

RETENTION OF MOVEMENT TECHNIQUE: IMPLICATIONS FOR PRIMARY PREVENTION OF ACL INJURIES

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ABSTRACT

Background: Retention of movement technique is crucial in anterior cruciate ligament (ACL) injury prevention programs. It is unknown if specific instructions or video instructions result in changes in kinematic and kinetic measures during a relatively short training session, and in a retention test one week later.

Hypothesis/Purpose: The purpose was to determine the effects of verbal external focus (EF), verbal internal focus (IF) and video instructions (VI) on landing technique (i.e. kinematics and kinetics) during training and retention.

Study Design: Randomized Controlled Trial.

Methods: This study compared verbal EF, verbal IF, VI and CTRL group. Forty healthy athletes were assigned to the IF (n = 10), EF (n = 10), VI (n = 10) or CTRL group (n = 10). A jump-landing task was performed as a baseline, followed by two training blocks (TR1 and TR2) and a post test. Group specific instructions were offered in TR1 and TR2. In addition, subjects in the IF, EF and VI groups were free to ask for feedback after every jump in TR1 and TR2. One week later, a retention test was conducted without specific instructions or feedback. Kinematics and kinetics were captured using an 8-camera motion analysis system.

Results: Males and females in the EF and VI instruction group showed beneficial results during and after the training session, in terms of improved landing technique. Retention was achieved after only a short training session.

Conclusion: ACL injury prevention programs should include EF and/or VI instructions to improve kinematics and kinetics and achieve retention.

Level of Evidence: 3b

Key words: Injury prevention, motor learning, movement technique, retention

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