Title: Don't Just Check the Box, Check Your Athlete's Heart: Adding an ECG to Participation Screenings

Shannon A. King, BSN, RN
Martha Biddle, PhD
College of Nursing, University of Kentucky, Lexington, KY, USA

Abstract Describes: Ongoing Work/Project

Applicable Category: Clinical, Academic, Students, Leaders, Researchers

Keywords: Athletes, High School Males and Sudden Cardiac Arrest

Abstract Summary:
Sudden cardiac arrest continues to be a leading cause of death in male athletes participating in competitive sports. There is a gap in the current preventative screening practice. This study evaluates the feasibility of adding a 12-lead ECG to pre-participation screening to capture abnormalities that could lead to SCA.

References:
Abstract Text:

**Purpose:** Sudden cardiac arrest (SCA) usually causes death if it’s not treated within minutes (National Heart, Lung, and Brain Institute, 2016). Research has shown that competitive athletes are at a higher risk (Gilchrist, et. al, 2012). Within that group, specifically, male athletes with any ethnicity that play football, basketball, or soccer are at the highest risk comprising 75% of all SCA (Drezner, et. al, 2016). Even more studies have shown that athletes with a family history of certain cardiovascular disorders (cardiomyopathy, Long QT syndrome, and coronary artery disease) are at an identifiable risk for SCA (Drezner, 2015). One student athlete dies every three days because of SCA making it the #1 killer of student athletes and the #2 medical cause of death among youth under the age of 25. What is more disturbing than those statistics is that the National Heart, Lung, and Blood Institute issued a report in 2015 stating that SCA in youth athletes was a “critical public health issue” (National Heart, Lung, and Blood Institute, 2016). These events occur despite the use of traditional American Heart Association 14-element cardiovascular screening checklist pre-participation screening tool. When an ECG, AHA questionnaire, and physical examination are performed 1 in 100 youth screened are found at risk for a sudden cardiac arrest event (American Heart Association, 2017). With the current approach of a physical exam and patient history, 96% of youth at risk are missed (Drezner, et. al, 2016). There is a gap in the current preventative screening practice of history and physical alone. The purpose of this study is to evaluate the effectiveness of adding a 12-lead ECG to pre-participation screening to capture cardiac abnormalities that could lead to sudden cardiac arrest conducted at a Fayette County high school in Kentucky.

**Methods:** A prospective study of 206 male participants ages 13-18 years of age. Participatory consent will be obtained via face-to-face meeting and interviews with student athletes and parent/legal guardians. Based on the current American Heart Association recommendation of the 14-element cardiovascular screening checklist, data will be collected by interview, physical examination, and a 12-lead ECG. Using a predetermined algorithm, abnormal findings will be referred to a pediatric cardiologist for further evaluation.

**Results:** The result of the study is to present clinically significant data identifying the feasibility of adding a screening 12-lead ECG to a pre-participatory sports physical for identification of high risk athletes for SCA.

**Conclusion:** A new protocol to include a 12-ECG to pre-participation screening for male high school athletes is reasonable to screen for cardiac abnormalities that identify risk factors for SCA.