



# Prevention of Hamstring Injuries through Flexibility and Isokinetic Strength Assessment of the Lower Extremity of an NCAA Division III Men's Soccer Team

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## Introduction and Purpose

Hamstring strains are common in soccer, accounting for 5-15% of injuries with a recurrence rate of 4-68%.<sup>3</sup> Strength imbalances and tightness of the lower extremity muscles have been identified as risk factors for these injuries. Using isokinetic testing and flexibility assessments, this study aimed to identify individuals on the men's soccer team who may be at an increased risk of sustaining a hamstring injury and implement an intervention to correct any deficits.

## Methods

20 ECSU men's soccer players participated in this study. An isokinetic dynamometer was used to measure peak torque during flexion and extension at speeds of 60°/second (5 repetitions) and 180°/second (15 repetitions). Flexibility tests included the Active Knee Extension test and the Thomas test with 3 trials for both legs. Each participant was given a portion of the FIFA 11+ injury prevention program, which has been found to decrease the occurrence of hamstring injuries.<sup>1</sup>

Descriptive Statistics	Mean	Std. Dev.	Min.	Max.
Age (yrs)	20	0.89	19	22
Height (m)	1.80	0.05	1.70	1.88
Weight (kg)	73.9	4.96	63.5	83.9

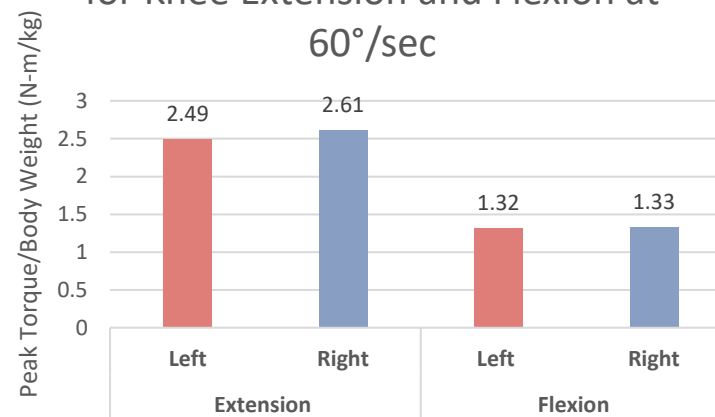
## Results

Statistical analysis is ongoing, but previous studies have investigated the how isokinetic strength and flexibility may be associated with hamstring injury, finding that players were 4-5 times more likely to suffer from a hamstring strain if they had a strength imbalance.<sup>2</sup> Male athletes have also been found to be tighter in the hamstrings and iliopsoas than female athletes, which was associated with injury.<sup>4</sup>

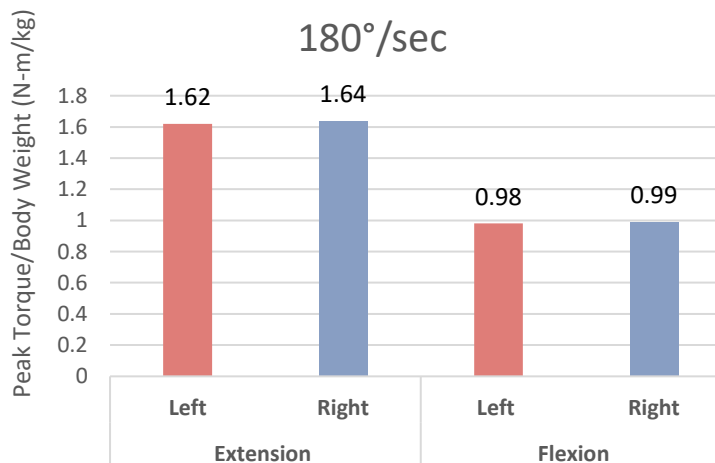
## Conclusion & Significance

Preliminary results show that there are players on the team who would benefit from the specific interventions to address showed their strength and/or flexibility deficits. This study helps identify those at risk for injury and allows for the intervention to be implemented. Follow-up testing will verify if the program has corrected deficits seen during screening. The benefits of this research are direct, as preventing injury prioritizes the well-being of our athletes, the performance of the team, and the stature of the university.

Average Peak Torque/Body Weight for Knee Extension and Flexion at 60°/sec



Average Peak Torque/Body Weight for Knee Extension and Flexion at 180°/sec



## References

1. (Attar & Alshehri, 2019)
2. (Croisier et al., 2008)
3. (Diemer et al., 2021)
4. (Krivickas & Feinberg, 1996)

