Unit 4- The Nature of the Beast - Understanding the Pathology of Sports Injuries

Content Area: **Science**
Course(s): **Sports Medicine**
Time Period: **December**
Length: **8 Blocks**
Status: **Published**

Transfer Skills

The nature of the Beast: Understanding the Pathology of Sports Injuries

Enduring Understandings

Various types of physical stress are the leading causes of tissue trauma and damage.

Athletes with faulty body mechanics have an increased potential for injury.

The phases of the healing process occur in sequence but overlap one another in a continuum.

Pain perception may be influenced by a variety of cognitive processes mediated by the higher brain centers.

Essential Questions

What forces, when applied to any part of the body, result in a mechanical injury?

What are the anatomical characteristics of the various types of joints found in the human body?

What factors may impede the healing process of sports injuries?

What are the major mechanisms of pain control?

Content

Trauma, stress, strain, tonic, synovial joints, subluxation,, osteoarthritis, referred pain, contusion, vasoconstriction, trigger points

Skills

Classify the physiological events that must take place during each phase of healing.

Discuss the healing process relative to various soft-tissue structures.

Formulate a management plan for testing s the severity of sports injuries.

Discuss the types of tissue loads that can produce stress and strain.

Understand that long bones are anatomically susceptible to fractures caused by changes in direction of the force applied to them.

Resources

Text: Essentials of Athletic Injury Management Copyright: 2010

PBS LearningMedia

National Federation of State High School Associations: Sports Medicine Resources

Assessments

Assessments:

Class Discussions

Q&A

Vocabulary Quiz

Unit Test

Standards

SEP.1.a	Ask questions
SEP.1.a.3	to determine relationships, including quantitative relationships, between independent and dependent variables.

CCC.4.1	students can investigate or analyze a system by defining its boundaries and initial conditions, as well as its inputs and outputs. They can use models (e.g., physical, mathematical, computer models) to simulate the flow of energy, matter, and interactions within and between systems at different scales. They can also use models and simulations to predict the behavior of a system, and recognize that these predictions have limited precision and reliability due to the assumptions and approximations inherent in the models. They can also design systems to do specific tasks.
SEP.3.d	Select appropriate tools to collect, record, analyze, and evaluate data.
SEP.4.e	Evaluate the impact of new data on a working explanation and/or model of a proposed process or system.
HPE.2.1.12.A.2	Debate the social and ethical implications of the availability and use of technology and medical advances to support wellness.
HPE.2.1.12.A.CS1	Developing and maintaining wellness requires ongoing evaluation of factors impacting health and modifying lifestyle behaviors accordingly.
HPE.2.1.12.D.CS1	Evaluating the potential for injury prior to engaging in unhealthy/risky behaviors impacts choices.
HPE.2.1.12.E.2	Analyze how new technologies (i.e. social media) may positively or negatively impact the incidence of conflict or crisis.
SCI.9-12.1.3	Patterns of performance of designed systems can be analyzed and interpreted to reengineer and improve the system.
SCI.9-12.1.5	Empirical evidence is needed to identify patterns.
9-12.HS-LS1-2.2.1	Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system.
9-12.HS-LS1-5.2.1	Use a model based on evidence to illustrate the relationships between systems or between components of a system.
9-12.HS-LS1-3.LS1.A.1	Feedback mechanisms maintain a living system’s internal conditions within certain limits and mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system.