Canadian Cardiologists Advocate Guidelines for Athlete Screening
Before Sports Events: How Should Athletes at Increased Risk of
Major Cardiac Events During Competitive Sports Be Detected?

Experts provide suggestions for interim screening programs in Canada and call for development of Canadian-specific guidelines, in the Canadian Journal of Cardiology

Philadelphia, PA, April 7, 2016 – Screening athletes prior to high-level sports events to identify individuals who may be affected by cardiovascular diseases is controversial. Canada has no official guidelines, while recommendations from American and European organizations conflict, particularly regarding routine ECG screening. Canadian and British experts provide suggestions in the Canadian Journal of Cardiology and call for the development of Canadian guidelines by appropriate organizations.

Sudden cardiac death (SCD) in young, seemingly healthy individuals is a tragic and often highly publicized event. SCD in athletes is the leading cause of nontraumatic death, with a wide range of incidence reported, from one in 3,000 in some subpopulations to one in one million. Males, blacks, and basketball players seem to be at a higher risk. Although rare, such deaths have a devastating impact because athletes are perceived as epitomizing good health; the sudden, unanticipated death of an athlete precipitates questions and concerns often spurred by extensive media coverage. These deaths are particularly tragic in young athletes (< 35 years) because the majority are due to inherited or congenital cardiac diseases that are detectable and for which several therapeutic strategies are available to minimize the risk of death.

Experts in Canada and the UK reviewed the main risk considerations and rationale, benefits, and limitations of routine pre-participation ECG screening, provided suggestions for how Canadian physicians should conduct themselves in the absence of Canadian consensus guidelines, and called for the development of Canadian guidelines by appropriate organizations.

“Pre-participation screening aims to identify those affected by cardiovascular diseases who may be at higher risk of SCD during sport. But there is an apparent ‘Atlantic rift’ as there are conflicting recommendations from the American Heart Association and the European Society of Cardiology,” explained lead author Paul Poirier, MD, PhD, Professor, Faculty of Pharmacy, Laval University, Institut Universitaire de Cardiologie et Pneumologie de Québec.
The American Heart Association (AHA) and the European Society of Cardiology (ESC) both advocate screening of elite athletes. AHA recommends taking a thorough medical and family history alongside a physical examination; a recent AHA/American College of Cardiology (ACC) statement reaffirmed this position noting that there is no compelling reason to confine screening to young competitive athletes and to exclude non-athletes. However, ESC recommends the addition of a 12-lead ECG in the initial screening stages.

The use of an ECG as a screening strategy has been questioned by some experts, with a large number of abnormal test results observed in athletes, owing to the ECG changes occurring in a highly trained individual overlapping with findings suggestive of pathology. “Positive 12-lead ECG triggers further examinations that are expensive given the low diagnostic yield of most abnormal ECG patterns,” noted Dr. Poirier.

A competitive athlete is defined as “one who participates in an organized team or individual sport that requires regular competition against others as a central component, places a high premium on excellence and achievement, and requires some form of systematic (and usually intense) training (> 10 hours per week).” A key distinction between competitive athletes and individuals involved in recreational sports lies in the ability and freedom of a participant to judge when it is prudent to reduce or stop physical exertion. Screening of athletes ignores the much larger group of young, non-athletes who participate in vigorous recreational activity and who collectively represent a population in which a much larger number of SCD can be predicted to occur. However, universal screening of young athletes also poses logistic and financial challenges.

“While waiting for the best screening approach in Canada, we believe that increased awareness of and access to automated external defibrillators along with training in cardiopulmonary resuscitation (CPR) can help reduce the number of SCD," observed Dr. Poirier. "In some jurisdictions, ECG screening has already been eschewed in favour of such an approach. Specific physician training in the field of sports cardiology with availability of experts throughout Canada may be a useful start.

“In the interim, it seems appropriate for national sport organizations to implement programs of ECG screening of elite competitors,” he continued. “Appropriate Canadian clinical and public health organizations should be encouraged to continue to address the challenge of SCD among the young. The approach to, and target population for, cardiovascular risk screening related to athletic participation is controversial, with major geographic variations. Canadian-specific guidelines are clearly needed.”

# # #

NOTES FOR EDITORS

“The Atlantic Rift: Guidelines for Athletic Screening – Where Should Canada Stand?” by Paul Poirier, MD, PhD, FACC, FAHA; Sanjay Sharma BSc (Hons), MD, FRCP (UK); and Andrew Pipe, CM, MD, LLD (Hon), DSc (Hon), DOI: [http://dx.doi.org/10.1016/j.cjca.2016.02.055](http://dx.doi.org/10.1016/j.cjca.2016.02.055), published in Volume 32, Issue 4 (April 2016) of the Canadian Journal of Cardiology, published by Elsevier.

Full text of this article is available to credentialed journalists upon request. Contact Eileen Leahy at +1 732-238-3628 or cjcmedia@elsevier.com to obtain copies. Journalists who wish to speak with Dr. Paul Poirier may contact him at +1 418-656-4767 or Paul.Poirier@criucpq.ulaval.ca.

ABOUT THE CANADIAN JOURNAL OF CARDIOLOGY

The Canadian Journal of Cardiology (www.onlinecjc.ca) is the official journal of the Canadian Cardiovascular Society (www.ccs.ca). It is a vehicle for the international dissemination of new knowledge
in cardiology and cardiovascular science, particularly serving as a major venue for the results of Canadian cardiovascular research and Society guidelines. The journal publishes original reports of clinical and basic research relevant to cardiovascular medicine as well as editorials, review articles, case reports, and papers on health outcomes, policy research, ethics, medical history, and political issues affecting practice.

ABOUT THE EDITOR-IN-CHIEF
Editor-in-Chief Stanley Nattel, MD, is Paul-David Chair in Cardiovascular Electrophysiology and Professor of Medicine at the University of Montreal and Director of the Electrophysiology Research Program at the Montreal Heart Institute Research Center.

ABOUT THE CANADIAN CARDIOVASCULAR SOCIETY
The Canadian Cardiovascular Society is the professional association for Canadian cardiovascular physicians and scientists working to promote cardiovascular health and care through knowledge translation, professional development, and leadership in health policy. The CCS provides programs and services to its 1900+ members and others in the cardiovascular community, including guidelines for cardiovascular care, the annual Canadian Cardiovascular Congress, and, with the Canadian Cardiovascular Academy, programs for trainees. More information about the CCS and its activities can be found at www.ccs.ca.

ABOUT ELSEVIER
Elsevier (www.elsevier.com) is a world-leading provider of information solutions that enhance the performance of science, health, and technology professionals, empowering them to make better decisions, deliver better care, and sometimes make groundbreaking discoveries that advance the boundaries of knowledge and human progress. Elsevier provides web-based, digital solutions — among them ScienceDirect (www.sciencedirect.com), Scopus (www.scopus.com), Elsevier Research Intelligence (www.elsevier.com/research-intelligence), and ClinicalKey (www.clinicalkey.com) — and publishes over 2,500 journals, including The Lancet (www.thelancet.com) and Cell (www.cell.com), and more than 33,000 book titles, including a number of iconic reference works. Elsevier is part of RELX Group (www.relxgroup.com), a world-leading provider of information and analytics for professional and business customers across industries. www.elsevier.com