




Avoiding the worst case scenario?
Sudden Cardiac Death
and
Heat Illness in the Young Athlete




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Objectives

- **Discuss the causes, incidence rates, symptoms, and management of risk for Sudden Cardiac Death**
- **Discuss different types, symptoms, and prevention strategies for heat illness in the young athlete.**
- **This is for general educational and informational purposes only. It is not medical advice and is not intended to replace consultation with qualified medical professional(s) regarding your specific circumstances.*



Sudden Cardiac Death (SDC)

- Is it common?
- Incidence rate in the United States- approx. 1/200,000 in athletes < age 30

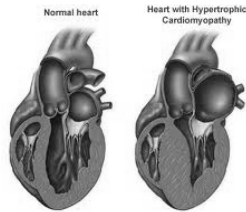
Incidence Rates

- Black athletes had a higher rate of sudden cardiac death (one in 17,696) than white athletes (one in 58,653).
- The risk was higher in males (one in 33,134) than in females (one in 76,646).
- The highest rate of sudden cardiac death was in basketball (one in 11,394), followed by swimming, lacrosse, football and cross-country track.
- From a study by the online journal Circulation between 2004-2008



Most frequent causes of SCD

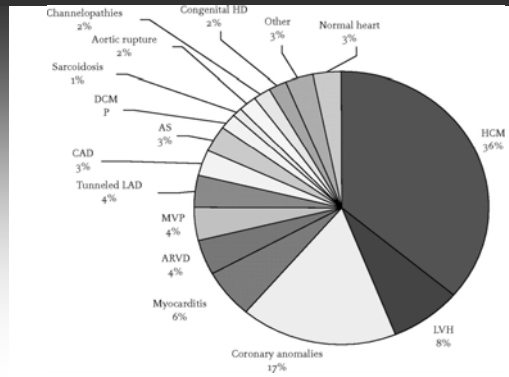
- Hypertrophic Cardio Myopathy (HCM)- 36%
- Left Ventricular Hypertrophy (LVH could be HCM)- 8%
- Coronary Anomalies - 17%
- Myocarditis- 6%



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Distribution of causes of death



Symptoms of Cardiac abnormalities

- 80%- First Symptom is Sudden Death
- Chest pain during or after exercise
- Syncope / Near Syncope during or after exercise
- Tachychardia or Ahythmia during or after exercise
- Dyspnea, shortness of breath during or after exercise



How to manage the risk

AHA 12-Element Recommendation for Cardiovascular Screening

- PPE- Pre-Participation Physical Examination
 - Personal History Questionnaire
 - Symptoms during or after exercise
 - Family History Questionnaire with parental signage
 - Sudden unexpected death, < 50 years of age
 - Disability from heart disease in close relative <50 years of age
 - Physical Examination
 - Listen for heart murmur (Standing / Supine)
 - Feel Femoral Pulse
 - Brachial Art. Blood Pressure (sitting)
 - Physical Stigmata for Marfan's Syndrome





What to do about the other 80%

- Trained Professionals (ATC's, Team Physicians)
- Emergency Action Plan
- Continued education of staff and responsible parties (CPR / First Aid)
- **AED** (Automatic External Defibrillator)



Do you have an AED and Do you know where it is?

- **Should be as common as a Fire extinguisher**
- Wall mounted
- Portable
- Must be maintained
- Cost



When the Heat is On



Types of heat related illness

- **Heat cramps**- severe pain and spasm in leg muscles
- **Heat exhaustion**- pale, cool, clammy skin, profuse sweating, nausea, thirst, faint
- **Heat stroke**- red dry skin, headache, dizziness, disorientation, seizure, hallucination, rapid heart beat, increased core temps



Dangerous conditions for heat illness

Relative Humidity	AIR TEMPERATURE (F°)											
	70°	75°	80°	85°	90°	95°	100°	105°	110°	115°	120°	
0%	64°	69°	73°	78°	83°	87°	91°	95°	99°	103°	107°	
10%	65°	70°	75°	80°	85°	90°	95°	100°	105°	111°	116°	
20%	66°	72°	77°	82°	87°	93°	99°	105°	112°	120°	130°	
30%	67°	73°	78°	84°	90°	96°	104°	113°	123°	135°	148°	
40%	68°	74°	79°	86°	93°	101°	110°	120°	132°	147°	161°	
50%	69°	75°	81°	89°	96°	107°	120°	135°	150°			
60%	70°	76°	82°	90°	100°	114°	130°	149°				
70%	70°	77°	85°	93°	106°	124°	144°					
80%	71°	78°	86°	97°	113°	136°						
90%	71°	79°	88°	102°	122°							
100%	72°	80°	91°	106°								

High temps combined with high humidity create black flag conditions



Avoiding Heat Illness

- - Drink sufficient cool water ~50 F
- - Wear light, reflective, wicking clothing
- - Wear a brimmed hat
- - Keep cold towels handy
- - Limit activity in very hot and humid conditions
- - Acclimate to physical activity in heat
- - Utilize shade
- **Those who have suffered heat illness in the past are at greater risk for repeat events.**



Simple Facts on Proper Hydration

- Losing 1-2 % of your water will harm performance
- Feeling thirsty is equivalent to losing 1-2% of water
- Conditioned athletes need more water not less
- Hydration must be accomplished around the clock
- It is best to consume cool water (40-50° F)
- Sports drinks (<8% solids) are ok but not necessary with activity less than 90minutes
- Making weight by restricting fluid harms performance, re-hydration takes time





Hydration Do's and Don'ts

- Don't wait until thirsty to drink water
- Drink more than enough to satisfy your thirst
- Drink more than you think you need before an event or practice
- Take weather into consideration
- Don't discount your needs when it is cool
- During activity – drink 6-8 oz of cool water every 15-20 minutes
- Heat illness can be **deadly** serious



THANK YOU!!!

