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Effect of Different Kinesiology Tape Techniques on Ankle Balance Among Futsal Players

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I. INTRODUCTION

Futsal is a high-intensity indoor sport characterised by rapid acceleration, deceleration, and frequent changes of direction, placing substantial mechanical stress on the ankle joint [1]. Ankle injuries are among the most common injuries in futsal due to loss of balance, improper landing, and repetitive agility movements [2]. Impaired dynamic balance has been strongly associated with increased risk of ankle instability and recurrent sprains, making balance enhancement a key focus in sports performance and rehabilitation research [3].

Kinesiology taping is widely used in sports settings to improve proprioception, enhance neuromuscular control, and provide joint support without restricting range of motion [4]. Several taping techniques have been developed, including Kenzo Kase Technique (KKT), New Balance Taping (NBT), and placebo taping. KKT primarily follows muscle alignment to facilitate muscle function, whereas NBT emphasises joint stabilisation and proprioceptive stimulation. Placebo taping serves as a control condition without therapeutic intention [5].

Although previous studies have reported improvements in balance and functional performance following taping application [4][5][6], most research has focused on injured soccer players rather than actively participating futsal athletes. Limited evidence exists on the comparative effectiveness of different taping techniques among Malaysian futsal players. Therefore, this study aimed to investigate the immediate effects of KKT, NBT, and placebo taping on dynamic balance performance using the Modified Star Excursion Balance Test (mSEBT).

II. METHODS

This study employed a randomised crossover within-subject experimental design to investigate the immediate effects of three kinesiology taping techniques: Kenzo Kase Technique (KKT), New Balance Taping (NBT), and placebo taping. Each participant completed all three taping conditions in randomised order, separated by a minimum 48-hour washout period to minimise carry-over effects. This

design allowed participants to serve as their own control, thereby reducing inter-individual variability.

A total of 24 male recreational futsal players aged 18-35 years, each with a history of at least one ankle injury within the past 12 months, were recruited using purposive sampling. Sample size was determined using G*Power 3.1.9.7 based on repeated-measures ANOVA (effect size = 0.5, alpha = 0.05, power = 0.80). Participant eligibility was confirmed using the Physical Activity Readiness Questionnaire (PAR-Q) and the Cumberland Ankle Instability Tool (CAIT).

Dynamic balance performance was assessed using the Modified Star Excursion Balance Test (mSEBT), a reliable and validated tool for evaluating dynamic postural control [7]. Participants performed three recorded trials in the anterior, posteromedial, and posterolateral directions. Reach distances were averaged and normalised to leg length. Data were analysed using repeated-measures ANOVA. When significant main effects were identified, Bonferroni-adjusted post hoc comparisons were conducted. Statistical significance was set at $p < .05$.

III. RESULTS AND DISCUSSION

Repeated-measures ANOVA revealed a significant main effect of taping condition on dynamic balance performance across all three reach directions of the Modified Star Excursion Balance Test (mSEBT). Significant differences were observed in the anterior direction, $F(2, 46) = 24.50$, $p < .001$; posteromedial direction, $F(2, 46) = 17.70$, $p < .001$; and posterolateral direction, $F(2, 46) = 11.80$, $p < .001$.

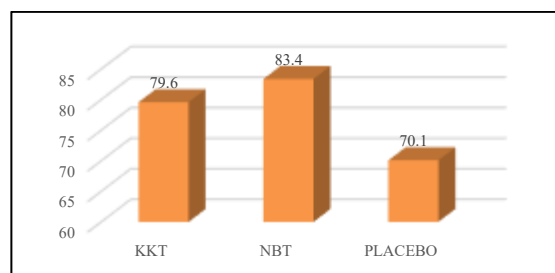


Fig. 1 Mean reach distances in the anterior direction

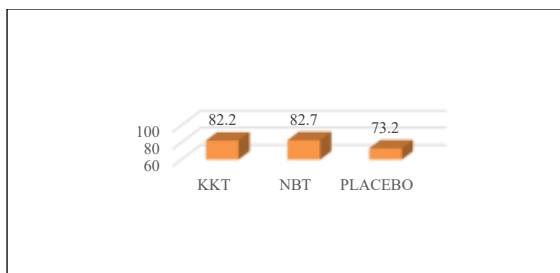


Fig. 2 Mean reach distances in the posteromedial direction

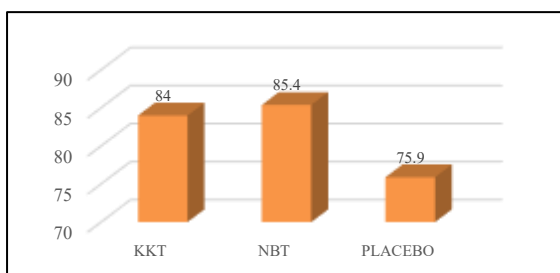


Fig. 3 Mean reach distances in the posterolateral direction

IV. CONCLUSIONS

This study demonstrated that kinesiology taping significantly improved dynamic ankle balance performance among futsal players. Both Kenzo Kase Technique (KKT) and New Balance Taping (NBT) produced significantly greater mSEBT reach distances than placebo taping ($p < .01$). Although NBT showed slightly higher mean values across all three directions, no statistically significant difference was observed between KKT and NBT. Therefore, both therapeutic taping techniques were equally effective in enhancing short-term dynamic balance performance. These findings suggest that kinesiology taping may serve as a practical short-term intervention to enhance ankle stability in futsal players, particularly those with a history of ankle injury. Coaches, sports scientists, and physiotherapists may consider incorporating therapeutic taping techniques as part of injury prevention or pre-competition preparation strategies.

However, this study was limited to a small sample of male recreational futsal players and examined only the immediate effects of taping. Future research

should investigate long-term applications, include diverse athlete populations, and incorporate biomechanical and neuromuscular measurements to better understand the mechanisms underlying taping effectiveness.

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