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PT 526.02: Physical Therapy Interventions I

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PT 526 Physical Therapy Interventions I
Physical Agents Unit
Fall 2008

I. Unit Professor:

James J. Laskin, PT, PhD
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Office hours by appointment

Unit Lab Instructor:

Jessica Elsey, DPT

II. Unit Meeting Times:

III. Unit Credits: 1

IV. Unit Contact Hours: Lecture (20)
 Lab: (10)
 Written exams: (4)
 Practical exam: (20 minutes)

V. Unit Required Text:

Michlovitch, SL and Nolan, jr., TP. (2005). *Modalities for Therapeutic Intervention*, 4th ed.
Philadelphia: F. A. Davis
(The required reading list is provided under separate cover.)

VI. Unit Description:

This unit will introduce the student to the adjunctive modalities defined as physical agents. The students will learn the skills necessary to choose and apply physical agents safely and effectively for patient intervention. They will also continue their efforts to apply the evidence based practice model through critical thinking, problem solving, and reviewing the literature.

VII. Grading Scale:

90-100= A	70-72 = C-
87-89 = B+	67-69 = D+
83-86 = B	63-66 = D
80-82 = B-	60-62 = D-
77-79 = C+	< 60 = F
73-76 = C	

VIII. Unit Evaluation Methods: No repeat of written exam will be given.

Written Cumulative Exam	50%
Practical Skills Exam	20%
Lab case studies/assignments	15%
Quizzes (3)	15%

Academic Honesty:

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code.

The Code is available for review online:

<http://life.umt.edu/SA/documents/fromWeb/StudentConductCode1.pdf>

For information on plagiarism please visit these links:

<http://www.rbs2.com/plag.htm>

<http://owl.english.purdue.edu/owl/resource/589/01/>

For help with references:

<http://www.apastyle.org/elecref.html>

Professional Behaviors:

Professional behaviors are expected in the course. These include (but are not limited to): taking responsibility for one's own learning, taking responsibility for one's own work (no cheating or plagiarism), completing group and individual assignments in a timely manner, coming to class on time (unless excused), coming to class prepared, treating fellow students, staff, and faculty with respect, and receiving and giving constructive criticism when appropriate. Cell phones should be turned off and put away. Lap top computers may be used to take notes and when appropriate, search the web for information pertaining to the topic being discussed in class. Other uses of personal computing and communication devices in class are prohibited. Students causing distraction to other students or the instructor will be asked to leave the room for the remainder of the day.

Please refer to the "Generic Abilities" section in your student handbook. Unprofessional behavior will be subject to disciplinary action.

IX. Teaching Methods and Learning Experiences.

The primary teaching method for this unit will be in a lecture format. To supplement the lectures and to provide alternative explanations and points of view specific readings from the required text will be assigned. The hands on laboratory experiences will help ensure that the student has a good working knowledge of the modalities covered in this unit. This unit is being managed via Blackboard. Please go to <http://umonline.umt.edu> to find a copy of this syllabus, course objectives, lecture notes, and unit grades. Please note that while every attempt will be made to ensure that the lecture notes are posted on Blackboard prior to class that may not always be the case. To ensure student confidentiality please be aware that unit grades will not be posted anywhere other than on Blackboard. The students will be assessed via a comprehensive exam, quizzes, practical exam, and an assignment integrating physical agents and evidence practice.

Practical Exam: Practical exams are given over several days. Students are required to show competency in all areas that have been addressed in this course. Therefore, if a student fails a practical exam, he or she will be required to re-take the practical exam and/or by some other means as determined by the unit instructor to ensure that competency is established. The following guidelines have been established to ensure confidentiality of the exam material as well as fairness to all students.

1. Do not solicit any information from students who have taken the exam (your classmates or those in other years).
2. Do not discuss any part of the exam with classmates who have not taken the exam.
3. While practical exams are being given, do not use the equipment that might be used during the exam.
4. While practical exams are in session, do not study, practice, or otherwise loiter in the exam area.

Quizzes: The quizzes will focus primarily on the assigned readings and key lecture components.

Lab Clothing: Men are to wear shorts and tee shirts; women are to wear shorts and sports bras/bathing suit tops. You may wear sweatshirts/pants to stay warm. You are required to be dressed out prior to the beginning of the laboratory session. For the laboratory session that will take place at the Community Medical Center you must attend dressed professionally (with name tags), unless otherwise directed by the laboratory instructor.

Unit Schedule:

Mon Sept. 15	(1:10 – 4:00 PM SB 117)	Introduction and Healing and Management of Pain
Wed Sept. 17	(1:10 – 4:00 PM SB 114)	Thermal Agents: Superficial Heat and Cryotherapy
Mon Sept. 22		No Class
Wed Sept. 24	(3:10 - 5:00 PM SB 020)	Lab (Assessment and Thermal Agents)
Mon Sept. 29	(3:10 – 5:00 PM SB 020)	Lab (Assessment and Thermal Agents)
Wed Oct. 1	(1:10 – 3:00 PM SB 114)	Quiz 1 , Thermal Agents: Cryotherapy, & Therapeutic Ultrasound
Mon Oct. 6	(1:10 – 4:00 PM SB 117)	Therapeutic Ultrasound
Wed Oct. 8	(1:10 - 3:00 PM SB 114)	Electromagnetic Radiation
Mon Oct. 13	(1:10 – 4:00 PM SB 117)	Quiz 2 , Electromagnetic Radiation
Wed Oct. 15	(3:10 – 5:00 PM SB 020)	Lab (Therapeutic Ultrasound and Electromagnetic Radiation)
Mon Oct. 20	(1:10-3:00 PM SB 117)	Traction
Wed Oct. 22	(3:10-5:00 PM SB 020)	Lab (Therapeutic Ultrasound and Traction)
Mon Oct. 27	(1:10-3:00 PM SB 117)	Quiz 3 , Choosing the Appropriate Modality
Wed Oct. 29	(1:10 – 3:00 PM SB 114)	Lab (CMC)
Mon Nov. 3	(1:10-4:00 PM SB 117)	Written Exam (P. A., Transfers, etc no ST)
Wed Nov. 5	(1:10 – 3:00 PM SB 020)	Practical Exam (P. A., Transfers, etc no ST)

Unit Objectives:

- 1 - Knowledge and Comprehension
- 2 - Application
- 3 - Psychomotor
- 4 - Synthesis
- 5 - Affective

SAFETY AND PRECAUTIONS, IDENTIFICATION OF MODALITIES, GENERAL PRINCIPLES OF APPLICATION OF MODALITIES. (cc-5.1; cc-5.3, cc-5.19; cc-5.20) (EXO-1, 3, 4, 5, 6, 7, 11)

- 1.1 Describe, categorize and compare the types of physical agents used in patient intervention. **(CC-5.19) (EXO-3, 4)**
- 1.2 Recognize the role of physical agents in pain and inflammatory response, healing, collagen extensibility and muscle tone. **(CC-5.19, 5.20) (EXO-1, 4)**
- 1.3 Identify the physiological effects of physical agents. **(CC-5.19, 5.20) (EXO-1)**
- 1.4 Describe proper ethical, legal, and safety considerations for the use of physical agents. **(CC-5.1, 5.3) (EXO-5)**
- 1.5 Describe proper documentation for the physical agents. **(CC-5.1) (EXO-11)**
- 1.6 Define asepsis, medical asepsis, surgical asepsis, and contamination. **(EXO-1)**
- 2.1 Given patient information, demonstrate the correct documentation of physical agents assessment and procedures. **(CC-5.19, 5.20) (EXO-5, 11)**
- 2.2 Demonstrate an ability to use appropriate physical agents. **(CC-5.19) (EXO-4)**
- 2.3 Apply principles of safe practice to the application of physical agents. **(CC-5.1, 5.3, 5.20) (EXO-4, 5)**
- 3.1 Demonstrate appropriate instructions for the use of physical agents for the PT assistant and PT aide. **(CC-5.1) (EXO-5, 6, 7)**
- 3.2 Obtain appropriate information from the patient including history, pain perception, and information regarding contraindications. **(CC-5.19, 5.20) (EXO-1, 3, 5)**
- 3.3 Describe and perform proper techniques of hand washing for clean and sterile situations. **(EXO-5)**
- 3.4 Describe and perform the proper application and removal of protective garments for clean and sterile situations. **(EXO-5)**

GENERAL PRINCIPLES OF APPLICATIONS OF PHYSICAL AGENTS IN THE LABORATORY AND DURING THE PRACTICAL EXAMINATION (cc-5.3; cc-5.19; cc-5.20; 5.31; cc-5.40) (EXO-2, 3, 4, 5, 6, 7, 11)

- 3.1 Demonstrate appropriate professional behavior including nonverbal behaviors. **(CC-5.3)**
- 3.2 Obtain appropriate information from the client including history, pain perception, and information relating to any potential contraindication. **(CC-5.19) (EXO-2)**
- 3.3 Clean the clinic/laboratory area and leave it neat and organized. **(EXO-5)**
- 3.4 Demonstrate proper client draping and positioning. **(EXO-5)**
- 3.5 Demonstrate appropriate instructions for the use of physical agents for the PT Assistant and PT Aide. **(CC-5.3, 5.40) (EXO-6)**
- 3.6 Demonstrate appropriate instructions, explanations, and rationale for the use of physical agents to the client using age/situation appropriate language. **(CC-5.20) (EXO-2, 3, 7)**

- 4.1 In a practical examination, demonstrate the proper use of thermal agents including information gathering, patient setup, professional behavior, and proper application of the technique. (CC-5.31) (EXO-2, 3, 4, 11)
- 4.1 In a practical examination, demonstrate the proper use of ultrasound or phonophoresis including information gathering, patient setup, professional behavior, and proper application of the technique. (CC-5.31) (EXO-2, 3, 4, 11)

PAIN (cc-5.20; cc-5.28; cc-5.29; cc-5.30c, e, f, j, k, p, v; cc-5.31; cc-5.35; cc-5.39i; cc-5.42) (EXO-1, 2, 3)

- 1.1 Describe various methods of measuring pain. (CC-5.20; CC-5.30c, e, f, k, p, v) (EXO-1)
- 1.2 Describe the various theories of pain. (CC-5.20) (EXO-1)
- 4.1 Differentiate acute, chronic, and referred pain. (CC-5.28; CC-5.29) (EXO-1)
- 4.2 Compare and assess different theories of pain control. (CC-5.20) (EXO-1, 3)
- 4.3 Appraise various medical and physical therapies used to control pain. (CC-5.20) (EXO-1)
- 4.4 Evaluate the use of physical agents for controlling pain. (CC-5.31, CC-5.35, CC-5.39i) (EXO-1, 2, 3)
- 4.5 Given a case study, analyze which physical agent is appropriate for pain control. (CC-5.35, CC-5.39i, CC-5.52) (EXO-2, 3)

PHYSIOLOGICAL EFFECTS OF PHYSICAL AGENTS (cc-5.19; cc-5.20; cc-5.21; cc-5.22; cc-5.23) (EXO-1, 3, 4)

- 1.1 Describe the physiological and physical basis for the following physical agents: thermal, ultrasound, hydrotherapy, electromagnetic radiation, and mechanical traction. (CC-5.19, CC-5.20, CC-5.21, CC-5.22, CC-5.23) (EXO-1, 3, 4)
- 1.2 List and explain the physiological basis for the general indications and contraindications for the following physical agents: thermal, ultrasound, hydrotherapy, electromagnetic radiation, and mechanical traction. (CC-5.19, CC-5.20, CC-5.21, CC-5.22, CC-5.23) (EXO-1, 3, 4)
- 1.3 List and explain the normal and abnormal responses to the following physical agents: thermal, ultrasound, hydrotherapy, electromagnetic radiation, and mechanical traction. (CC-5.19, CC-5.20, CC-5.21, CC-5.22, CC-5.23) (EXO-1, 3, 4)

DOCUMENTATION (cc-5.42; cc-5.43; cc-5.46) (EX-11)

- 1.1 Describe proper documentation used for physical agents. (CC-5.42, CC-5.43, CC-4.46) (EXO-11)
- 2.1 Given client information, demonstrate the correct documentation of the data collected when using a physical agents (including assessment and treatment procedures). (CC-5.42, CC-5.43, CC-4.46) (EXO-11)

THERMAL AGENTS (cc-5.20; cc-5.21; cc-5.27; cc-5.28; cc-5.29; cc-5.31; cc-5.39i) (EXO-1, 2, 3, 4)

- 1.1 Describe the physical properties of, and the physiological responses to thermal agents. (CC-5.20) (EXO-1)
- 1.2 List and explain the normal and abnormal responses to thermal agents. (CC-5.20, CC-5.39i) (EXO-1)

- 3.1 Adjust parameters of physical agents according to patient or physiological response in order to promote particular treatment goals. (CC-5.21, CC-5.31, CC-5.39i) (EXO-1, 2, 3)
- 4.1 Assess the indications, contraindications, and precautions for the use of thermal agents with respect to different patient management situations. (CC-5.27, CC-5.31, CC-5.39i) (EXO-1, 2, 3, 4)
- 4.2 Evaluate different types of thermal agents with respect to their potential to produce desired physical and physiological effects. (CC-5.27, CC-5.31, CC-5.39i) (EXO-2, 3, 4)
- 4.3 Given a case example, choose and safely apply the most appropriate thermal agent to obtain desired treatment goals. (CC-5.28, CC-5.29, CC-5.31) (EXO-2, 3, 4)

HYDROTHERAPY (cc-5.20; cc-5.21; cc-5.28; cc-5.29; cc-5.31; cc-5.39i;) (EXO-1, 2, 3, 4)

- 1.1 List and explain the general indications and contraindications for hydrotherapy. (CC-5.20) (EXO-1)
- 1.2 Describe methods of infection control for hydrotherapy equipment. (EXO-4)
- 1.3 Describe standard procedures for hydrotherapy procedures. (CC-5.20) (EXO-2)
- 1.4 Describe the standard procedures for contrast baths. (EXO-3)
- 4.1 Given a case study, determine the appropriate information to gather, analyze the findings, propose the goals of treatment, evaluate whether hydrotherapy would be the best treatment. (CC-5.28, CC-5.29, CC-5.31) (EXO-2, 3, 4)

ELECTROMAGNETIC MODALITIES (cc-5.20; cc-5.28; cc-5.29; cc-5.31; cc-5.39i) (EXO-1, 2, 3, 4)

- 1.1 Describe the physical properties of electromagnetic radiation. (CC-5.20) (EXO-1)
- 1.2 Identify the physiological effects of the different ranges of electromagnetic radiation. (CC-5.20) (EXO-1)
- 1.3 List and explain the indications, contraindications, and precautions for the application of electromagnetic radiation devices. (CC-5.20) (EXO-1)
- 1.4 Describe the proper technique for use of UV therapy and diathermy. (EXO-3)
- 3.1 Determine how the physical properties and physiological effects of electromagnetic radiation can promote particular treatment goals. (CC-5.29, CC-5.31, CC-5.39i) (EXO-2)
- 4.1 Classify the different ranges and types of electromagnetic radiation used therapeutically, (infrared, UV, cold lasers shortwave and microwave). (EXO-4)

ULTRASOUND AND PHONOPHORESIS (cc-5.20; cc-5.21; cc-5.28; cc-5.29; cc-5.31; cc-5.39i) (EXO-1, 2, 3, 4)

- 1.1 List and explain the indications and contraindications for ultrasound and phonophoresis. (CC-5.20) (EXO-1)
- 1.2 Explain the terminology used to describe therapeutic ultrasound. (EXO-1)
Identify the physical properties of, and the physiological responses to, therapeutic ultrasound. (CC-5.20) (EXO-1)
- 3.2 Determine the physiological responses to ultrasound necessary to promote particular treatment goals. (CC-5.29, CC-5.31, CC-5.39i) (EXO-2)
- 4.1 Given a case example, determine the appropriate information to gather, decide if US is appropriate, design an intervention plan (including appropriate treatment parameters), and determine the appropriate outcome measures for reevaluation. (CC-5.28, CC-5.29, CC-5.31) (EXO-2, 3, 4)

TRACTION (cc-5.20; cc-5.21; cc-5.28; cc-5.29; cc-5.31; cc-5.39i) (EXO-1, 2, 3, 4, 11)

- 1.1 List and explain the indications and contraindications for the various types of traction including manual and mechanical traction. **(CC-5.20) (EXO-1)**
- 1.2 Describe the physical properties and physiological effects of traction. **(CC-5.20, CC-5.39i) (EXO-1)**
- 4.1 In a practical examination, demonstrate the proper use of traction including information gathering, patient setup, professional behavior, and proper application of the technique. **(CC-5.31) (EXO-2, 3, 4, 11)**
- 4.2 Given a case example, determine the appropriate information to gather, decide if traction is appropriate, design an intervention plan (including appropriate treatment parameters), and determine the appropriate outcome measures for reevaluation. **(CC-5.28, CC-5.29, CC-5.31) (EXO-2, 3, 4)**

RESEARCH (cc-5.21; cc-5.22; 5.23) (EXO-1, 3, 13)

- 1.1 Describe the recent literature regarding physical agents. **(CC-5.20, CC-5.21, CC-5.22, CC-5.23) (EXO-1, 3)**
- 1.2 Identify conflicts in the physical agents literature, current clinical practice, and areas for future research. **(CC-5.20, CC-5.21, CC-5.22, CC-5.23) (EXO-1, 3)**
- 4.1 Analyze a research article in physical agents in terms of research design and clinical relevance. **(CC-5.20, CC-5.21, CC-5.22, CC-5.23) (EXO-1, 3)**
- 4.2 Identify conflicts in the physical agents literature and areas for future research.
- 5.1 Demonstrate an interest in continued learning and critical review of the literature. **(EXO-13)**