

Featuring: Sudden Death in Athletes and Young People

## SECTION 1: WHAT'S NEW?

**Registration for School Health Annual Conference - showcasing Canadian School Health Innovations now open see:**  
[http://www.cash-aces.ca/conference\\_2008/](http://www.cash-aces.ca/conference_2008/)

### Resources

The National Office of the Canadian Mental Health Association has just launched the Mental Health and High School Curriculum Guide resource in collaboration with a range of national partners including the Canadian Association for School Health and Curriculum Services Canada.

See: [www.cmha.ca/highschoolcurriculum](http://www.cmha.ca/highschoolcurriculum)

### RESEARCH, REPORTS & SCHOOL HEALTH KNOWLEDGE

#### Research Roundup

**Students' Recall of Substance Use Education in Ontario Schools, 1997-2007** E bulletin, Centre for Addiction and Mental Health, Jan / Feb 2008 Children and adolescents should receive education about tobacco and alcohol for several reasons. [http://www.camh.net/Research/Areas\\_of\\_research/Population\\_Life\\_Course\\_Studies/eBulletins/ebv9n1\\_Drug\\_Education\\_2007OSDUHS.pdf](http://www.camh.net/Research/Areas_of_research/Population_Life_Course_Studies/eBulletins/ebv9n1_Drug_Education_2007OSDUHS.pdf)

The US Centers for Disease Control has just released The Effects of Childhood Stress on Health Across the Lifespan, which summarizes research on childhood stress and future adult health and well-being. Research focuses on the effects of child abuse, neglect and repeated exposure to intimate partner violence. Included in the publication is information on how violence prevention practitioners can incorporate information on childhood stress in to their work.

Toward a Healthy Future: Second Report on the Health of Canadians is a public policy report developed by the Federal, Provincial and Territorial Advisory Committee on Population Health (ACPH) in collaboration with Health Canada, Statistics Can-

SCHOOL HEALTH CONFERENCE  
& SYMPOSIA  
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[www.safehealthyschools.org/shconferences](http://www.safehealthyschools.org/shconferences)

### RESEARCH, REPORTS & SCHOOL HEALTH KNOWLEDGE (cont'd)

#### Research Roundup

**DROPOUTS/PUSHOUTS (from UCLA Center for Mental Health in Schools; <http://smhp.psych.ucla.edu> :** Obviously, the problem of students leaving school before graduation has tremendous implications for all of us. If the escalating number of news articles on this matter is any indication, we all need to help school improvement decision makers understand that a greater focus in schools on psychosocial and mental health concerns is imperative if the dropout rate is to decrease. For resources and information on this matter, see the Center Quick Find on Dropout Prevention – <http://smhp.psych.ucla.edu/qf/dropout.html> and the Center Intro Packet on this matter –

ada, the Canadian Institute for Health Information and a project team from the Centre for Health Promotion, University of Toronto. Both the full Report, as well as a series of brief "backgrounder" reports provides the most current information available about the health of Canadians.

<http://www.phac-aspc.gc.ca/ph-sp/phdd/determinants/index.html>

<http://smhp.psych.ucla.edu/pdfdocs/DropoutPrev/dropout.pdf> .

Mental Health Services Lacking for At-risk Children (2008) L. Hardy. American School Board Journal.

<http://www.asbj.com/mainmenucategory/archive/2008/march/childrenatriskmentalhealth.aspx>

## **FEDERAL CAMPAIGN TO COMBAT TEEN PRESCRIPTION DRUG ABUSE**

The White House Office of National Drug Control Policy is launching its first major Federal efforts to educate parents about teen prescription drug abuse. Most teens who abuse prescription drugs say they get them from home, or from friends and relatives. The campaign involves television ads, banner ads, newspaper open letters, information sheets in pharmacies, parent brochure, community tool kit. 1/24/08. ONDCP News Room. <http://www.whitehousedrugpolicy.gov/news/press08/020808.html>

## FEATURE ARTICLE

### Sudden Death in Athletes and Young People

#### Weak Hearts a Danger Zone for Athletes (Globe & Mail)

They were fit. They ran, jumped and beat opponents. Family and coaches say there were no signs. They were so young.

In the past week, three young athletes have died mysteriously: Mickey Renaud, the 19-year-old Windsor Spitfires captain who died at home on Monday; 17-year-old Shannon Veal, a high-school basketball star from Louisiana who died during a Monday night game; and Rene Ayangma, a 20-year-old University of Prince Edward Island student who collapsed after a mixed martial arts sparring session on Tuesday night. All three deaths, their official causes still undetermined, have raised a troubling question for those left behind: What could kill a youth so seemingly healthy?

<http://www.theglobeandmail.com/servlet/story/RTGAM.20080222.wxlatlhetes22/BNStory/specialScienceandHealth/?page=rss&id=RTGAM.20080222.wxlatlhetes22>

FEW EVENTS ARE HARDER TO DEAL WITH than sudden death in young people. Each year in the United States, about one in 200 000 high school or college athletes will die suddenly, the vast majority without any prior symptoms,<sup>1</sup> and these devastating events are often the first clinical manifestation of an underlying cardiovascular disorder. Indeed, about 90% of sudden deaths, defined as death occurring within one hour of the onset of symptoms, are found to be caused by cardiac *structural* pathology in autopsy-based series. The remaining 10% relate to other cardiac *electrical* disorders, such as long-QT syndrome and Wolf–Parkinson–White syndrome, or commotio cordis (the result of sudden sharp chest blows), as well as complications of asthma, substance misuse, and sudden infant death syndrome (SIDS).<sup>2</sup>

[http://mja.com.au/public/issues/176\\_04\\_180202/sem10798.html](http://mja.com.au/public/issues/176_04_180202/sem10798.html)

#### Sudden Death in Athletes

Sudden death of a competitive athlete is a personal tragedy and an irony of sports with a great emotional disturbance that shakes the team members and the communities nation-wide. An athlete is capable of exceptionally high levels of performance for long periods of time and constitutes the healthiest segment of our society. Exercise has always been advocated as a protective measure against disease and death...So why does an individual like that with superior athletic performance die at a young age?

<http://www.suddendeathathletes.org/>

Why are such rare deaths a substantive medical issue? Partly it's because competitive athletes represent the healthiest and most dynamic members of society, in whom cardiovascular sudden deaths become symbolic and riveting and strike to the core of our sensibilities. These counterintuitive, highly visible catastrophes are enhanced by their portrayal in the news media as public events rather than personal and family tragedies. Also, for elite athletes who achieve celebrity status, the economic stakes may be high, making medical decision making even more difficult. Thus, the sudden deaths of athletes have had enormous impact on the public consciousness and attitudes of the medical profession. Add in the long list of possible causes of sudden death ([Slide 1](#))<sup>1</sup> and the medical challenge becomes clear.

<http://www.cardiosource.com/rapidnewssummaries/index.asp?EID=22&DoW=Tues&SumID=158>

#### Why Do Athletes Experience Sudden Deaths?

The occurrence of sudden death among seemingly fit amateur and professional athletes is always shocking, and it always raises immediate questions about the underlying causes of death and the thoroughness of the pre-participation screening of competitive athletes.

[http://www.schoolhealth.com/shop/art\\_suddendeaths.asp](http://www.schoolhealth.com/shop/art_suddendeaths.asp)

Nontraumatic sudden death in young athletes is always disturbing, as apparently invincible athletes, become, without warning, victims of silent heart disease. Despite public perception to the contrary, sudden death in young athletes is exceedingly rare. It most commonly occurs in male athletes, who have estimated death rates nearly fivefold greater than the rates of female athletes. Congenital cardiovascular disease is the leading cause of nontraumatic sudden athletic death, with hypertrophic cardiomyopathy being the most common cause. Screening athletes for disorders capable of provoking sudden death is a challenge because of the low prevalence of disease, and the cost and limitations of available screening tests. Current recommendations for cardiovascular screening call for a careful history and physical examination performed by a knowledgeable health care provider. Specialized testing is recommended only in cases that warrant further evaluation.

<http://www.aafp.org/afp/980600ap/oconnor.html>

In both studies, the major contributor to sudden death from cardiovascular causes during sport was hypertrophic cardiomyopathy. In the study of high school and college athletes, 136 of the 160 cases had adequate information to identify cause of death. Hypertrophic cardiomyopathy was the cause in 50 of 92 males and in 1 of 8 females with cardiovascular conditions. In the other study, hypertrophic cardiomyopathy was cited in 48 of the 134 athletes. The second most common cardiovascular cause of death in the two studies was congenital abnormalities of the blood vessels servicing the heart (the coronary arteries), 16% and 13% in each study. A variety of rare cardiovascular conditions as well as several apparently "normal hearts" were represented in the remainder of the cases of sudden death.

<http://www-unix.oit.umass.edu/~excs597k/carpenter/sdathlete.htm>

As a result it is important that during a routine athletic physical exam one try to elicit any family history sudden death in the athlete's family. The coronary arteries are the arteries that supply blood to the heart muscle. In a small number of people in the population there are abnormal sites of origin and routes of the coronary arteries that can predispose the athlete to sudden cardiac death.

[http://www.blackathlete.net/artman/publish/article\\_01924.shtml](http://www.blackathlete.net/artman/publish/article_01924.shtml)

Sudden death in young competitive athletes. Clinical, demographic, and pathological profiles

<http://jama.ama-assn.org/cgi/content/abstract/276/3/199>

### **Trends in Sudden Cardiovascular Death in Young Competitive Athletes After Implementation of a Preparticipation Screening Program**

<http://jama.ama-assn.org/cgi/content/abstract/296/13/1593>

An enlarged heart is the biggest cause of sudden death among young athletes, deaths that could be prevented with more and better screening, experts said after the weekend death of a marathon runner.

<http://www.cnn.com/2007/HEALTH/conditions/11/06/marathon.athlete.heart.ap/index.html>

Sudden death in athletes is a rare event but brings with it an impact that goes beyond sport. There are many causes of sudden death during exercise. While the responsibility of preventing or treating them lays with us physicians, preparticipation screening is largely ineffective and impractical. Definitive, large scale prospective research is required in order to design the most cost-effective system for screening of athletes. In the meanwhile rapid access to defibrillators by trained personnel remains the best possible approach to abort sudden death.

<http://cogprints.org/4808/2/ghosh2.pdf>

Currently, typical screening of US high school and college athletes consists of a history and physical examination. This strategy will not identify the majority of abnormalities causing sudden death because nonobstructive hypertrophic cardiomyopathy is common. Screening with electrocardiograms and/or echocardiograms would likely detect the large majority of structural abnormalities causing sudden death in young athletes, but it is not clear whether this approach is cost-effective. The American Heart Association recommends a careful history and physical examination for ath-

letes, a process that Maron suggests is not followed in the majority of cases. However, he stopped short of recommending that electrocardiograms or echocardiograms be used to screen high-school and college athletes.

<http://www.medscape.com/viewarticle/465265>

### **How is a cardiac sudden death different from a heart attack?**

Sudden cardiac arrest is not a heart attack (myocardial infarction). Heart attacks occur when there is a blockage in one or more of the coronary arteries, preventing the heart from receiving enough oxygen-rich blood. If the oxygen in the blood cannot reach the heart muscle, the heart becomes damaged.

In contrast, sudden cardiac arrest occurs when the electrical system to the heart malfunctions and suddenly becomes very irregular. The heart beats dangerously fast. The ventricles may flutter or quiver (ventricular fibrillation), and blood is not delivered to the body. In the first few minutes, the greatest concern is that blood flow to the brain will be reduced so drastically that a person will lose consciousness. Death follows unless emergency treatment is begun immediately.

**Emergency treatment** includes cardiopulmonary resuscitation (CPR) and defibrillation. CPR keeps enough oxygen in the lungs and gets it to the brain until the normal heart rhythm is restored with an electric shock to the chest. Portable defibrillators used by emergency personnel, or public access defibrillators (AEDs) may help save the person's life.

<http://www.clevelandclinic.org/heartcenter/pub/guide/disease/electric/scd.htm>

### **Congress pushes for defibrillators in schools**

A grass-roots push to put defibrillators into every school — to revive children who suffer cardiac arrest as well as their teachers, custodians and visiting family members — may get a jolt from Congress.

[http://www.usatoday.com/news/health/2008-02-17-school-defibrillators-main\\_N.htm](http://www.usatoday.com/news/health/2008-02-17-school-defibrillators-main_N.htm)

### **DOES YOUR CHILD'S SCHOOL NEED A DEFIBRILLATOR?**

It is a nightmare scenario, and it becomes reality much too often: A child running up and down a school basketball court or Little League diamond suddenly suffers cardiac arrest. Before an ambulance can respond, he or she dies. More than 5,000 children die from cardiac arrest in the U.S. each year, more than 300 of them while playing sports, according to Teams of Angels, just one of several organizations committed to reducing that number by making automatic external defibrillators (AEDs) widely available at schools and playing fields across the country.

[http://www.education-world.com/At\\_Home/parent/parent007.shtml](http://www.education-world.com/At_Home/parent/parent007.shtml)