Environmental Factors in Sports Medicine

Curriculum Overview

Designed for:

- High school students
- Post-secondary students in health occupations courses
- Certified Athletic Trainer courses

Length:

The activities in this curriculum will last approximately 6 hours. With supplemental materials, this curriculum can be adapted to a longer block of time.

Goal:

To help participants learn the basic principles of environmental factors as they relate to the sports medicine field.

Synopsis:

This curriculum will help participants learn to recognize atmospheric conditions that contribute to environmental injury and illness. Participants will describe what constitutes an environmental injury. Participants of this lesson will learn to define the six atmospheric conditions and how each can affect athletes. Participants will learn how to determine the relative humidity using a sling psychrometer and wet bulb globe temperature (WBGT) heat stress meter, determine the WBGT, and use those findings to keep athletes safe from heat-related injuries and illnesses while practicing in different environmental conditions. Participants will measure light intensity at different locations in their environment and record their findings. Participants will learn about circadian rhythms and how light affects the sleep-wake cycle, affecting athletic performance, and recovery.

Curriculum Components:

- Teacher's guide – Complete lesson, including detailed steps of activities, time and materials needed, student handouts and instructor information to teach the lesson
- Assessment tools
- PowerPoint presentation slides

Learning Objectives:

Lesson One – Atmospheric Conditions That Contribute to Environmental Injury

- Recognize atmospheric conditions that contribute to environmental injury
- Describe what is considered an environmental injury
- Define the six atmospheric conditions and how each can affect athletes

Lesson Two – Environmental Factors to be Considered When Caring for Athletes

- Describe the wet bulb globe temperature (WBGT)
- Explain the function of a sling psychrometer and WBGT heat stress meter
- Describe relative humidity
- Learn how to use the above two instruments to measure relative humidity
- Explain how to use a sling psychrometer
- Formulate the WBGT using a sling psychrometer
- Describe safe practices for athletes using the WBGT guidelines

Lesson Three – Circadian Dysrhythmia Impact on Athletes

- Define circadian rhythms
- Explore how circadian rhythms affect teenagers differently
- Learn about optimal training and recovery times based on circadian rhythms
- Describe what a circadian dysrhythmia is
- Explain the complications circadian dysrhythmias could have for various levels of athletes
- Experiment using a light meter to measure light intensity

Lesson Four – Developing an Emergency Action Plan (EAP) and Policy for Thunder and Lightning As It Relates To Athletics

- Define thunder and lightning
- Explore how lightning is particularly dangerous to athletes and spectators
- Learn the "flash to bang" method
- Describe and implement the 8-point lightning safety plan

Lesson Five – Sun Exposure and Risks to Athletes

- Define UVA and UVB rays
- Explore the risks associated with repeated overexposure to the sun
- Learn how certain medications can increase your risk of sunburn
- Describe SPF
- Determine the appropriate SPF for athletes
- Learn about sun safety guidelines
- Perform a sunscreen SPF experiment