

## **2019 Research Week Abstract Instructions and Template**

### **Posters and Presentations**

**Title** - Correlation of 2-Dimensional analysis of the Modified Landing Error Scoring System (LESS) and a deceleration task.

**Program of Study** – Exercise Science

**Presentation Type** – Choose one of the following: 3-Minute Thesis

**Subtype** – Choose one of the following for poster or oral presentation types: N/A

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**Abstract:** Anterior cruciate ligament (ACL) injuries are traumatic knee injuries that can occur with or without contact to the knee. Prior research has stated that there are over 200,000 ACL injuries in the United States each year. Of those, the primary cause of the majority of ACL injuries are non-contact. Non-contact ACL injuries are more likely to occur in sports that require excessive landing and cutting. These movements expose the knee to increased loads and strain. The body produces forces that are loaded at the knee to produce sport-related movements, such as landing, deceleration, and cutting. Often, these movements are performed with improper positioning of the knee increasing the risk of an ACL injury. Because these injuries can range from short term to long term, it is important to consider effective screening methods to prevent these traumatic injuries. To the best of the researchers' knowledge, a comparison of a clinical assessment test of jump-landing and a laboratory deceleration test has not been studied. Hence, the purpose of this study was to compare the Landing Error Scoring System (LESS) to a deceleration task. Descriptive data was measured on averagely fit college-aged males. In a counterbalanced order, each subject completed 3 successful trials of a depth-jump landing on a force plate and a run to deceleration task on the force plate. Knee angles were measured in the frontal and sagittal plane utilizing Dartfish software. Jump-landing and deceleration forces were measured with the AMTI force plates. Values were compared with a Paired Samples t-Test with an alpha level at  $p \leq 0.05$ . The results from this study can provide sufficient information about

an individual that may be at risk for an ACL injury.