

KIN 320 – Fall 2007

PATHOLOGY OF INJURY

(M-W 10:20-11:40 – Room 309 Jenison Field House)

INSTRUCTOR:

John W. Powell Ph.D., ATC Office Hours: T-Th: 10:00-11:30 or

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ACADEMIC COURSE DESCRIPTION:

Pathophysiology and pathomechanics of sport injury, tissue response and the healing process as they relate to management and rehabilitation of sports injury.

COURSE OVERVIEW:

The course presents topics that relate to the basic knowledge regarding normal human tissue mechanics and the pathomechanics of athletic injuries. Emphasis is placed on the fundamental knowledge and skills necessary for student to be able to identify normal and abnormal motion, anatomical structures and the classification of common athletic injuries based on their dysfunctions. The course will build on your knowledge of the role of the athletic trainer in sports medicine and experiences in the MSU athletic training clinical settings.

PREREQUISITES:

KIN 125, 126, 127

COURSE GOAL:

The goal of this course is to develop your understanding of normal and dysfunctional human motion as they relate to the identification of sport related injuries. The course serves as the foundation for subsequent courses in the athletic training major.

REQUIRED TEXT:

Whiting/Zernicke, Biomechanics of Musculoskeletal Injury, Human Kinetics, 1998

This text provides fundamental knowledge of the biomechanics of human movement

Biel, Trail Guide to the Body, 2001

This text provides a reference for human anatomy and human motion

Prentice, Principles of Athletic Training, McGraw-Hill, 2003.

This text will be used as the reference of the discussions regarding the pathology of injury.

REQUIRED READING ASSIGNMENTS:

Powell JW and Dompier TP, Analysis of injury rates and treatment patterns for time loss and non-time loss injuries among intercollegiate student athletes, Journal of Athletic Training, 2004:39(1), 73-89.

Powell JW and Barber-Foss, KD, Sex-related Injury Patterns Among Selected High School Sports, Am J Sports Med, 2000:28(3)385-391.

Powell JW and Barber-Foss, KD, Patterns of mild traumatic brain injuries in high school sports, Journal of the American Medical Association, 1999:282(10):958-963.

Powell JW and Barber-Foss, KD, Injury rates in selected high school sports, Athletic Training, 1999:34(3):277-284.

Albright, JP, Powell, JW, Martindale A, et.al., Injury patterns in Big 10 Conference football:, Am J Sports Med, 2004:32(XDOI):1-17.

Pellman EJ, Powell JW, Viano DC, Casson IR, Tucker AM Concussions in professional football: Epidemiological features of game injuries and review of literature, Journal of Neurosurgery, 2004:54(1), 81 – 94(IP-2.626)

CLASS ATTENDANCE:

Students are REQUIRED to attend classes. Each student may request two excused absences by notifying the instructor 5 days in advance. Each unexcused absence will result in a one point reduction in the “attendance” proportion of your grade.

TURN OFF OR OTHERWISE DISABLE ALL CELL PHONES.

ACADEMIC DISHONESTY:

Academic dishonesty in any form will not be tolerated. Any breach of policy will result in a grade of 0 for the assignment and may result in a 0 for the course. University policies and procedures regarding academic dishonesty can be found at: <http://www.vps.msu.edu/SpLife/rule32.htm>

EXAMINATIONS:

You will have three examinations. Check the class schedule for dates. In addition there will be a comprehensive final examination during the scheduled University Final Exam Week. The student is responsible for all material covered in the classroom and all reading assignments listed in the syllabus.

ASSIGNMENTS:

Students will be randomly assigned to teams. Each team will be responsible for creating a one page type-written summary of a specific injury. These summaries will be placed in Angel in the weeks that correspond to the body under discussion. These assignments are due by 5:00 on the last discussion day for that topic. For example, the team assigned to the Ankle/Foot topic will place their summaries in the Ankle/Foot Week on October 3rd. Detailed instructions will be provided in each Weekly folder in Angel.

GRADING PROCEDURES:

Examination dates are listed in the course outline on the next page. There are no make-up exams. You must notify the instructor of any procedural or scheduling conflicts regarding exams at least two weeks prior to the examination. There will be three exams and a comprehensive final exam. The weighting and scale for grading is as follows:

ITEMS:

1ST EXAM - 20%

2ND EXAM - 20%

3RD EXAM - 20%

Final - 20%

Assignments – 15%

Attendance – 5%

SCALE: (percentage of total points)

92-100 4.0

85-91 3.5

78-84 3.0

71-77 2.5

64-70 2.0

57-63 1.5

50-56 1.0

COURSE OBJECTIVES

At the end of the course students will have acquired the following competencies and/or skills.

1. You will be able to analyze the normal physiological responses of the human body to trauma (ligaments/capsules, muscles, tendons, and bones).
2. You will be able to describe the inflammatory response to acute and chronic injury and illness.
3. You will recognize tissue lesions by body system in terms of etiology, pathogenesis, pathomechanics, treatment options, and expected outcomes.
4. You will describe normal anatomical structures of the human body and their functions.
5. You will identify directional terms and cardinal planes used to describe the body and the relationship of its parts.
6. You will be able to identify body movements including functional classification of joints, joint biomechanics, and normal ranges of joint motion, joint action terminology, and muscular structures responsible for joint.
7. You will be able to describe the etiological factors, signs, symptoms, and management procedures for injuries of the toes, foot, ankle, lower leg, knee, thigh, hip, pelvis, shoulder, upper arm, elbow, forearm, wrist, hand, thumb, fingers, spine, thorax, abdomen, head, and face.
8. You will be able to recognize signs and symptoms of head trauma, including loss of consciousness, changes in standardized neurological, cranial nerve assessment, and other symptoms that indicate underlying trauma.
9. You will be able to construct phrases and appropriate questions to obtain a medical history of an injured or ill individual that includes a previous history and a history of the present injury
10. You will be able to visually identify clinical signs associated with common injuries and illnesses.
11. You will develop skill in the uses of appropriate terminology in the communication and documentation of injuries and illnesses.

CAATE Competencies and proficiencies covered in this class

AC-C14: Identify the signs and symptoms associated with internal hemorrhaging.

AC-C16: Describe the injuries and illnesses that require medical referral.

PD-P4: Develop a research project (to include but not limited to case study, clinical research project, literature review) for an athletic training-related topic.

RM-C3: Identify and explain the epidemiology data related to the risk of injury and illness related to participation in physical activity.

PA-C5: Describe the etiology, pathogenesis, pathomechanics, signs, symptoms, and epidemiology of common orthopedic injuries, illnesses and diseases to the body's systems.

MC-P1: Obtain a medical history of the patient that includes a previous history and a history of the present condition.

COURSE SCHEDULE

| DATE: | TOPIC: | READINGS: |
|--------------|--|---|
| 8/27 | Introduction - Biology Review | Classroom Notes |
| 8/29 | Kinesiology – Human Motion | TG. pp 11-26, BMI 1-13. 15-40 |
| 9/3 | Labor Day - No Classes | |
| 9/5 | Kinesiology – Human Motion Kinesiology-Musculo-Skeletal | MI. 87-111; 9/10 BMI. 87-111 |
| 9/12 | Kinesiology – Joint Structure | BMI. 87-111 |
| 9/17 | Biomechanical Concepts | TG 27-48, BMI, 61-78, PAT, Chap 9 |
| 9/21 | Injury Biomechanics | TG 27-48, BMI, 61-78 & 113-135, |
| 9/24 | Principles of Injury Recognition | PAT Chap 10 |
| 9/26 | Lower Extremity - Ankle/Foot | PAT pp 489-519, TG. pp 275-320, BMI Chap 6 |
| 10/1 | First Exam (Through 9/24) | |

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| 10/3 | Lower Extremity - Ankle/Foot | PAT 528-548, TG. pp 275-320, BMI Chap 6 |
| 10/8 | Lower Extremity - Leg | PAT 549-558, TG. pp 275-320, BMI Chap 6 |
| 10/10 | Lower Extremity - Knee | PAT 568-614, TG. pp 275-320, BMI Chap 6 |
| 10/15 | Lower Extremity - Knee | PAT 568-614, TG. pp 275-320, BMI Chap 6 |
| 10/17 | Lower Extremity Hip/Thigh | PAT 625-659, TG. pp 225-274, BMI Chap 6 |
| 10/22 | Lower Extremity Pelvis | PAT 625-659, TG. pp 225-274 |
| 10/24 | Upper Extremity - Shoulder | PAT 668-703, TG. pp 49-98, BMI Chap 7 |
| 10/29 | Upper Extremity - Shoulder | PAT 668-703, TG. pp 49-98, BMI Chap 7 |
| 10/31 | Second Exam (Through – 10/22) | |
| 11/5 | Upper Extremity - Arm/Elbow | PAT 718-735, TG. pp 49-98, BMI Chap 7 |
| 11/7 | Upper Extremity - Arm/Elbow | PAT 718-735, TG. pp 49-98, BMI Chap 7 |
| 11/12 | Upper Extremity - F/W/H | PAT 743-770, TG. pp 99-144, BMI Chap 7 |
| 11/14 | Upper Extremity - F/W/H | PAT 743-770, TG. pp 99-144, BMI Chap 7 |
| 11/19 | Spinal Anatomy | PAT 780-830, TG. pp 145-190, BMI Chap 8 |
| 11/21 | Spinal Injuries | PAT 780-830, TG. pp 145-190, BMI Chap 8 |

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| 11/26 | Third Exam (Through – 11/14) | |
| 11/28 | Unit 6 – Head and Neck Anatomy | PAT 780-830,, TG. pp 191-224, BMI Chap 8 |
| 12/3 | Unit 6 – Head and Neck Injuries | PAT 780-830,, TG. pp 191-224, BMI Chap 8 |
| 12/5 | Review | |
| 12/13 | Final Exam - Comprehensive | 10:00-12:00 309 Jenison Field House |

PAT = Principles of Athletic Training, TG = Trail Guide to the Body, BMI = Biomechanics of Musculoskeletal Injuries