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Spring 1-2003

### PT 528.01: Therapeutic Interventions II

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# **PT 528 Therapeutic Interventions II**

## **Spring 2003**

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### **Course Description**

The faculty designed this course to be closely integrated with PT 519 – Musculoskeletal Evaluation II. This course will introduce the student to a wide variety of therapeutic interventions to a wide variety of common conditions. The goal of this course is to give the student a theoretical and practical framework so that they can develop, implement, and modify an appropriate and effective therapeutic intervention for their client.

Be mindful of the Physical Therapy Generic Abilities in your approach and participation in this class. It is expected that you will attend class and be on time.

### **Required Textbooks**

ACSM (2001). ACSM's resources manual for guidelines for exercise testing and prescription, (4th ed.). Philadelphia: Lippincott Williams & Wilkins.

APTA (2001). Guide to physical therapist practice, 2<sup>nd</sup> ed. Physical Therapy. 81(1). 1-768.

APTA (2002). Interactive guide to physical therapist practice with catalogue of tests and measures Version 1.0 CDROM. Alexandria, Virginia: APTA

Hall, C.M. and Brody, L.T., (1999). Therapeutic exercise: Moving towards function. Philadelphia: Lippincott Williams & Wilkins.

Kisner, C. & Colby, L.A., (2002). Therapeutic exercise: Foundations and techniques (4th ed.). Philadelphia, PA: F. A. Davis, Co.

Mueller, M.J. & Maluf, K.S. (2002). Tissue adaptation to physical stress: A proposed “physical stress theory” to guide physical therapist practice, education, and research. Physical Therapy, 82(4), 383-403.

Neumann, D.A., (2002). Kinesiology of the musculoskeletal system. St. Louis: Mosby

O’Sullivan, S. B. & Schmitz, T. J. (2000). Physical Rehabilitation: Assessment and treatment (4th ed.). Philadelphia, PA: F. A. Davis, Co.

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### **Class Meeting Times**

Mondays	10:10 AM to 12:00 PM – Room SB113/020/025
Tuesdays	3:10 PM to 5:00 PM – Room SB 113//020
Fridays	8:10 AM to 10:00 AM - Room SB 113//020/025/PT Clinic

### **Laboratory Attire**

Men and women must wear loose shorts and women must wear an appropriate bra, sports bra or the upper portion of a two-piece swimsuit (one piece swimsuits are not acceptable). Sweats may be worn during lab when not acting as the client.

### **Course Evaluation**

The PNF section of this course will be worth 25% of the student’s final grade. Ann Williams will provide the precise breakdown of this 25%.

Mid Term 1 (March 14)	100 points* (75/25)
Case Study Project and Presentation (Group)	70 points <sup>†</sup> (50/20)
Comprehensive Final Examination	100 points* (75/25)
2 – Homework Assignments	Pass/No Pass <sup>†</sup>

\* These course components must be successfully completed with a score of  $\geq 70\%$  as per the student handbook (academic and performance standards)

<sup>†</sup> For the purposes of this course a pass is considered to be  $> 80\%$ . Assignments that do not meet this standard will be returned. All assignments must be satisfactorily completed as part of the minimum requirements of this course.

**!! Exam and quizzes will cover lecture, lab, and assigned readings!!**

## **Course Behavioral Objectives**

**1 = Knowledge and Comprehension**

**2 = Application**

**3 = Psychomotor**

**4 = Synthesis**

**5 = Affective**

### **A. Basic principles of therapeutic exercise**

- 1.1 List the general categories of exercise and their effect on body tissues (passive, active, resisted, endurance, coordination, relaxation)
- 1.2 Give the goals for use of each type exercise
- 1.3 Discuss the contraindications for each type of exercise
- 1.4 Name exercise equipment that will accomplish each category of exercise
- 2.1 Describe specificity of exercise and relate this principle to a given case
- 3.1 Demonstrate appropriate exercise for given case, including patient position, verbal directions, equipment, speed, repetitions, duration, type of contraction, etc
- 3.2 Write a concise and clear home exercise program
- 3.3 Document therapeutic exercises clearly and concisely
- 4.1 Given a written physical examination, create an exercise program: integrating the problem list and goals, function, and principles of biomechanics
- 4.2 Critique an exercise protocol for a given case and offer alternative approaches
- 4.3 Compare and contrast exercise equipment for a given case
- 5.1 Participates and practices in and out of class
- 5.2 Effectively teaches classmates exercise programs including the following components

- 1. Strengthening/ Resistive
  - a. Isotonic
  - b. Isometric
  - c. Isokinetic
  - d. Concentric
  - e. Eccentric
  - f. Open chain/Closed chain
  - g. Muscle soreness
- 2. Endurance
  - a. Muscular
  - b. Cardiovascular
- 3. Mobility and flexibility
  - a. Passive ROM
  - b. Stretching
  - c. Active-assisted and active
- 4. Coordination, balance, and skill
- 5. Equipment
  - a. Isokinetic dynamometers

- b. Weight room (selectorized and free)
- c. Ergometers (cycle, treadmill, & arm)
- d. Hydraulic equipment
- e. Isotonic equipment
- f. Elastics
- g. Gymnastic Balls
- h. Misc. (items found in clients homes & "over-the-counter")

## **B. Basic principles of biomechanics, normal tissue response to forces, and pathomechanics**

- 1.1 Describe basic biomechanical principles related to therapeutic exercise and ergonomics
- 1.2 Give normal and abnormal response to external forces
- 1.3 Describe normal and abnormal forces at specific joints
- 2.1 Create a specific exercise for a given pathology and dysfunction
- 2.2 Predict tissue damage with a given force
- 4.1 Compare and contrast exercise equipment for efficacy, safety, and cost
- 4.2 Compare and contrast exercise strategies and techniques for specific pathophysiology and dysfunction
- 4.3 Evaluate a work area and make suggestions to increase efficiency and decrease abnormal tissue loading
- 5.1 Choose appropriate exercise, considering the client's motivation and socioeconomic factors

## **C. Literature and Research in Therapeutic Exercise**

- 1.1 Demonstrate familiarity with research in Therapeutic Exercise.
- 5.1 Demonstrate an interest in pursuing literature/research as a life-long pursuit.

## **Course Schedule (Very much tentative)**

Mon., Jan. 27	Course introduction. Therapeutic interventions a re-introduction.
Tues. Jan. 28	Shoulder/UE therapeutic interventions
Fri., Jan 31	Shoulder/UE therapeutic interventions
Mon., Feb. 3	Shoulder/UE therapeutic interventions
Tues. Feb. 4	Shoulder/UE therapeutic interventions
Fri., Feb. 7	Shoulder/UE therapeutic interventions
Mon., Feb. 10	Lumbopelvic therapeutic interventions
Tues., Feb. 11	PNF 1
Fri., Feb. 14	TBA

Mon., Feb. 17	Presidents Day
Tues., Feb. 18	PNF 2
Fri., Feb. 21	Lumbopelvic therapeutic interventions
Mon., Feb. 24	Lumbopelvic therapeutic interventions
Tues., Feb. 25	PNF 3
Fri., Feb. 28	Lumbopelvic therapeutic interventions
Mon., Mar. 3	Taping
Tues., Mar. 4	PNF 4
Fri., Mar. 7	Taping
Mon., Mar. 10	Taping
Tues., Mar. 11	PNF 5
<b>Fri., Mar. 14</b>	<b>Midterm Examination</b>
Mon., Mar. 17	Isokinetics
Tues., Mar. 18	PNF 6
Fri., Mar. 21	
Mon., Mar. 24 -28	Spring Break
Mon., Mar. 31	Ball/Isokinetic Lab
Tues., Apr. 1	PNF 7
Fri., Apr. 4	Ball/Isokinetic Lab
Mon., Apr. 7	LE therapeutic interventions
Tues., Apr. 8	PNF 8
Fri., Apr. 11	Aquatic Physical Therapy
Sat, Apr. 12	Grizzly Pool 10:00 - noon
Mon., Apr.14	LE therapeutic interventions
Tues., Apr. 15	PNF 9
Fri., Apr. 18	LE therapeutic interventions
Mon., Apr. 21	LE therapeutic interventions
Tues., Apr. 22	PNF 10
Fri., Apr. 25	LE therapeutic interventions
Mon., Apr. 28	TBA
Tues., Apr. 29	PNF 11
Fri., May 2	TBA
Mon., May 5	TBA
Tues., May 6	TBA
Fri., May 9	TBA

PT 528  
Unit on Proprioceptive Neuromuscular Facilitation  
Spring 2003

- I. Unit meets Tuesday 3-5 PM, February 11-April 29.
- II. **Professor:** Ann K. Williams, PT, PhD
- III. **Contact Hours:** 20
- IV. **Unit Description:** Theoretical background and practical application of Proprioceptive Neuromuscular Facilitation (PNF) exercise technique. Strong emphasis on laboratory practice and case studies.
- V. **Required Reading:**  
Readings from O'Sullivan & Schmitz, Physical Rehabilitation, Assessment & Treatment, 4 Ed, 2001  
Selected Readings and Handouts  
FACPAC in Bookstore
- VI. **Evaluation:** Evaluation of PNF Material will include a written quiz, exam, and practical "check-outs". The unit is worth approximately 70 points. All students will be required to "check out" on the patterns to assure basic competency. Times for the check out will be during the unit. The check out will be worth 15 points.
- VII. **Course Objectives:** See attached
- VIII. **Course Outline and Reading:** See Attached
- IX. **Teaching Methods:** Lecture/Demonstration, laboratory practice, case examples
- X. **Laboratory:** Every class meeting will require laboratory work, so please be prepared to dress for lab each time. Lab clothing, as always, includes shorts and T-shirts (may add sweats) for the men, and shorts, top, T-shirts (may add sweats) for the women.

## Course Outline

Feb 11	Basic Principles UE Patterns
Feb 18	UE, Scapular Patterns, Bilateral UE, Upper Trunk, Head & Neck
Feb 25	Continue UE
Mar 4	LE Patterns, Pelvic, Lower Trunk
Mar 11	Continue LE, Indications/Contraindications Muscle stretching, Contract/relax, Hold/relax
Mar 18	Quiz, Case Examples, Developmental Sequence
April 1	Functional PNF Activities (No Fooling)
Apr 8	Functional PNF Activities
Apr 15	Functional PNF, Gait, Respiratory PNF PNF with other Equip (balls, Pulleys, Theraband, etc) Case Examples, Checkouts
Apr 22	Case Examples, Checkouts
Apr 29	Case Examples, Checkouts