape could enhance the sensitivity of motor perception to performance the small angle movement in knee, but the enhancement of variable error for the small angle movement caused by traditional –tape that affected the constrain of knee. Kinesio –tape had positive effect of knee in 39 degree that is a mechanical stationary state for the sensitivity of motor perception. The characteristics embody motor gross skill of distance kicking is simplex, both kinesio –tape with elastic and traditional –tape without elastic could increase the function of knee stability and knee extensor muscles for distance kicking($p < .05$).

References

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