ABSTRACT

Background: Kinesiology tape has been advocated as a means of improving muscle flexibility, a potential modifiable risk factor for injury, over time. The epidemiology and etiology of hamstring injuries in sport have been well documented.

Purpose: To compare the temporal pattern of efficacy of kinesiology tape and traditional stretching techniques on hamstring extensibility over a five day period.

Study Design: Controlled laboratory study.

Methods: Thirty recreationally active male participants (Mean ± SD: age 20.0 ± 1.55 years; height 179.3 ± 4.94 cm; mass 76.9 ± 7.57 kg) completed an active knee extension assessment (of the dominant leg) as a measure of hamstring extensibility. Three experimental interventions were applied in randomized order: Kinesiology tape (KT), static stretch (SS), proprioceptive neuromuscular facilitation (PNF). Measures were taken at baseline, +1min, +30mins, +3days and +5days days after each intervention. The temporal pattern of change in active knee extension was modelled as a range of regression polynomials for each intervention, quantified as the regression coefficient.

Results: Hamstring ROM with KT application at +3days was significantly greater than baseline (129.18 ± 15.46%, p = 0.01), SS (106.99 ± 9.84%, p = 0.03) and PNF (107.42 ± 136.13%, p = 0.03) interventions. The temporal pattern of changes in ROM for SS and PNF were best modelled by a negative linear function, although the strength of the correlation was weak in each case. In contrast, the KT data was optimised using a quadratic polynomial function ($r^2 = 0.60$), which yielded an optimum time of 2.76 days, eliciting a predicted ROM of 129.6% relative to baseline.

Conclusion: Each intervention displayed a unique temporal pattern of changes in active knee extension. SS was best suited to immediate improvements, and PNF to +30 minutes in hamstring extensibility, whereas kinesiology tape offered advantages over a longer duration, peaking at 2.76 days. These findings have implications for the choice of intervention, timing and duration to assist clinicians in both a sporting and clinical context.

Level of evidence: 2c

Keywords: Flexibility, hamstring, kinesiology tape, stretching