EXCM 345 - Therapeutic Exercise and Rehabilitation

Sullivan 202
W 4:15-6:45

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Office Hours: Wednesdays prior to class by appointment

Course Texts:
Therapeutic Exercise, 5th Ed.
Kisner and Colby, authors.
FA Davis Co., publisher

Therapeutic Exercise for Musculoskeletal Injuries, 3rd Ed.
Peggy A. Houglum
Human Kinetics, publisher

Various journal articles

Course Description

This course will serve as an introduction to the science and practice of musculoskeletal rehabilitation. It will emphasize evidence based protocols, examining common practices and emerging new treatments. Physiology of the musculotendinous unit and tendinopathy will also be emphasized. This course will rely heavily on analysis of primary literature sources from medical and allied health journals, and will culminate in analysis of rehabilitation modalities of various musculoskeletal injuries.

Expectations of Successful Learners:

Come to class prepared. It is expected that you will have read and critically appraised assigned readings.

Participate actively in class.

Ask questions. You are not the only one wondering.

Expect to get out of this course what you put into it.

Specific Assignments and Grading

Weekly journal readings (5%) – should be read and summarized critically. You will be asked to turn in your 1-2 paragraph summary of the article after discussion in class. Feel free to work on them together, if you so choose but do not divide them and trade. It will be clear during discussion who has read the assigned articles.

Problem sets (15%) – Some weeks there will be problem sets to complete. You may use any non-living reference you choose. These will be graded and will comprise a portion of the final grade. Late work will not be accepted without prior approval.
Exams (25% and 40%) – There will be two exams. The final will be cumulative but will emphasize previously untested portions of the course material. Expect multiple choice as well as short answer questions.

Research paper and presentation (15%) – This assignment will be due during the second half of the course. It should be 8-12 pages that summarize and critically review a treatment modality currently used in musculoskeletal rehabilitation. You will present your findings in an oral presentation to be given to the class.

Course Schedule and Assignments (to be prepared for class)

1-15  Introduction and Background  b
       Kisner, Ch. 1
       Snyder, et al. 2008 I and II

1-22  Foundational concepts: basic science of muscle, tendon and nerve
       Houglum, Ch. 7
       Riemann and Lephart, 2002, I and II
       Review muscle contraction [animation] webpage

1-29  Foundational concepts: physics, injury and healing
       Kisner, Ch. 10
       Houglum, Ch. 2,3
       Problem Set 1 due

2-5   Foundational concepts: inflammation and chronic tendinopathy
       Kjaer, Langberg, Heinemeier, et al.; 2009
       Lewis 2010
       Scott, Khan and Roberts, 2004

2-12  Principles of rehabilitation: range of motion and stretching
       Kisner, Ch. 3,4
       Jamtvedt, Herbert, Flottorp, et al.; 2009
       Shrier 2000
       Problem Set 2 due

2-19  MIDTERM EXAM (covers through 2-13 material)
2-26  Principles of rehabilitation: resistance exercise
    Kisner, Ch. 6
    Rees, Wolman and Wilson; 2009
    Khan and Scott; 2009
    Kristensen and Franklyn-Miller 2011
    Woodley 2007

3-5  Spring Break

3-12  Principles of rehabilitation: aerobic exercise and joint mechanics
    Kisner, Ch. 7
    Problem Set 3 due

3-19  Principles of rehabilitation: balance and proprioception
    Kisner, Ch. 8

3-26  Regional rehabilitation: spine and peripheral nerves
    Kisner, Ch. 13-16
    Problem Set 4 due

4-2  Regional rehabilitation: shoulder girdle, elbow, wrist and hand
    Kisner, Ch. 17,18
    Bisset, Paungmali, Vicenzino, et al.; 2005
    Struijs, Korthals-de Bos, van Tulder, et al. 2006
    Problem Set 5 due

4-9  Regional rehabilitation: hip, knee, ankle and foot
    Kisner, Ch. 20-22
    Zoch, Fialka-Moser and Quittan; 2003
    Problem Set 6 due

4-16  Modality presentation preparation

4-23  Modality presentations and final exam review
    Treatment modality research paper and presentation due

4-30  FINAL EXAM 4:15 pm