

Relationship of Life Events to Injury Risk in Division I-FCS College Football Players

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BACKGROUND AND PURPOSE

- High levels of life stress, both positive and negative, are associated with injury risk^{1,2}
- The stress-injury response includes: the stressor, the stress response, and the injury²
- Coping mechanisms affect the impact of stress on athletic performance and risk of injury¹
- Coping resources moderate the influence of life stress on injury vulnerability and outcome³
- Athletes are 2-5 times more likely to become injured with high life-stress versus low life-stress³
- Life Events Survey for Collegiate Athletes (LESCA) has been used to quantify life stress⁴
- LESCA negative score associated with injury to Division I-A college football starting players⁵
- The purpose of this study was to assess the predictive value of LESCA score for identification of Division I-FCS football players with elevated risk for low back or lower extremity (LE) injury

COHORT CHARACTERISTICS AND METHODS

- NCAA Division I-FCS college football players (n = 39)
 - Age: 19.9 ± 1.3 years
 - Mass: 102.0 ± 18.0 kg
 - Height: 183.9 ± 8.8 cm
 - BMI: 30.2 ± 4.8
- Operational definition of an injury:
 - Any musculoskeletal injury affecting the low back or LE that required evaluation by an athletic trainer and that resulted in any degree of limitation in sport-related activities
- A consent form was signed by each athlete prior to administration of the LESCA survey
- LESCA survey responses were recorded in an electronic spreadsheet
- All injuries were documented by NExTT Solutions electronic injury tracking system
- ROC curve analysis used to determine optimal cut-points for dichotomization of variables
- Univariate analysis used to determine the following: Pearson chi-square, p value, sensitivity, specificity, likelihood ratios (+LR, -LR), odds ratio (OR), and relative risk (RR)

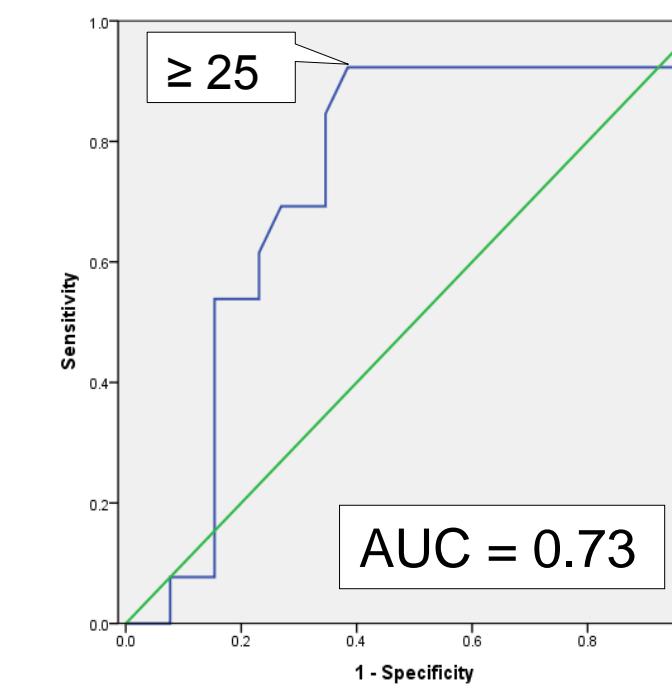
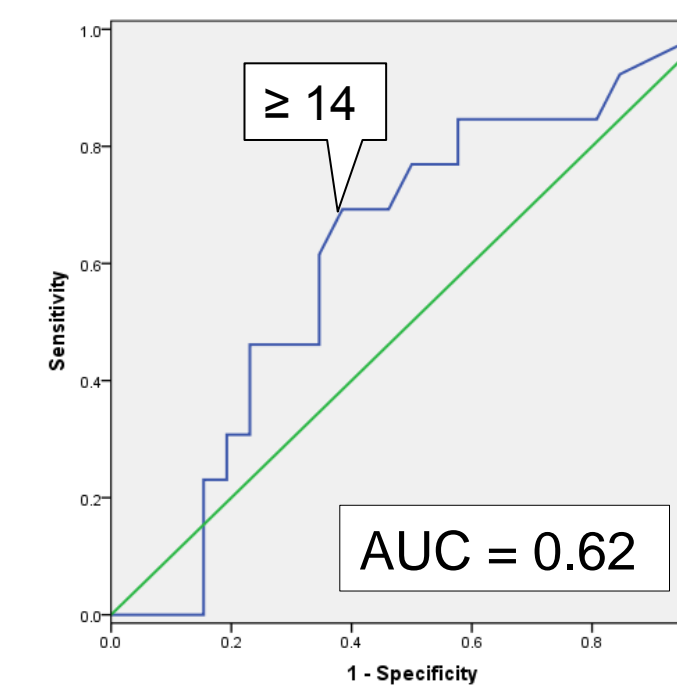
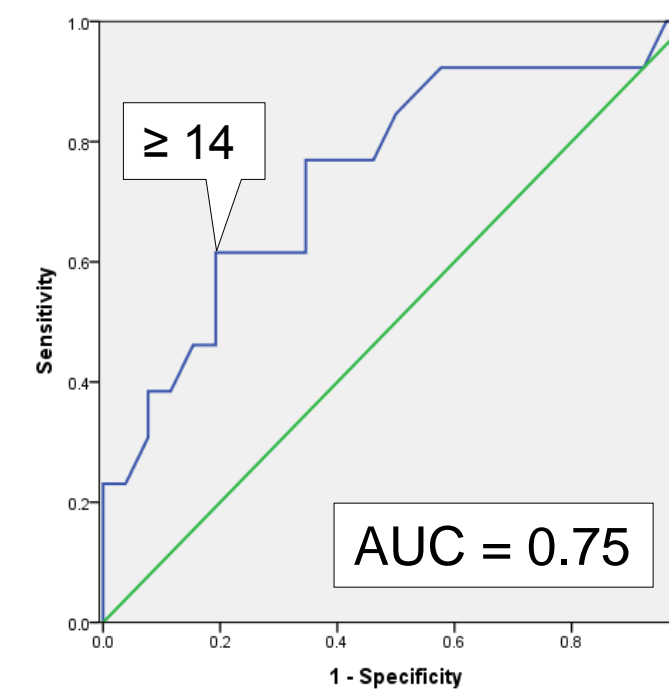
RESULTS

- Total LESCA score provided greater predictive value for occurrence of a low back or LE injury than either Negative LESCA score or Positive LESCA score
 - Players with a Total LESCA score ≥ 25 were 9 X more likely to be injured
- If any one of the three LESCA scores exceeded the ROC cut-point (Total ≥ 25, Negative ≥ 14, or Positive ≥ 14) the player had elevated risk for low back or LE injury
 - A Negative LESCA score < 14 and a Positive LESCA score < 14 can exceed 25 total points
 - Players with any LESCA score above specified cut-point were 5 X more likely to be injured

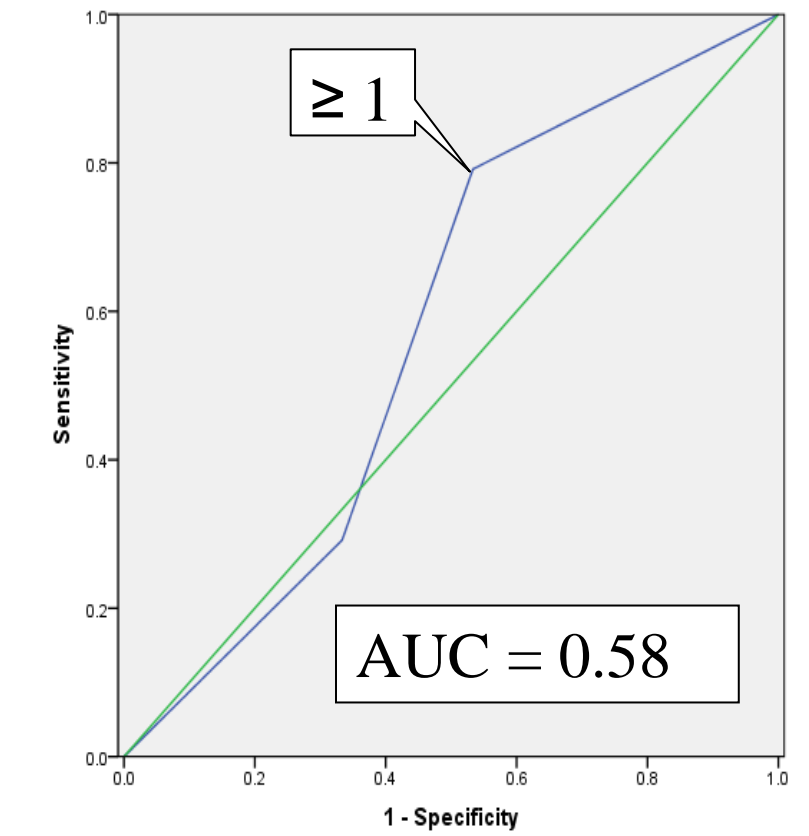
LESCA Positive Life Events Score		
	Injury	No Injury
≥ 14	10	10
< 14	3	16
Total	13	26
Fisher's exact p = 0.026		
Sensitivity: 0.77 (95% CI: 0.50 – 0.92)	Specificity: 0.62 (95% CI: 0.43 – 0.78)	
+LR: 2.00 (95% CI: 1.30 – 1.54)	-LR: 0.38 (95% CI: 0.13 – 1.06)	
OR: 5.33 (95% CI: 1.18 – 24.21)	RR: 3.16 (95% CI: 1.03 – 9.80)	

LESCA Negative Life Events Score		
	Injury	No Injury
≥ 14	9	10
< 14	4	16
Total	13	26
Fisher's exact p = 0.073		
Sensitivity: 0.69 (95% CI: 0.42 – .87)	Specificity: 0.62 (95% CI: 0.43 – .78)	
+LR: 1.80 (95% CI: 0.98 – 3.30)	-LR: 0.50 (95% CI: 0.209 – 1.19)	
OR: 3.60 (95% CI: 0.87 – 14.87)	RR: 2.37 (95% CI: 0.87 – 6.41)	

LESCA Total Life Events Score		
	Injury	No Injury
≥ 25	12	10
< 25	1	16
Total	13	26
Fisher's exact p = 0.001		
Sensitivity: 0.92 (95% CI: 0.67 – 0.99)	Specificity: 0.62 (95% CI: .043 – 0.78)	
+LR: 2.40 (95% CI: 1.44 – 4.0)	-LR: 0.13 (95% CI: 0.02 – 0.84)	
OR: 19.20 (95% CI: 2.15 – 171.2)	RR: 9.26 (95% CI: 1.33 – 62.50)	



LESCA One Factor Model		
	Injury	No Injury
≥ 1	12	15
< 0	1	11
Total	13	26
Fisher's exact p = 0.028		
Sensitivity: 0.92 (95% CI: 0.67 – 0.99)	-LR: 0.18 (95% CI: 0.03 – 1.26)	
Specificity: 0.42 (95% CI: .026 – 0.61)	OR: 8.80 (95% CI: 0.99 – 78.11)	
+LR: 1.60 (95% CI: 1.11 – 2.30)	RR: 5.32 (95% CI: 0.78 – 37.04)	



CLINICAL RELEVANCE

- Pre-season assessment using the LESCA survey can identify college football players with a high level of either positive or negative stress
- The results of this study clearly indicate that LESCA scores can identify football players who possess elevated risk for low back or LE injury
- Because social support may have a moderating effect on stress and injury risk,⁵ identification of high-risk players may facilitate reduction of injury risk

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