



COURSE OUTLINE

Course Number PTA 211	Course Title Physical Agents	Credits 4
Hours: lecture/Lab/Other 4/3/0	Pre-requisite PTA 107, PTA 112, MAT elective as specified	Implementation Fall

Catalog description:

Study of physical agents and therapeutic modalities in physical therapy practice. Lab and lecture activities develop problem solving and critical thinking in the use of electrical stimulation, therapeutic heat, cold, traction, and hydrotherapy for therapeutic interventions. Competencies evaluated throughout the course.

Required texts/other materials:

Behrens BJ, Beinert H, (2014), Physical Agents: Theory & Practice 3rd ed. Philadelphia: FA Davis Co.
ISBN 978-0-8036-3816-7

Revision date:

Spring 2016

Course coordinator:

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Information resources:

This course uses the required textbook in combination with the laboratory activities to enhance the learning.

Course Competencies/Goals:

Following the successful completion of this course with a grade of C+ or higher, the learner will be able to:

1. Safely and appropriately apply physical agents and electrical stimulation for the accomplishment of therapeutic treatment goals including: the reduction of pain, edema, joint stiffness and muscle guarding and increasing circulation, muscle strength and tissue extensibility.
2. Determine what the potential causes and remedies would be for undesirable patient responses to the application of physical agents and electrical stimulation for the accomplishment of therapeutic treatment goals and make appropriate decisions and adjustments in the application to maintain patient safety.
3. Critically discuss the available literature dealing with physical agents relating the relevance of what is published with current practice patterns in the clinical setting.

4. Differentiate between the advantages and disadvantages of a buoyant environment for a therapeutic exercise program versus a land environment for a patient who had partial weight bearing status.

Course-specific General Education Knowledge Goals and Core Skills.

General Education Knowledge Goals

Goal 1. Communication. Students will communicate effectively in both speech and writing.

Goal 3. Science. Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.

Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

MCCC Core Skills

Goal A. Written and Oral Communication in English. Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.

Goal B. Critical Thinking and Problem-solving. Students will use critical thinking and problem solving skills in analyzing information.

Goal D. Information Literacy. Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.

Goal F. Collaboration and Cooperation. Students will develop the interpersonal skills required for effective performance in group situations.

Course Objectives:

Following the successful completion of this course the learner will possess skills in the following domains:

Cognitive/Knowledge

The learner will be able to successfully:

1. describe the properties of electricity (conductance, resistance, capacitance) and how this would impact the application of electrical stimulation with a patient
2. describe the mechanisms for heat transfer and how this applies to the application of heat or cold in different forms to patients
3. identify commonly accepted treatment goals for the application of physical agents & therapeutic modalities
4. identify the appropriate parameters required to accomplish treatment goals with electrical stimulation and ultrasound
5. cite potential adverse responses to the application of a therapeutic modality or physical agent and how to remedy those responses should they occur
6. outline the appropriate information necessary to document a treatment with physical agent or therapeutic modality
7. cite the indications, contraindications & precautions to the application of electrical stimulation, ultrasound, superficial and deep heating agents
8. describe the various pain pathways and potential ways to block pain perception utilizing physical agents and therapeutic modalities

9. describe the importance of pain as a perception and how pain may be indicated other than verbal by expressions
10. describe the expected visual and palpable responses of the skin to a therapeutic intervention with a physical agent modality
11. describe how two or more physical agents can be utilized together to accomplish a therapeutic treatment goal
12. describe the components of mechanical traction devices for spinal traction and provide the rationale for each of the those components and their therapeutic application to accomplish stated treatment goals
13. list the parts of a whirlpool for a therapeutic intervention with hydrotherapy, describing the variables and rationale for their selection
14. differentiate between an aquatic pool and a hydrotherapy tank for a therapeutic intervention with a patient stating advantages and disadvantages for both forms of treatment
15. describe the physical principles of water and how they may be used to in a therapeutic intervention with a patient to affect a positive outcome

Psychomotor

The learner will be able to successfully:

1. display and explain the appropriate application techniques for therapeutic superficial and deep heat
2. demonstrate the appropriate application of therapeutic cold, light and electrical stimulation
3. describe the use of EMG biofeedback as a therapeutic intervention
4. respond appropriately to unexpected physiologic responses to a therapeutic intervention with a physical agent
5. demonstrate and defend the importance of proper patient positioning and draping techniques
6. perform pain assessment skills for treatment documentation
7. describe the rationale for the selection of physical agents and therapeutic modalities based on clinical goals and patient responses
8. perform the application of electrical stimulation to accomplish: pain reduction, muscle guarding reduction, and a motor response
9. document treatment techniques for physical agents and therapeutic modalities in SOAP format
10. recognize, respond and document normal and abnormal responses to treatment interventions with physical agents and therapeutic modalities
11. assess patient sensation prior to and after the application of a physical agent or therapeutic modality and determine what types of responses need to be documented in the patient's chart and how they should be documented
12. prepare a patient for the therapeutic application of hydrotherapy or spinal traction to accomplish a stated treatment goal

Affective

The learner will be able to successfully:

1. recognize the importance of pain as both a physical and psycho-social factor by the approach that they use when describing treatment techniques and expected treatment outcomes with a patient
2. defend the establishment of a safe and effective working environment by performing safety checks on the equipment that they will be utilizing before they apply it to a patient

3. enforce the safe and efficacious utilization of physical agents by assessing and re-assessing each patient prior to and following the application of a physical agent
4. recognize the importance of clinically based research by utilizing some of the research articles in their class presentation
5. recognize the significance of and defend the establishment of communication among members of the Health Care Delivery Team by discussing topics with other members of the team and communicating these conversations back to their classmates and instructors
6. recognize the importance of documentation skills as a quality assurance tool and document patient treatment in the patient record
7. defend the importance of skin assessment prior to, during and after therapeutic interventions with physical agents and therapeutic modalities

Units of study in detail.

		<u>Goals:</u>	<u>Learning Objectives</u>
<u>Unit 1a</u>	From Injury to Repair: Pain and Inflammation	3, A, B, D, F	C8, C9, C10, P6, P11, A1, A2, A3, A7
<u>Unit 1b</u>	Observable responses to therapeutic treatment interventions	3, A, B, D, F	C2, C5, C6, C9, C10, P1, P4, P5, P9, P10, P11, A3, A7
<u>Unit 2</u>	Therapeutic Heat & Cold	3, A, B, D, F	C2, C3, C5, C6, P1, P2,
<u>Unit 3</u>	Therapeutic Ultrasound	3, A, B, D, F	C2, C3, C4, C5, C6, C7, C8, C10, P1, P7, P9, P10, P11
<u>Unit 4</u>	Foundations for Electrical Stimulation Physiologic Basis of Electrical Stimulation	3, A, B, D, F	C1, C7, C8, P10, A2
<u>Unit 5</u>	Neuromuscular Electrical Stimulation	3, A, B, D, F	C1, C3, C4, C5, C6, C7, P2, P8, P10
<u>Unit 6</u>	Pain Management with ES	3, A, B, D, F	C1, C3, C4, C5, C6, C7, C8, P2, P6, P8, P10
<u>Unit 7</u>	Electrical Stimulation Devices	3, A, B, D, F	C4, C5, C6, C7, C8, P2, P3, P7, P8, P10, P11, A2
<u>Unit 8</u>	Aquatics & Hydrotherapy	3, A, B, D, F	C13, C14, C15, P12,
<u>Unit 9</u>	Soft Tissue Treatment Techniques: Traction	3, A, B, D, F	C12, P12, A2, CG4
<u>Unit 10</u>	Modality Integration	3, A, B, D, F	C11, A1, A2, A3, A6, A7
<u>Unit 11</u>	<i>Presentations</i>	1, 4	C14, C15, P12, CG5

Evaluation of student learning

Course Grading:

% of grade	Activity	# per semester
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30	Exams	3
0	Quizzes	0
0	Papers	0
15	Presentations	1
5	Class/lab participation	Continuous
20	Competency Tests	4
30	Practical Exam	1

Academic Integrity Statement: There is a zero tolerance policy for plagiarism. Any work that violates the MCCC Academic Integrity policy will receive a grade of "0" and the learner will be reported to the College's Academic Integrity Committee consistent with College policies.

See <http://mlink.mccc.edu/omb/OMB210.pdf>