



International Consensus on ECG Testing Sets New Standard to Protect Young Hearts

Sudden cardiac arrest (SCA)—the number one killer of student athletes during sports—is most commonly caused by structural or electrical heart abnormalities, many of which are inherited conditions. The newly published *International Criteria for Electrocardiographic (ECG) Interpretation in Athletes*, by Drezner et. al, provides revised standards to improve the use of the ECG in the evaluation of cardiac issues in athletes.

This document provides consensus criteria to establish more accurate norms for ECG interpretation in athletes and includes recommendations for secondary cardiac evaluation of athletes. Scientific data will continue to improve ECG interpretation, necessitating continued physician education in essential ECG skills. The ECG can be used as part of an evaluation of “cardiac-related symptoms, a family history of inheritable cardiac disease or premature sudden cardiac death, or for screening of asymptomatic athletes,” notes the consensus paper published in the [British Journal of Sports Medicine](#).

This International Recommendations for ECG Interpretation in Athletes is endorsed by the American Medical Society for Sports Medicine (AMSSM), Austrian Society of Sports Medicine and Prevention, Brazilian Society of Cardiology - Department of Exercise and Rehabilitation (SBC - DERC), British Association for Sports and Exercise Medicine (BASEM), Canadian Academy of Sport and Exercise Medicine (CASEM), European College of Sports and Exercise Physicians (ECOSEP), European Society of Cardiology (ESC) Section of Sports Cardiology, Fédération Internationale de Football Association (FIFA), German Society of Sports Medicine and Prevention, International Olympic Committee (IOC), Norwegian Association of Sports Medicine and Physical Activity (NIMF), South African Sports Medicine Association (SASMA), Spanish Society of Cardiology (SEC) Sports Cardiology Group, Sports Doctors Australia, and the Swedish Society of Exercise and Sports Medicine (SFAIM). The value of the recommendations are affirmed by the American College of Cardiology (ACC).

Parent Heart Watch (PHW) medical advisory board members and colleagues contributed to this important document that will advance the mission of PHW. Founded in 2005, the vision of Parent Heart Watch is to eliminate preventable deaths and disabilities from sudden cardiac arrest in youth by 2030. The PHW mission is to lead and empowers others by sharing information, educating and advocating for change. Parent Heart Watch champions primary and secondary prevention strategies, including awareness of warning signs and risk factors that put youth at risk for sudden cardiac arrest, early detection heart screenings, widespread and accessible automated external defibrillators (AEDs) and written and well-practiced cardiac emergency response plans anywhere youth congregate.

Evolving standards over the last decade have now culminated in internationally recognized guidelines that are “a major milestone in the cardiovascular care of athletes,” according to Jonathan A. Drezner, MD, Professor, Department of Family Medicine, Director, Center for Sports Cardiology, Past-President, American Medical Society for Sports Medicine (2012-13), Team Physician, Seattle Seahawks & UW Huskies and PHW Medical Advisory Board Member. “This unique collaboration among world leaders in sports cardiology provides updated standards for ECG interpretation in athletes and a clear guide to the secondary evaluation of ECG abnormalities,” noted Dr. Drezner.

“This collaborative work demonstrates the important role of the ECG in the heart screening of athletes. These updated standards increase the ECG’s effectiveness and minimize the number of false positive readings, benefiting athletes and their families, teams and communities,” noted Victoria L. Vetter, M.D., MPH, Director, Youth Heart Watch, Professor of Pediatrics, The Children's Hospital of Philadelphia, Perelman School of Medicine at the University of Pennsylvania and also a PHW Medical Advisory Board Member.

“These guidelines are critical to ensuring an evidence-based and consistent way to interpret ECGs in young athletes. A key concern of critics of ECG screening in athletes was the high false positive rate when using older guidelines or those developed for sedentary adults,” noted PHW Medical Advisory Board member Kimberly G. Harmon, MD, Section Head, Sports Medicine Section, Professor, Departments of Family Medicine and Orthopaedics and Sports Medicine, Team Physician, University of Washington. “The use of these criteria results in a very low false positive rate (~1.5%) and identifies the majority of ECG-demonstrable conditions.”

“The work by Dr. Drezner et al continue to move emerging research into a translational product that enables providers who care for athletes to more effectively and confidently interpret electrocardiographs,” said Francis G. O'Connor, MD, MPH, Past President, American Medical Society for Sports Medicine (AMSSM). “This resource will provide great benefit not only to providers, but also athletes and the communities in which they live.”

"The camaraderie among leaders from across the world in putting a statement together of this magnitude was outstanding. I've never been a part of such a wonderful process," concluded Irfan M. Asif, MD, Vice Chair, Academics and Research Director, Sports Medicine Fellowship, Associate Professor, Department of Family Medicine, Greenville Health System, University of South Carolina Greenville SOM, Clemson University School of Health Research.

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