

### Sports and Cardiac Disease in Youth

#### 1. What are the recommendations regarding sports and physical activities for children and youth with cardiac disease?

**Question submitted by: Dr. Mitch Shulman, Cote St-Luc, Quebec**

Few headlines garner as much media attention and glue us to the television screen with as much adhesive, as the unexpected death of a young athlete. The immediate community response is to assume that such a tragedy could and should have been prevented.

Athletic screening programs are currently under development to better identify athletes at risk of sudden death, and specific recommendations have been published for competitive athletes with cardiac disease. For children and youth with documented cardiac disease, recommendations need to be carefully and thoughtfully individualized based on the underlying cardiac pathology. A number of general principles that can help to reduce exer-

cise-related risks include stipulating a mandatory warm-up and cool-down period to bookend physical activities; cautioning against sudden bursts of activity, like sprinting or heavy lifting, avoiding sports when it's excessively hot or cold; and avoiding taking part in "extreme activities," like bungee jumping; or contact sports, like football or rugby.

Since activity recommendations are often met with considerable resistance from the young patient, they can be more difficult to implement. Even if they aren't allowed to participate on scholastic teams, children and youth may very well maintain a high level of physical activity and compete in other venues. So, in recognizing that sport activities are an important

part of the daily lives of young people, it is important to weigh the theoretical risk of sudden death associated with activity or exercise against the social, psychological, and health benefits of sports participation.

#### Resources

1. Corrado D, Basso C, Schiavon M, et al: Pre-Participation Screening of Young Competitive Athletes for Prevention of Sudden Cardiac Death. *J Am Coll Cardiol* 2008; 52(24):1981-9.
2. Pelliccia A, Zipes DP, Maron BJ: Bethesda Conference #36 and the European Society of Cardiology Consensus Recommendations Revisited a Comparison of U.S. and European Criteria for Eligibility and Disqualification of Competitive Athletes with Cardiovascular Abnormalities. *J Am Coll Cardiol* 2008; 52:1990-6.
3. Maron BJ, Chaitman BR, Ackerman MJ, et al: Recommendations for Physical Activity and Recreational Sports Participation for Young Patients with Genetic Cardiovascular Diseases. *Circulation* 2004; 109:2807-16.

Answered by:

**Dr. Theodore Fenske**

*Athletic screening programs are currently under development to better identify athletes at risk of sudden death.*

### Hypertrophic Cardiomyopathy Development

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#### 2. How early do hypertrophic cardiomyopathies develop in the following patients? Idiopathic, diabetic, alcoholic – should they be screened? How?

**Question submitted by: Dr. Andrew Trevor, Brampton, Ontario**

There appears to be a basic misunderstanding about the cardiomyopathies. Hypertrophic cardiomyopathy is a genetic disorder characterized by hypertrophy of the left ventricle. A subset of this is those with asymmetric hypertrophy of the interventricular septum causing outflow tract obstruction (hypertrophic obstructive cardiomyopathies).

Hypertrophic cardiomyopathies are inherited as an autosomal dominant, but mutations in genes do occur, which probably explains the lack of family history in many cases.

Dilated cardiomyopathies, the most common group are charac-

terized by global dilation and thinning of the left ventricular walls and often severe systolic dysfunction leading to heart failure. Of this group, idiopathic dilated cardiomyopathy is most common and in many cases may represent “burned out” myocarditis. Diabetic dilated cardiomyopathies probably result from the diffuse of small coronary vessel disease and multiple small or large infarctions.

Alcoholic cardiomyopathy is again a dilated cardiomyopathy, either related directly to alcohol toxicity, or secondary metabolic disturbances. Occasionally, hypertrophic cardiomyopathies may “burn out,” leading to a dilated

poorly functioning ventricle. However, dilated cardiomyopathies never become hypertrophic.

Screening for the development of hypertrophic cardiomyopathies, primarily with ECHOs is indicated in families with known hypertrophic cardiomyopathy, with a history of familial sudden death, or with unusual hypertrophy detected by ECG.

Answered by:  
**Dr. Wayne Warnica**

*Hypertrophic cardiomyopathy is a genetic disorder characterized by hypertrophy of the left ventricle.*