

## Effects of Modified Low-Dye Taping on First Ray Mobility Test and Sprint Time

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**Abstract :** A pronated foot is frequently associated with a hypermobile first ray, then developing further severe foot problems. Low-Dye taping with athletic tape has been widely used to restrict excessive first ray motion and re-build height of the medial longitudinal arch in general population with pronated foot. It is not the case, however, for sprinters since they feel too much restriction of foot motions. Currently, the kinesio tape, more elastic than the athletic tape, has been widely used to re-adjust joint positions. It was interesting whether modified low-Dye taping using kinesio tape was beneficial for altering first ray mobility and still giving enough arch support. The purpose of this study was to investigate the effect of modified low-Dye taping on first ray mobility test and 60-m sprint time for sprinters with pronated foot. The significance of this study provides new insight into a treatment alternative of modified low-Dye taping for sprinter with pronated foot. Ten young male sprinters, aged  $20.8 \pm 1.6$  years, with pronated foot were recruited for this study. The pronated foot was defined as the foot that the navicular drop test was greater than 1.0 cm. Three optic shutters were placed at the start, 30-m, and 60-m sites to record sprint time. All participants were asked to complete 3 trials of the 60-m dash with both taping and non-taping conditions in a random order. The low-Dye taping was applied using the method postulated by Ralph Dye in 1939 except the kinesio tape was used instead. All outcome variables were recorded for taping and non-taping conditions. Paired t-tests were used to analyze all outcome variables between 2 conditions. Although there were no statistically significant differences in dorsal and plantar mobility between taping and non-taping conditions, a statistical significance was found in a total range of motion (dorsiflexion plus plantarflexion angle) of the first ray when a modified low-Dye taping was applied ( $p < 0.05$ ). Time to complete 60-m sprint was significantly increased with low-Dye taping ( $p < 0.05$ ) while no significance was found for time to 30-m. It indicated that modified low-Dye taping changed maximum sprint speed of 60-m dash. Conclusively, modified low-Dye taping was capable of increasing first ray mobility and further altered maximum sprint speed.

**Keywords :** first ray mobility, kinesio taping, pronated foot, sprint time

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