

## TEMPORAL PATTERN OF KINESIOLOGY TAPE EFFICACY ON HAMSTRING EXTENSIBILITY

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## 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  $\pm$  SD: age 20.0  $\pm$  1.55 years; height 179.3  $\pm$  4.94 cm; mass 76.9  $\pm$  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  $\pm$  15.46%,  $p = 0.01$ ), SS (106.99  $\pm$  9.84%,  $p = 0.03$ ) and PNF (107.42  $\pm$  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

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