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Original Research

Identification of Cardiometabolic Risk Among Collegiate Football Players

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Abstract

Context: Excessive fat mass clearly has adverse effects on metabolic processes that can ultimately lead to the development of chronic disease. Early identification of high-risk status may facilitate referral for definitive diagnostic tests and implementation of interventions to reduce cardiometabolic risk.

Objective: To document the prevalence of metabolic syndrome among collegiate football players and to develop a clinical prediction rule that does not require blood analysis to identify players who may possess a high level of cardiometabolic risk.

Design: Cross-sectional cohort study.

Setting: University athletic training research laboratory.

Patients or Other Participants: Sixty-two National Collegiate Athletic Association Division I Football Championship Subdivision football players (age = 19.9 ± 1.2 years, height = 182.6 ± 6.1 cm, mass = 97.4 ± 18.3 kg).

Main Outcome Measure(s): Anthropometric characteristics associated with body fat, isokinetic quadriceps strength, and biometric indicators associated with metabolic syndrome were measured. Participants were classified as high risk or low risk for future development of type 2 diabetes and cardiovascular disease.

Results: The prevalence of metabolic syndrome in the cohort was 19% (12 of 62), and 79% (49 of 62) of the players exceeded the threshold for 1 or more of its 5 components. A 4-factor clinical prediction rule that classified individuals on the basis of waist circumference, blood pressure, quadriceps strength, and ethnic category had 92% sensitivity (95% confidence interval = 65%, 99%) and 76% specificity (95% confidence interval = 63%, 86%) for discrimination of high-risk or low-risk status.

Conclusions: The risk for developing type 2 diabetes and cardiovascular disease appears to be exceptionally high among collegiate football players. A lack of race-

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specific criteria for the diagnosis of metabolic syndrome almost certainly contributes to an underestimation of the true level of cardiometabolic risk for African American collegiate football players.

Keywords: [metabolic syndrome](#), [insulin resistance](#), [abdominal fat](#)

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