

# ESS 640: Rehabilitation Techniques for Athletic Injuries

Tuesdays and Thursdays; 8:00-9:15a.m.

3 Credits

Spring 2005

**Prerequisites:** BIO 271/277 Anatomy/Physiology, ESS 637 Athletic Injury Evaluation, or permission of instructor.

**For Whom Planned:** Required for athletic training education program students in the Department of ESS. An elective for advanced undergraduate students as well as graduate students with career goals in Sports Medicine.

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## Course Description:

The general goals for this course include awareness, understanding, and application of principles and skills pertaining to rehabilitation of injuries in physically active populations.

## Student Learning Objectives (SLO):

*At the completion of this courses you will:*

1. Identify essential components of a comprehensive rehabilitation plan for an injured athlete.
2. Have an understanding of the effect of injury / illness on body systems, including constraints (limitations/contraindications) associated with tissue healing, immobilization and disuse.
3. Described a phased approach to rehabilitation, including therapeutic goals, therapeutic objectives / methods, general body maintenance activities, and criteria for progression associated with each phase.
4. Appreciate the need to maintain general body fitness and incorporate sound nutrition and general strength and conditioning principles as part of the rehabilitative process.
5. Be able to perform static and dynamic postural evaluations and formulate a plan for their correction.
6. Be able to assess ROM and flexibility and select appropriate therapeutic exercises to restore motion, based on sound anatomical and biomechanical principles.
7. Be able to perform selected manual therapy techniques and integrate them into a comprehensive plan of care
8. Be able to assess muscle function (e.g. strength, endurance and power) and select appropriate therapeutic exercises to restore muscle function following injury.
9. Gain an understanding of the neurophysiological consequences of injury on proprioception and neuromuscular function, and select appropriate assessments and exercises to address proprioceptive deficits.
10. Describe the therapeutic goals and objectives to restore functional activity and return to play, including the appropriate use of speed, agility, sport specific, and plyometric activities.
11. Perform appropriate evaluation techniques to determine readiness for progression and return to full activity.
12. Apply your understanding of injury pathologies and common surgical procedures to select appropriate therapeutic modalities and exercise protocols for the spine, shoulder, elbow, wrist and hand, hip, thigh, knee, ankle and foot.
13. Appropriately interpret physician notes, post-operative notes, and physician prescriptions as they pertain to the rehabilitation plan.
14. Appropriately document the rehabilitation plan, progress and functional outcomes using SOAP notes, progress notes, and physician reports.
15. Appreciate and consider individual characteristics of injured athletes relative to age, activity level, corollary disease, motivation, compliance, and injury response, and individualize the rehabilitation plan as needed.

**Teaching Strategy:** The course will be lecture format.

## Student Evaluation:

**Written Mid-Term Examinations (40% of total points):** There will be two written examinations. Exams will be essay in nature and will focus on critical thinking skills. The student will be asked to apply knowledge gained in class and readings to clinically relevant situations. SLOs Evaluated: 1-4, 6-10, 15.

**Comprehensive Final Examination (20% of total points):** Exam will be essay in nature and will focus on critical thinking skills. The student will be asked to apply knowledge gained in class and readings over the entire course to clinically relevant situations. SLOs Evaluated: 1-15

**Written Project (20% of total points):** Each student will be assigned an injury case by which they will develop, document and critique a complete 4-phased rehabilitation program. The outline and guidelines for the written document will be provided in class and on blackboard. SLOs Evaluated: 1-4, 6-15.

**Article Review (5% of total points):** Each student will complete a written review of a journal article regarding a **manual therapy** technique. The article should be from a refereed journal and a copy of the article should be included with the review. SLOs Evaluated: 7

**Postural Screen and Treatment Plan (10% of total points):** Students will complete a postural screen on an athlete that identifies either a lower extremity or spinal postural fault(s), and develop an appropriate treatment and rehabilitation for resolution. SLOs Evaluated: 3, 5-6

**Presentation of Rehab Project (5% of total points):** Students will give a 20 minute oral, power point presentation, summarizing their rehabilitation case. Specific instructions for the oral presentation will be provided in class and posted on blackboard. SLOs Evaluated: 2-3, 11-15

### Grading Criteria:

Percentage Earned	Letter Grade
90-100%	A
80-89.99%	B
70-79.99%	C
<69.99%	F

Grades that are earned during exams, quizzes or individual assignments will not be curved. Depending on the final distributions of scores, a plus/minus may be used to reward those students who are especially close to the next higher letter grade (e.g., 78.5% may be either a C+ or B-). I will not *use* the plus/minus scale to lower your grade (e.g., 70.1% will be a C, not a C- or D+).

**Late Penalties:** All written work will have a specific due date. A 5% deduction will be made for each 24 hours (beginning at the *start* of the class period on the due date) that an assignment is turned in late (note that Monday is considered one day later than Friday). *Neither missing class nor arriving late for class on the day an assignment is due prevents you from incurring a late penalty. Once an assignment is handed back, no late assignments will be accepted.*

**Required Texts:** Houglum, Peggy A. Therapeutic Exercise for Musculoskeletal Injuries, Human Kinetics, 2005.

**Recommended Text:** Brotzman SB and Wilk KE. Clinical Orthopaedic Rehabilitation, 2nd Edition. Elsevier Health, 2003. <http://www.us.elsevierhealth.com>

**Academic Honor Code:** All students are expected to abide by the Academic Integrity Policy. If there is anything you do not understand about this policy, please see me. Each student is required to sign and date the honor statement, ***"I have abided by the academic integrity policy on this assignment"*** on all work submitted for the course. Refer to UNCG Academic Integrity Policy on line at <http://saf.dept.uncg.edu/studiscp/Honor.html>. All violations will be strictly enforced.

**Attendance Policy:** Students are expected to attend all classes. Make-up examinations will only be scheduled prior to the exam date.

**Drop Policy:** Refer to UNCG *Graduate Bulletin*.

**ESS 640: Rehabilitation Techniques for Athletic Injuries**  
**Article Review**

**Assignment information:**

This assignment requires you to complete a written review of a journal article regarding a **manual therapy** technique. The article should be from a refereed journal and a copy of the article should be included with the review. Suggestions for manual therapy techniques included (but are not limited to):

- Swiss Balls
- Foam Roller
- Therapeutic Massage
- Joint Mobilization
- Myofascial Release
- Muscle Energy
- Neural Mobilization
- Myofascial Trigger Points
- Proprioceptive Neuromuscular Facilitation
- Manual Resistive Exercise
- Plyometrics

**Content of Review:**

The review should be limited to two pages. A critical review of the article should include:

**1) Title:** Full Citation of Article

**2) Summary (Do not use abstract):** Discuss how the technique was used or applied

- a) Physiological Principles Behind the Technique
- b) Applied Purpose for this Study
- c) Goals and Objectives: Expected Outcome
- d) Efficacy of Technique: Actual Outcome
- e) If Expected and Actual Outcome Differed, Discuss possible reasons

**3) Application of Findings:**

- a) Discuss the broader application of this technique / study as it relates to the content of the course
- b) What are the potential indications / benefits of this technique?
- c) What are the potential contraindications / drawbacks of this technique?

**4) Critique:**

- a) Discuss strengths and weaknesses of the article
- b) Suggest directions for future research related to this technique

**No late assignments will be accepted**

**ESS 640: Rehabilitation Techniques for Athletic Injuries**  
**Postural Screen**

**Assignment information:**

You are to complete a postural screen on an athlete that identifies either a lower extremity or spinal postural fault(s). Using the information gained from the form that will be provided, please report on the following:

**Observation:** Identified Postural Faults

**Impression:** Based on the identified postural faults, discuss:

- What are the **Clinical Implications** of the deviations
- What do you believe to be the **Potential Underlying Cause(s)** for the deviations
- Are the deviations **Functional or Structural**
- What **Postural Corrections** are needed

**Treatment Plan:** Based on your observation and impression, please develop a treatment plan for postural correction. For each Postural Fault list the Correction Goal, and how it will be accomplished through therapeutic exercise or other therapeutic modalities. This plan may include both internal corrections (flexibility, strength, motor control, etc.) and/or external (braces, orthotics, etc).

**ESS 640: Rehabilitation Techniques for Athletic Injuries**  
**Research Paper Outline**

**Goals and Objectives:** Students will be assigned an injury resulting in a surgical procedure or an extended rehabilitation. This should ideally be a case study of an athlete you are following in your clinical experience setting. If one should not be available by the first week in February, please see the instructor for assignment of a clinical case study. After receiving instructor approval, students will proceed to write a report using the following guidelines (*All headings listed below should be present in the detailed report*). The report should incorporate clinical interviews and experiences with consultation / referencing of pertinent literature.

- 1) Title Page:
  - a) Title, Name, Course and Instructors, Date
- 2) Table of Contents: Including subheadings and page numbers
- 3) Introduction of Assigned Condition (Narrative)
  - a) Pertinent Anatomy
  - b) Etiology (Mechanism of Injury)
  - c) Initial Assessment of Injury & Important Findings
  - d) Initial Treatment
  - e) Referral & Outcome of Referral
  - f) Surgical Procedure if Any
    - i) Surgical Goals
    - ii) Surgical Procedures (Include Surgical Notes) & Outcomes
    - iii) Implications on Tissue Repair & Healing Constraints
    - iv) Implications on Function
  - g) Athlete and Injury Status at Time Rehabilitation Program was Initiated
- 4) Rehabilitation Program – Case Study
  - a) Phase I
    - i) Define
    - ii) Therapeutic Goals
    - iii) Methods to Obtain Goals
    - iv) Specific Criteria for Progression
  - b) Phase II
    - i) Define
    - ii) Therapeutic Goals
    - iii) Methods to Obtain Goals
    - iv) Specific Criteria for Progression
  - c) Phase III
    - i) Define
    - ii) Therapeutic Goals
    - iii) Methods to Obtain Goals
    - iv) Specific Criteria for Progression
  - d) Phase IV
    - i) Define
    - ii) Therapeutic Goals
    - iii) Methods to Obtain Goals
    - iv) Specific Criteria for Progression
- 5) Conclusion/Summary
  - a) Final Outcome vs Expected Outcome
  - b) Using the benefit of hindsight, describe what therapeutic techniques worked well / not well, and what you might do differently next time
  - c) What particular challenges you faced, and how you dealt with them
- 6) References

**Course Agenda / Schedule :**

<b>Date</b>	<b>Topic</b>	<b>Readings</b>	<b>Lecturer</b>
Tues, 1/11	Course Introduction / Essential Components of a Rehabilitation Program	Houglum Ch 1	S Shultz
Thur, 1/13	Effect of Injury on Body Systems: Tissue Healing	Houglum Ch 2	S Shultz
Tues, 1/18	Effects of Injury on Body Systems: Immobilization and Disuse	Houglum Ch 2	S Shultz
Thur, 1/20	Rehabilitation Planning and Implementation: A Phased Approach		S Shultz
Tues, 1/25	Biomechanical Principles of Ther Ex	Houglum Ch 3	T Windley
Thur, 1/27	Assessment & Documentation of Therapeutic Exercise Programs	Houglum Ch 4	T Windley
Tues, 2/01	Restoration of ROM: Exercise Selection and Joint Mobilization	Houglum Ch 5	T Windley
Thur, 2/03	Restoration of ROM: Soft Tissue Tech	Houglum Ch 6	S Shultz
Tues, 2/8	Restoration of Muscle Function: Principles of Strength & Conditioning	Houglum Ch 7	L Howard
Thur, 2/10	Restoration of Muscle Strength & Endurance	Houglum Ch 7	L Howard
Tues, 2/15	Restoration of Proprioception and Neuromuscular Control: Neurophysiology	Houglum Ch 8	S Shultz
Thur, 2/17	Restoration of Proprioception & Neuromuscular Control: Exercise Selection and Progression <b>Take Home Examination #1 Assigned</b>	Houglum Ch 8	S Shultz
Tues, 2/22	Restoration of Function: Speed and Agility	Houglum Ch 9	L Howard
Thur, 2/24	Restoration of Function: Selection and Progression of Functional Activities for the Lower Extremity <b>TAKE HOME EXAM DUE</b>	Houglum Ch 10	S Shultz
Tues, 3/01	Restoration of Function: Selection and Progression of Functional Activities for the Upper Extremity <i>Article Review Assignment Due</i>	Houglum Ch 10	K Dickens
Thur, 3/03	Postural Assessment and Correction	Houglum Ch 11	T Windley
<b>3/08 &amp; 3/10</b>	<b>Off for Spring Break</b>		
Tues, 3/15	Rehabilitation Considerations for the Cervical and Thoracic Spine	Houglum Ch 16	T Windley
Thur, 3/17	Rehabilitation Considerations for the	Houglum Ch 16	T Windley

	Cervical and Thoracic Spine		
Tues, 3/22	Rehabilitation Considerations for the Shoulder <i>Postural Screen Assignment Due</i>	Houglum Ch 17	S Lucy
Thur, 3/24	Rehabilitation Considerations for the Shoulder	Houglum Ch 17	T Windley
Tues, 3/29	Rehabilitation Considerations for the Shoulder	Houglum Ch 17	T Windley
Thur, 3/31	Rehabilitation Considerations for the Elbow and Forearm	Houglum Ch 18	S Shultz
Tues, 4/05	Rehabilitation Considerations for the Wrist and Hand <i>Take Home Examination #2 Assigned</i>	Houglum Ch 19	J Ambegankor
Thur, 4/07	Rehabilitation of the Lumbar/Sacral Spine	Houglum Ch 16	J Shipp
Tues, 4/12	Rehabilitation of the Lumbar/Sacral Spine <b>TAKE HOME EXAM DUE</b>	Houglum Ch 16	J Shipp
Thur, 4/14	Rehabilitation Considerations for the Hip and Thigh	Houglum Ch 21 & 22	T Windley
Tues, 4/19	Rehabilitation Considerations for the Knee	Houglum Ch 21	S Shultz
Thur, 4/21	Rehabilitation Considerations for the Knee	Houglum Ch 21	S Shultz
Tues, 4/26	Rehabilitation Considerations for the Foot, Ankle, and Lower Leg	Houglum Ch 20	S Shultz
Thur, 4/28	Rehabilitation Considerations for the Foot, Ankle, and Lower Leg <b>Take Home Examination #3 Assigned</b>	Houglum Ch 20	S Shultz
<b>Tues, 5/10</b>	<b>8:00-11:00 am</b> <b>Student Presentation of Case Studies</b> <b>TAKE HOME EXAM DUE</b>		