

# EXRS 4110 REHABILITATION PRINCIPLES

## Class Schedule

Class will meet M, W, F 11:15 – 12:05, Lab – Thursday 9:30 – 10:45

## INSTRUCTORS:

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## REQUIRED TEXT:

Therapeutic Exercise for Athletic Injuries, Houglum, Peggy A., Human Kinetics, ISBM: 0-88011-843-1

## COURSE DESCRIPTION:

Principles and goals of common rehabilitation procedures for athletic injuries will be presented including the use of manual therapy and therapeutic exercises in a comprehensive rehabilitation program. Laboratory experiences will emphasize proper rehabilitation techniques of common injuries.

## COURSE OBJECTIVES:

The student will be able to:

### Cognitive

1. Analyze the normal physiological responses of the human body to trauma and inactivity of specific body tissues (ligaments/capsules, muscles, tendons, and bones).
2. Describe the integration and coordination of cell function in response to injury (e.g., sources of cell injury, inflammation, healing, and repair).
3. Define the inflammatory response to acute and chronic injury and illness.
4. Identify the implications of various underlying pathologies and use this knowledge to

select appropriate therapeutic modalities and therapeutic exercise protocols.

5. Predict the physiological process of wound healing and tissue repair and its implications (limitations, contraindications) on the development and progression of an appropriate rehabilitation or reconditioning program.

6. Describe and interpret appropriate measurement and functional testing procedures as they relate to therapeutic exercise (e.g., use of isokinetic devices, goniometry and dynamometers, postural stability test, hop tests, specific function tests).

7. Use objective measurement results (muscular strength/endurance, range of motion) as a basis for developing individualized rehabilitation or reconditioning programs.

8. Describe common surgical techniques, pathology, and any subsequent anatomical alterations that may affect the implementation of rehabilitation or reconditioning exercise program.

9. Interpret the results of injury assessment and determine an appropriate rehabilitation or reconditioning plan to return the patient to physical activity.

10. Define the basic components of activity-specific functional progressions in a therapeutic exercise program.

11. Describe the mechanical principles applied to the design and use of rehabilitation or reconditioning exercise equipment (leverage, force).

12. Recommend the appropriate therapeutic exercise plan and determine appropriate therapeutic goals and objectives based on the initial assessment, frequent reassessments, and appropriate goal setting.

13. Describe the appropriate selection and application of the exercise taking into consideration:

- a. the physiological responses of the human body to trauma
- b. the physiological effects of inactivity and immobilization on the musculoskeletal, cardiovascular, nervous, and respiratory systems of the human body
- c. the associated anatomical and/or biomechanical alterations of commonly used primary and reconstructive surgery
- d. the physiological adaptations induced by the various forms of therapeutic exercise, such as fast- versus slow-twitch muscle fibers
- e. the physiological responses of additional factors, such as age and disease

14. Describe the indications, contraindications, theory, and principles for the incorporation and application of various contemporary therapeutic exercises, including:

- a. isometric, isotonic, & isokinetic exercise
- b. eccentric vs concentric exercise
- c. open-vs closed-chain exercise
- d. elastic, mechanical,& manual resistance exercise
- e. joint mobilization exercises
- f. plyometrics-dynamic reactive exercise
- g. PNF for muscular strength/endurance, stretching, and improved ROM
- h. exercises to improve neuromuscular coordination & proprioception
- i. passive, active, & active-assisted exercise
- j. cardiovascular exercise, including the use of stationary bicycles, upper-body ergometer, treadmill, and stair climber
- k. aquatic therapy
- l. functional rehabilitation and reconditioning sport-specific activity
- m. soft tissue mobilization

15. Revise goals and objectives, and develop criteria for progression and return to activity, based on the level of functional outcomes.

16. Describe appropriate methods of assessing rehabilitation and reconditioning progress and interpret the results

17. Describe rehabilitation, functional, and reconditioning progress using follow-up notes, progress notes, SOAP notes, etc.

18. Compare the effectiveness of taping, wrapping, bracing, and other supportive/protective methods for facilitation of safe progression to advanced therapeutic exercises and functional activities.

19. Apply manufacturer's guidelines for the inspection and maintenance of therapeutic exercise equipment

20. Compares the psychosocial requirements of various sports activities to the readiness of the injured or ill individual to resume physical participation

21. Understands the psychological and emotional responses (motivation, anxiety, apprehension) to trauma and forced physical inactivity as they relate to the rehabilitation and reconditioning process.

22. Describes the motivational techniques that the certified athletic trainer must use during injury rehabilitation and reconditioning.

## **Psychomotor**

1. Demonstrate appropriate methods of evaluating rehabilitation and reconditioning progress and interpreting results.

2. Measure the physical effects of injury using contemporary methods (isokinetic devices, goniometers, dynamometers, manual muscle testing, calipers, functional testing) and use this data as a basis for developing individualized rehabilitation or reconditioning programs.
3. Record rehabilitation or reconditioning progress (e.g., follow-up notes, progress notes).
4. Demonstrate the appropriate application of contemporary therapeutic exercises including the following:
  - a. isometric, isotonic, and isokinetic exercise
  - b. eccentric vs concentric exercise
  - c. open- vs closed-kinematic chain exercise
  - d. elastic, mechanical, and manual resistance exercise
  - e. joint mobilization exercise
  - f. plyometrics-dynamic reactive exercise
  - g. proprioceptive neuromuscular facilitation (PNF) for muscular strength/endurance, muscle stretching, and improved range of motion
  - h. exercises to improve neuromuscular coordination and proprioception
  - i. passive, active, and active-assisted exercise
  - j. cardiovascular exercise, including the use of stationary bicycles, upper-body ergometer, treadmill, and stair climber
  - k. aquatic therapy
  - l. functional rehabilitation and reconditioning
  - m. sport-specific activity
  - n. soft tissue mobilization
5. Demonstrate the proper techniques for the performance of commonly prescribed rehabilitation and reconditioning exercises.
6. Perform a functional assessment for safe return to physical activity.
7. Inspect therapeutic exercise equipment to ensure safe operating condition.

## **Affective**

1. Accepts the professional, ethical, and legal parameters that define the proper role of the certified athletic trainer in the treatment, rehabilitation, or reconditioning of athletes and others involved in physical activity.
2. Accepts the moral and ethical obligation to provide rehabilitation or reconditioning to athletes and others involved in physical activity to the fullest extent possible

3. Respects the proper role of attending physicians and other medical and paramedical personnel in the treatment and rehabilitation or reconditioning of athletes and others involved in physical activity.

4. Respects accepted medical and paramedical protocols regarding the confidentiality of medical information, medical and therapeutic prescriptions, and health care referral as they relate to the rehabilitation or reconditioning process.

### **TESTING:**

There will be 4 tests worth 100 points each and 1 cumulative final worth 200 points. You will also have a rehabilitation project due at the end of the semester worth 100 points. You will also have 14 pop quizzes worth 10 points each.

### **GRADING:**

<b>TESTS</b>	100 POINTS EACH FOR A TOTAL OF	400 POINTS
<b>FINAL</b>	<b>COMPREHENSIVE</b>	200 POINTS
<b>PROJECT</b>		100 POINTS
<b>POP QUIZES</b>		140 POINTS
<b>TOTAL</b>		<b>840 POINTS</b>

### **FINAL GRADES:**

A = 756 and above

B = 672 to 755

C = 588 to 671

D = 504-587

F= below 504

### **LAB POLICY:**

You must pass each of your competencies in lab to pass the course. The competencies are pass/fail and will be observed at the beginning of the next lab session.

### **ATTENDANCE POLICY:**

We expect each student to be present and on time to class and laboratory sessions. You must make up all missed work. Unexcused missed tests will not be made up unless permission was obtained by the instructor.

### **ACADEMIC HONESTY:**

The University of Georgia and the Athletic Training program seeks to promote and ensure academic honesty and personal integrity among students and members of the university community. Academic honesty means performing all academic work without lying, cheating, tampering, stealing or receiving assistance from any other person or using any source of information that is not common knowledge. You should read and become familiar with A Culture of Honesty publication, which defines the policies, procedures and sanctions for academic honesty. Your instructors will strictly enforce these procedures.