Shoulder injury may adversely affect performance in up to 50% of elite college football players. Fisher's exact test, odds ratio (OR), and relative risk (RR) were used to assess associations with injury occurrence. ROC analysis demonstrated ≥2 positive factors as the best model for discrimination (Table 3, Figure 4). The combination of KJOC with core muscle endurance tests substantially increases the discriminatory power of a test compared to all uninjured players.

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Logistic regression analysis used to identify the smallest set of strongest predictors.

SUBJECT CHARACTERISTICS

• 85 NCAA Division I-Football players: Age: 19.7 ± 1.5 years; Height: 1.85 ± 0.08 m; Weight: 102.06 ± 19.90 kg
• Cases: 15 players who sustained a shoulder injury during pre-season practices or 11-game season
  • 19.1 ± 1.4 years; 1.83 ± 0.11 m; 97.67 ± 19.35 kg
• Controls: 15 players matched on the basis of position, height, and weight
  • 19.7 ± 1.5 years; 1.84 ± 0.07 m; 96.83 ± 18.36 kg

RESULTS

• Results of univariable analyses for matched case-control group comparisons presented in Table 1
  • Logistic regression analysis yielded a 3-factor prediction model (Table 2)
    • KJOC ≤ 94, HTH ≤ 39 sec, and WSH Average of dominant and non-dominant extremities ≤ 25 sec
    • Univariable ROC curves presented in Figures 1-3
  • ROC analysis demonstrated ≥ 2 positive factors as the best model for discrimination (Table 3, Figure 4)
• Results of univariable analyses for entire cohort (injury vs. no injury) presented in Table 4
  • Logistic regression analysis yielded a 3-factor prediction model (Table 5)
    • HTH ≤ 48 sec, KJOC ≤ 54, and TFH ≤ 38 sec
    • Univariable ROC curves presented in Figures 5-7
  • ROC analysis demonstrated ≥ 2 positive factors as the best model for discrimination (Table 6, Figure 8)

CLINICAL RELEVANCE

• Although the KJOC survey was developed for the purpose of quantifying shoulder and elbow function in injured athletes, the results of this study suggest that it is also an exceptionally good predictor of shoulder injury
  • The KJOC cut-point of ≤ 94 identified by matched case-control comparison (15 pairs) was identical to the one that resulted from comparison of injured to all non-injured players in the cohort (85 players)
  • The combination of KJOC with core muscle endurance tests substantially increases the discriminatory power of a prediction model for quantification of shoulder injury risk in college football players
  • Pre-participation assessment of shoulder injury risk can facilitate concentration of time and resources on a subset of high-risk players who would derive greatest benefit from preventive interventions