

# The Use of the Landing Error Score System and Star Excursion Balance Tests as an Anterior Cruciate Ligament Injury Prevention Program: A Retrospective Case Report on Two Collegiate Women's Basketball Athletes



Jeremy D. Howard, ATS, CES, PES\*; Shawn D. Felton, EdD, ATC, LAT\*

\*Florida Gulf Coast University, College of Health Professions and Social Work, Fort Myers, FL 33965, sfelton@fgcu.edu, (239)590-7529

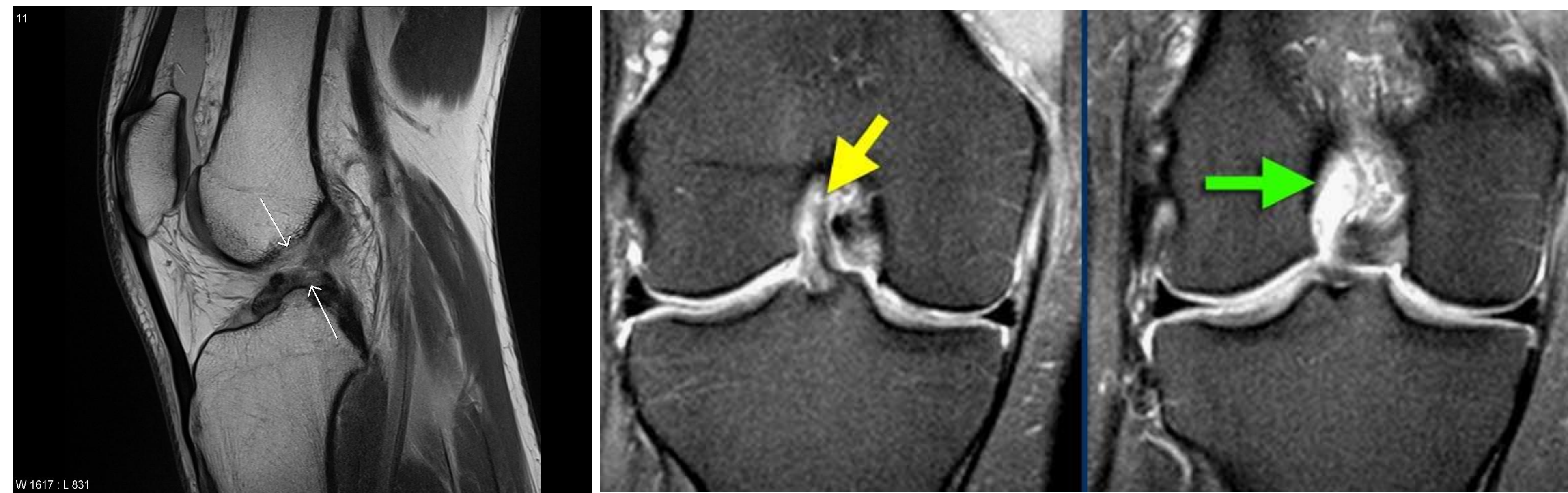


## Abstract

This case report focused on the incorporation of the Landing Error Score System (LESS) Test and the Star Excursion Balance Test (SEBT) as an anterior cruciate ligament (ACL) injury prevention program. The LESS and SEBT were incorporated into the WBB pre-season training as an evaluation of potential injury predictors. The two athletes were pre/post tested to see if their respective score decreased, the post-testing showed notable marked improvements across all domains. The next step would be to conduct long term research on the use of both test in order to potentially develop more effective gold-standards, best practices, and evidence-based injury prevention program and RTP for ACL deficient athletes.

## Introduction

In this report the athletes reported anterior knee pain and an inability to complete both the LESS and SEBT due to pain during preseason functional evaluation. Both athletes had a history of ACL pathology and repair during their high school sport careers. This suggested both athletes were improperly rehabilitated post-surgery and were returned to play too soon. The team physician diagnosed both athletes with re-aggravation of their previous ACL pathologies.



## Athletes of the Report

### Athlete 1

- Women's Basketball Forward
- 5'10" 165lbs
- African American
- 4 years post surgical intervention for ACL repair

### Athlete 2

- Women's Basketball Forward
- 5'8" 140lbs
- Asian American
- 2 years post surgical intervention for ACL repair

## Differential Diagnosis

- ACL Pathology Re-aggravation
- Patellofemoral Pain Syndrome
- Chondromalacia

## Injury Prevention Program

The athletes were enrolled in a three pronged injury prevention program due to their predisposition to ACL pathology. The injury prevention program encompassed a pre-practice warmup routine focused on enhancing proprioception through balance, gluteus medius strengthening, and DROM stretching for the hamstrings; a Strength and Conditioning program super-setting prime mover exercises with body weight movements in proprioceptively enhanced environments, and core work; and rehabilitation programs for injured and recovering athletes that targeted proprioception through multi-planner balance, gluteus medius strengthening through Theraband and body weight work, and core strengthening through isometric core exercises

## Purpose

These cases highlight the necessity to focus on following gold standards, best practices, evidence-based practices, and position statements in rehabilitation programs.

## Implications

Sprains of the ACL make up 3-5 percent of reported pathomechanical injuries in sport's participation, and 4.9 percent are specific to WBB. Properly rehabilitated WBB Athletes with ACL injuries, post-reconstruction, had a longer career-lifespan at 6.11 season plus or minus 3.20 when compared to the 5.70 season plus or minus 4.17 of the uninjured cohort of players. Unfortunately, the rate of a secondary ACL injury, contralateral or ipsilateral, is 12-26 percent higher than the general population and 15 times higher in this afore mentioned athletic population within the first year of returning to sport, but only six times greater in the second year of returning to sport. These injuries are not only disabling but, ACL injuries have been linked to early onset osteoarthritis. These staggering incidence rates and re-injury rates suggest that the knee should be a primary focus for prevention rather than reaction and rehabilitation.

## Conclusion

This case report presents the necessity of proper rehabilitation of injuries, by demonstrating the lingering issues associated to improper rehabilitation.