A Comparison of Kinesiology and Athletic Taping on Lower Extremity Kinematics

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Background

- Lateral ankle sprains are the most common sports-related ankle injury.\(^1\)
- Closed basket-weave with white athletic tape (WAT) is a standard of care for treatment and prevention.\(^2\)
  - WAT restricts mobility in all planes, which can lead to altered knee kinematics.\(^3\)
- Kinesiology tape (KT) has emerged as a leading modality for treatment of musculoskeletal injuries.
  - Minimal research investigating KT used as a restrictive form of taping.
- Development of an alternative taping technique could lead to improved management and prevention of ankle injuries.

Objective

- To determine the effects of an innovative KT technique for prophylactic ankle support in individuals with CAI without negatively affecting lower extremity kinematics.

Methods

- Setting: University motion analysis lab
- Participants: Forty subjects age 18-30 with chronic ankle instability
- Intervention: A 3-dimensional analysis will be performed during walking and running on treadmill, followed by a drop landing. Subjects receive one of the taping conditions (WAT or KT) before performing all activities again.
- Main Outcome Measures: Ankle, knee and hip kinematics in all planes are measured and compared between conditions.

Discussion

- Limiting excessive inversion ROM without altering frontal plane knee kinematics may decrease risk of a knee injury.\(^4\)
- One study found that CAI subjects had 6-7 degrees greater inversion from 100ms pre to 200ms post heel strike compared to healthy counterparts.
- Another study showed that CAI subjects demonstrated impaired kinesthesia and active joint replication compared to healthy controls.
- Significant prevalence, cost, and extended time lost due to lateral ankle sprains demonstrates the need for a more effective treatment.
- Increased KVA is a compensation of limited ankle ROM and may lead to knee injury.\(^5\)
- Athletes may benefit from a prophylactic ankle support that is less restricting, more comfortable, and has the potential to minimize risk of injury.
- We hypothesis that the use of kinesiology tape will provide frontal plane stability of the ankle without negatively effecting lower extremity biomechanics. Subjects have reported comfort using the KT versus the WAT.

References