

Kinesio[®] tape Application Does Not Improve Shoulder Proprioception or Strength in Healthy, Physically Active Participants

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Context: Kinesio[®] tape (KT) is used clinically to treat a wide range of conditions, from musculoskeletal injuries to myofascial restrictions, with reported effects of pain reduction, inhibition or facilitation of motor activity, enhancement of proprioceptive feedback, and promotion of postural alignment and joint stability. Despite the growing use of KT, there is little evidence-based research to support or refute these claims.

Objective: To determine the effect of KT on shoulder proprioception and strength in healthy individuals and to determine if the effects are time-dependent. **Design:** Quasi-experimental repeated measures study. **Setting:** Research laboratory. **Participants:** Data were collected on 10 healthy, physically active participants (age=25.78±3.78 years, height=1.69±0.09 m, mass=67.18±14.25 kg). All subjects were free of current medical or musculoskeletal shoulder pathology and had no previous history of major shoulder pathology. **Interventions:** Shoulder proprioception was assessed using an isokinetic dynamometer operating in the passive mode (0.25°/s) for threshold to detect passive motion and direction (TTDPMD) into shoulder internal/external rotation (IR/ER, 3 repetitions each). Isokinetic shoulder IR/ER strength was assessed using an isokinetic dynamometer (60°/s, 5 repetitions each). All tests were performed on the dominant side (arm with which would use to maximally throw a ball). Participants were tested at four time points: immediately before KT application (T1), immediately post-application (T2), 24-48hrs post-application (T3) (KT removed after this test session), and 24-48hrs post-removal (T4). KT was applied by a Certified Kinesio[®] tape Practitioner. Variables were analyzed using Friedman's analysis of variance. Statistical significance was set at $p < 0.05$ *a priori*. **Main Outcome Measures:** For TTDPMD, mean absolute error in degrees was calculated for shoulder IR/ER. Peak torque was averaged normalized to body weight (%BW) for shoulder IR/ER. **Results:** There were no significant differences in TTDPMD into IR (T1=3.92°±4.89°, T2=4.36°±6.02°, T3=3.03°±2.16°, T4=3.30°±5.00°, $p=0.198$) or ER (T1=3.67°±5.12°, T2=3.87°±4.32°, T3=2.66°±3.43°, T4=2.98°±3.33°, $p=0.494$) or for shoulder IR (T1=34.0±15.4%, T2=32.0±12.7%, T3=34.3±16.5%, T4=34.5±14.3%, $p=0.218$) or ER strength (T1=29.0±8.5%, T2=28.9±9.9%, T3=29.0±10.6%, T4=29.4±10.6%, $p=0.476$) across all time points.

Conclusions: The application of KT to the shoulder in healthy, physically active individuals does not appear to aid or impair shoulder proprioceptive ability or strength. Future research should explore if similar results can be replicated in subjects with shoulder pathology as well as in other joints and conditions in order to support the clinical use of KT.

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