Single-Leg Step-Down Test Performance and Injury Risk in Athletes

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Background

- Core stability and hip muscle weakness have been linked to lower extremity injury
- LE injury rates in young athletes are increasing, and there is a need for easily deployable and reliable screening tests to identify at risk athletes
- Research have demonstrated that performance to the timed SLSD test correlates with hip strength and trunk endurance

Purpose/Hypothesis

- **Purpose:** To determine whether performance on the Single Leg Step Down (SLSD) test is associated with lower extremity (LE) injury risk in high school athletes.

- **Hypothesis:** Poorer SLSD performance would correlate with higher LE injury rates.

Materials & Methods

- Baseline data was collected prior to the beginning of the sports season

Inclusion Criteria

- Male and Female high school athletes
- Ages 14-19
- Involved in school sponsored sports

Exclusion Criteria

- LE injury within 6 months
- LE surgery within 1 year

Follow-up

- 1 Year
- School injury reports and retrospective review using our extensive multi-state electronic medical record system

60-Second Timed SLSD Test

Results

Patient Demographics

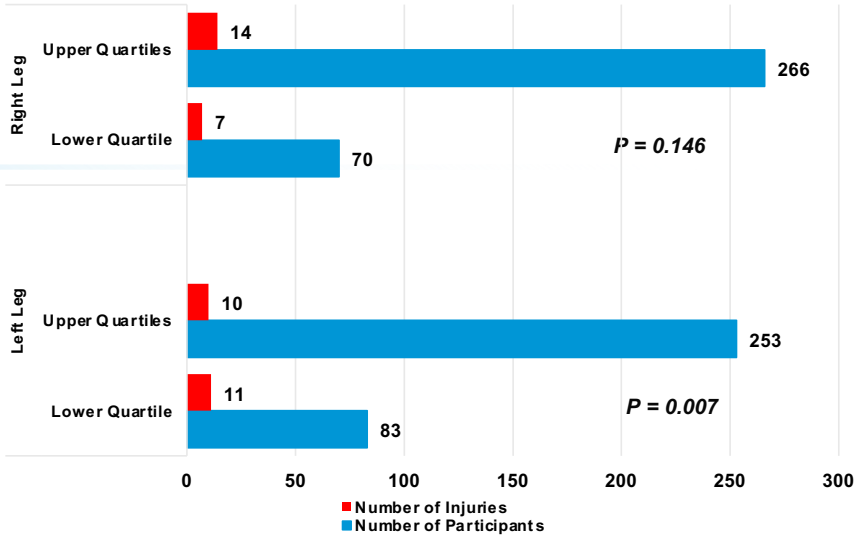
- 336 participants
  - 185 Males
  - 150 Females
- Age range: 14-19
- 21 LE injuries occurred (6.25%)

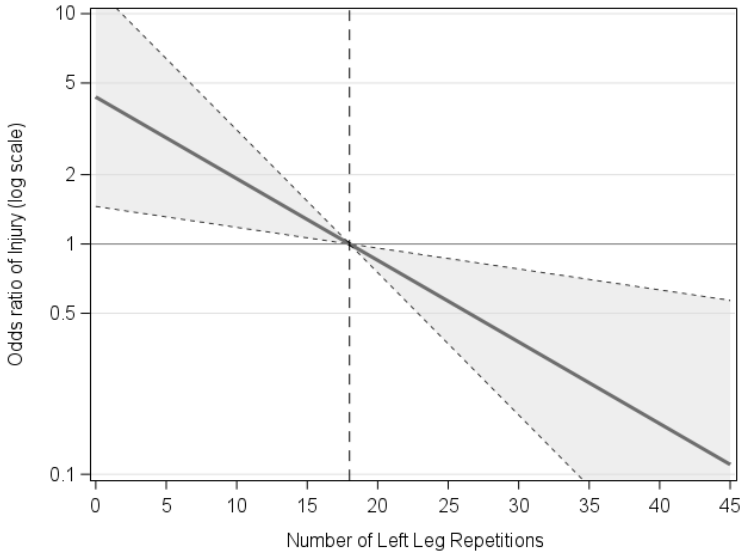
Characteristic	N	%	Mean	Std Dev	Min	Max
Age			15.4	1.17	14	19
Sex						
Female	150	44.64				
Male	185	55.05				
Height (inch)			67.3	3.92	57	78
Weight (lbs.)			154.5	36.04	90	321
Dominant leg						
Left	27	8.03				
Right	308	91.66				
Injuries	21	6.25				

Results

- Athletes in the top three quartiles for left leg SLSD repetitions had significantly lower injury rates compared to those in the bottom quartile (3.95% vs. 13.25%, p=0.007)

- Even though the difference on the right leg was not statistically significant, we still recorded a higher percentage of injuries in the lower quartile (5.26% vs. 10%, p=0.146)

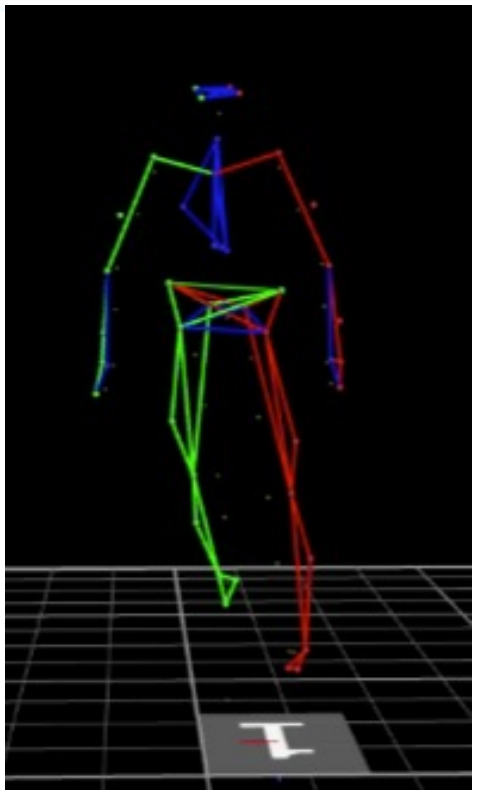




Conclusion

- SLSD test performance identifies high school athletes at risk for lower extremity injuries

- Further research needed to explore influence of:
  - Sex
  - Sport
  - Relevance of SLSD performance on injury prevention strategies
  - Side to side differences



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