

# Acknowledgement of Risk:

## Catastrophic Injuries and Conditions Associated with the Active Student

This document is intended to inform parents and students of the associated risks incurred as a result of participation in athletics and/or extracurricular activities that require exertion and/or outdoor participation.

### SUDDEN CARDIAC-ASSOCIATED DEATH

#### **SUDDEN CARDIAC ARREST (SCA)**

- SCA is a condition in which the heart unexpectedly stops beating, halting blood flow to the brain and vital organs. SCA is usually caused by an electrical disturbance in the heart that disrupts pumping, which can result in death if not treated within minutes.
- The cause of SCA in athletes is unknown, however, young athletes with underlying heart conditions are at greater risk during vigorous exercise.

#### *Signs & Symptoms of Cardiac Arrest:*

<u>MALE ATHLETES</u>	<u>FEMALE ATHLETES</u>
<ul style="list-style-type: none"> <li>• Chest, ear or neck pain</li> <li>• Severe headache</li> <li>• Excessive breathlessness</li> <li>• Vague discomfort</li> <li>• Dizziness, palpitations</li> <li>• Abnormal fatigue</li> <li>• Indigestion, heartburn</li> </ul>	<ul style="list-style-type: none"> <li>• Center chest pain that comes and goes</li> <li>• Lightheadedness</li> <li>• Shortness of breath with or without discomfort</li> <li>• Pressure, squeezing, fullness</li> <li>• Nausea, vomiting</li> <li>• Cold sweat</li> <li>• Pain or discomfort in arms, back, neck, jaw or stomach</li> </ul>

#### **COMMOTIO CORDIS**

Commotio Cordis is caused by a blunt, non-penetrating blow to the chest. It induces ventricular arrhythmia in an otherwise structurally normal heart. Commotio Cordis accounts for approximately 20 percent of sudden cardiac deaths in young athletes.

### HEAD INJURIES

#### **CONCUSSIONS**

A concussion is a type of brain injury that changes how the brain works. It can be caused by a bump, blow or jolt to the head or body. Even a “ding” or mild bump or blow to the head can be serious. Concussions often occur without loss of consciousness.

#### *Signs & Symptoms of a Concussion:*

<ul style="list-style-type: none"> <li>• Blurry vision</li> <li>• Confusion</li> <li>• Dizziness</li> <li>• Distracted</li> <li>• Feeling “slowed down”</li> </ul>	<ul style="list-style-type: none"> <li>• Feeling “in a fog”</li> <li>• Headache</li> <li>• Memory problems</li> <li>• Nausea or vomiting</li> <li>• Personality change</li> </ul>	<ul style="list-style-type: none"> <li>• Poor balance/coordination</li> <li>• Pressure in head</li> <li>• Ringing in ears</li> <li>• Sensitivity to light</li> <li>• Sensitivity to noise</li> </ul>
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#### *Warning signs that warrant immediate care at an Emergency Department:*

<ul style="list-style-type: none"> <li>• Headaches that worsen</li> <li>• Seizures</li> <li>• Look very drowsy, can't be awakened</li> <li>• Repeated vomiting</li> </ul>	<ul style="list-style-type: none"> <li>• Slurred speech</li> <li>• Increasing confusion, can't recognize people or places</li> <li>• Unusual behavior changes</li> <li>• Weakness, numbness or decreased coordination</li> </ul>
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*What should you do if you think you or your child has a concussion?*

1. Seek medical care with your athletic trainer, primary care physician or emergency department.
2. Rest and stop all physical activity including but not limited to: athletic participation, PE class, dance, band, theatre, and choir. Also limit other activities that may increase symptoms such as screen time (computer/TV/phone/video games).
3. Complete a graded return to activity exertional program without return of symptoms.
4. Get written clearance from a physician to return to normal activities.

\*\*If not properly cared for, people who have sustained a concussion are at risk for increased recovery time, brain swelling, permanent brain damage and death.

### SPINAL INJURIES

Cervical spine injuries, ranging from serious to catastrophic, can be a cause of sudden death in athletes competing in both contact and non-contact sports. Although the incidence rate is low (an estimated 1,100 sport-related cases per year in the US), this type of injury has a very high morbidity and mortality rate. Cervical spine injuries may result in severe neurological impairment, including paraplegia and quadriplegia.

## EXERTIONAL HEAT ILLNESS

### **HEAT STROKE**

Heat stroke is the most severe form of heat-related illness and the only one that can be potentially deadly. Heat cramps and heat exhaustion are precursors to heat stroke and serve as early warning signs that heat stroke may be imminent. Heat stroke is a result of the body's failed attempt to compensate for an increased core body temperature due to prolonged exposure to, or physical exertion in, high temperatures and/or high humidity. Heat stroke is one of the top three causes of death in athletes.

#### *Signs & Symptoms of Heat Illness*

<u>HEAT CRAMPS</u>	<u>HEAT EXHAUSTION</u>	<u>HEAT STROKE</u>
<ul style="list-style-type: none"> <li>• Painful, involuntary muscle spasms or tightness in the abdomen, arms, and/or legs</li> </ul>	<ul style="list-style-type: none"> <li>• Body temperature &lt; 105°F</li> <li>• Cool, moist skin</li> <li>• Excessive sweating</li> <li>• Headache</li> <li>• Faintness, dizziness</li> <li>• Confusion, disorientation</li> <li>• Fatigue</li> <li>• Nausea, vomiting</li> <li>• Muscle cramps</li> <li>• Weak, rapid pulse</li> </ul>	<ul style="list-style-type: none"> <li>• Body temperature ≥105°F</li> <li>• Hot, dry skin</li> <li>• Little to no sweating</li> <li>• Throbbing headache</li> <li>• Significant confusion, disorientation, delirium, slurred speech</li> <li>• Seizures</li> <li>• Nausea, vomiting</li> <li>• Rapid heart rate</li> <li>• Low blood pressure</li> <li>• Rapid, shallow breathing</li> </ul>

### **SICKLE CELL TRAIT**

- Sickle cell trait is a congenital disorder most prevalent in people of African-American, Mediterranean, Middle Eastern, Indian, Caribbean and South and Central American ancestry. In people with sickle cell trait, "sickling" of the red blood cells can occur during bouts of intense or prolonged exertion. These sickle-shaped red blood cells can cause blockages in smaller blood vessels and lead to physical collapse from ischemic rhabdomyolysis, the rapid breakdown of muscle tissue starved of blood. Acute rhabdomyolysis is the third leading cause of sport-related, sudden death.
- Blood cell sickling can begin in 2-3 minutes of any intense exertion and can reach grave levels soon thereafter if the athlete continues.
- Heat, dehydration, altitude, and asthma can increase the risk for and worsen blood cell sickling, even when exercise is not intense.
- The signs and symptoms of sickle cell trait are often mistaken for heat cramps however there are some key differences.

<i>Signs &amp; Symptoms of Heat Cramps</i>	<i>Signs &amp; Symptoms of Sickle Cell Trait</i>
<ul style="list-style-type: none"> <li>• Excruciating, writhing pain</li> <li>• "Locked-up" muscles halts activity</li> <li>• Muscles feel rock-hard with onset of pain</li> <li>• Cramping take time to resolve even with treatment</li> </ul>	<ul style="list-style-type: none"> <li>• Dull, achy pain</li> <li>• Overwhelming muscle weakness halts activity</li> <li>• Muscles may feel normal in tone with onset of pain</li> <li>• Pain may resolve quickly if caught early</li> </ul>

## ENVIRONMENTAL DANGERS

### **LIGHTNING**

- Second only to heat-related illness, lightning is the highest weather-related cause of death and injury during sports or recreational activities in the US. Each year, approximately 40-45% of lightning-related casualties occur during participation in organized sports or recreational activities.
- The extremely high voltage associated with a lightning strike can cause external burns, damage to internal organs, and cardiopulmonary arrest.
- Lightning has the ability to strike the ground up to six miles from the cloud it originated from, so it is important to seek a safe area prior to the storm reaching your area.

## NUTRITION

### **HEALTHY EATING**

Proper nutrition and weight management play a critical role in athletic performance, growth and development, and overall health. Extremes in diet or weight may cause serious health issues and predispose you to a variety of diseases, including, but not limited to, atherosclerosis, osteoporosis, Type 2 diabetes, and certain types of cancer.

### **REFERENCES**

- <https://www.cdc.gov/HeadsUp/index.html>
- <http://momsteam.com/>
- [http://kidshealth.org/en/teens/?ref=k2t\\_tab](http://kidshealth.org/en/teens/?ref=k2t_tab)
- <http://www.nata.org/practice-patient-care/health-issues#healthIssues>
- <http://ksi.uconn.edu/>

**Acknowledgement of Risk:  
Catastrophic Injuries and Conditions Associated with the Active Student**

By my name and signature below, I acknowledge in that I have received and reviewed the “Acknowledgement of Risk: Catastrophic Injuries and Conditions Associated with the Active Student” form provided by Sparta Area Schools. I further acknowledge that the above document and information therein meets Michigan Department of Health and Human Services and MHSAA minimum requirements for concussion education.

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Student Name Printed

\_\_\_\_\_  
Parent or Guardian Name Printed

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Student Signature

\_\_\_\_\_  
Parent or Guardian Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

Students and parents please review and keep the educational materials available for future reference.