ABSTRACT

Background: Women's soccer has among the highest injury rates in collegiate sports, and lateral ankle sprains (LAS) are among the most commonly occurring injuries in that athletic population. However, no established LAS prediction model exists for collegiate women's soccer players.

The purpose of this study was to develop a prediction model for acute LAS injuries in collegiate women's soccer players utilizing previous ankle sprain history, height, mass, and BMI as potential predictors.

The authors hypothesized that collegiate women's soccer players with greater height, mass, and body mass index (BMI), as well as a previous history of ankle sprain would have greater odds of sustaining a LAS.

Study Design: Prospective cohort study.

Methods: Forty-three NCAA Division I women's soccer players' (19.7±1.1yrs, 166.8±3.7cm, 60.8±4.4kg) height, mass, and BMI were measured one week before beginning preseason practices. Additionally, participants reported whether or not they had sustained a previous ankle sprain. The team athletic trainer tracked LASs over the competitive season. Independent t-tests, binary logistic regression analyses, receiver operating characteristic (ROC) curves, and diagnostic statistics assessed the ability of the variables to differentiate between those that did and did not sustain a LAS.

Results: Participants that sustained a LAS (n=8) were significantly taller than those that did not sustain a LAS (n=35) (t_{41} = -2.87, p = 0.01, d = 0.83[0.03,1.60]). A logistic regression analysis (odds ratio = 1.30[1.00,1.70]) and area under the ROC curve analysis (AUCROC = 0.73[0.58,0.89], p = 0.04) further exhibited predictive value of height. A height cutoff score of 167.6cm demonstrated excellent sensitivity (0.88), moderate specificity (0.51), and a favorable diagnostic odds ratio (7.5). A logistic regression analysis (odds ratio = 1.87[1.22,1.98]) exhibited predictive value of previous ankle sprain history. That variable was also associated with good sensitivity (0.75) and specificity (0.71) within the model, as well as a favorable DOR (7.37). Mass and BMI demonstrated no predictive value for LAS.

Conclusion: Taller collegiate women's soccer players and those with previous ankle sprain history may have a greater predisposition to LAS.

Level of evidence: 1b

Key words: Ankle sprain, injury prediction, women's soccer

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