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AHAT 336.01: Therapeutic Modalities

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AHAT 336-337 Therapeutic Modalities

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Semester: Fall 2013

Office: McGill Hall 238

Credit Hours: 3

(coreq with AHAT337- 1 credit)

Office Hours: Tuesday 10-12, Wednesday 11-1, by appointment

Class meets: AHAT 336 Monday, Wednesday 8:10-10:00 McGill Hall 235

HHP 337 Friday 8:10- 10:00 McGill Hall 235

Course Description: Physiology, indications, contraindications, and application of physical agents.

Required Texts and Readings:

1. Knight, KL & Draper, DO. Therapeutic modalities: The art and science. Lippincott, Williams & Wilkins, Philadelphia, PA: 2008. (with accompanying lab manual)
2. Course Pack- lectures and labs included. Available at UC Bookstore

Recommended Readings/Supplementary Resources:

1. Prentice, WE. Therapeutic Modalities for Sports Medicine and Athletic Training, 6th edition. McGraw-Hill, Boston, MA: 2009.
2. Belanger, AY. Therapeutic Electrophysical Agents: Evidence Behind Practice, 2nd edition. Lippincott, Williams & Wilkins, Philadelphia, PA: 2010.

Course Objectives:

1. have a working knowledge of the inflammatory response to soft tissue and bony injury;
2. have a working knowledge of pain perception and the body's analgesic mechanisms;
3. understand the physical principles of thermal, acoustic, electrical, light, and mechanical modalities;
4. understand the physiological response to thermal, acoustic, electrical, light, and mechanical modalities; and
5. use your understanding of inflammation, pain, and the physical principles and physiological responses to thermal, acoustic, electrical, light, and mechanical modalities in the safe and effective application of these modalities.

Evaluation of Student Outcomes:

HHP 366:

1. **Written Examinations:** Examinations will be given to assess the student's awareness and understanding of the concepts covered by the course content. Items on these exams will be derived from the text, discussions, and assignments. Exam methodology may include multiple choice, true-false, labeling, short answer, and essay questions.
2. **Quizzes and Assignments:** Various assignments and quizzes (announced and unannounced) will be given throughout the course. Due dates will be announced in class.

3. **Myth Buster:** Students will identify a common modality myth and devise an experiment to determine if the myth is true or false. Students will carry out the experiment and report findings. The paper will outline the methods, current research, and findings of the experiment. Each pair of students will write a paper, at least 10 pages in length, AMA style, double-spaced. A minimum of 8 peer-reviewed references should be used. Each group of students will turn in a hard copy of the paper to the instructor **and** submit the paper electronically.
4. **Presentation:** Each group of students will present his/her research on his/her selected myth. The presentation is expected to be approximately 30 minutes in length. A handout should be provided to each class member the day of the scheduled presentation.

HHP 367 (Lab):

1. **Practical Examinations:** Exams will be used to assess student's awareness and understanding of the concepts covered by the course content. These exams will be a combination of written questions along with practical demonstration of skills.
2. **Assignments/Labs:** Students will be given various assignments that address clinical applications and effectiveness of various modalities. Due dates will be announced in class.
3. **Notebook:** Each student will need to turn in a notebook. The notebook is meant to be a reference for you after the class. You will be graded on content, organization, neatness, and ability to access information. See notebook handout for more details.

Lab Attire:

On days in which class will be held in a laboratory setting students will be expected to wear attire appropriate for the class. Tank tops or sports bras will be sufficient for most of the labs for the upper extremity. Students should wear gym shorts (loose fitting) as well. Inappropriate attire will result in an uncompleted laboratory experience and an unexcused absence for that day. (A tee shirt is not considered an acceptable top since the muscles and bony landmarks cannot be visualized.)

Peer Mentor:

Students of the class will be assigned a peer mentor (Level 3 student). As students are exposed to a variety of clinical skills, they will be expected to review and practice these skills with their peer mentor. The student's mentor will evaluate performance of these skills and provide feedback. Completion of these skills will be part of the laboratory assignments.

Attendance:

Attendance is compulsory. Prior arrangements should be made with the instructor for excused absences to make up work. Quizzes may not be made up unless prior arrangements have been made.

Course Evaluation:

AHAT 336

Written Examination 1:	30%
Written Examination 2:	30%
Paper:	20%
Presentation:	10%
<u>Assignments/Quizzes:</u>	<u>10%</u>
	100%

AHAT 337

Practical Examination 1:	30%
Practical Examination 2:	30%
Assignments/Labs:	30%
Notebook	10%
	<hr/>
	100%

*** All course requirements must be completed with a minimum grade of C or better**

Grading Scale:

90-100% = A 80- 89% = B 70- 79% = C 60- 69% = D <60% = F

The instructor reserves the right to award + or – grade where deemed appropriate

Americans with Disabilities Act (ADA):

The University of Montana upholds the ADA by providing reasonable accommodations to individuals with disabilities. If anyone requires a reasonable accommodation to adequately perform the duties of the class, please see the instructor as soon as possible so that specific plans can be made.

Academic Misconduct:

All assignments and exams are intended to be individual efforts unless otherwise assigned as a group project. Plagiarism is a violation of the law and against the Student Code of Academic Integrity. Any plagiarism or use of someone's paper will result in the student receiving an "F" for the final grade in the course. Further action will be at the instructor's discretion in accordance with the University of Montana's policy and procedures.

EMERGENCY PREPAREDNESS AND RESPONSE

As members of a learning community we all have responsibilities for each other that extend beyond the teaching/learning experience and transcend our roles in that dimension. We are, as human beings, responsible for the protection and well-being of other members of our group, and one dimension of our individual and group responsibility in that area relates to how we prepare for, and respond to, emergencies. Toward that end, the following are important:

- In the event we need to evacuate the building, our primary route will be through the main doors to McGill Hall located on the west side of the building. If that route is blocked, our secondary route will be through the east door located toward the north end of this wing of the building.
- If you hear an alarm or are told to evacuate, always assume the emergency is real. Be sure to take coats, backpacks and valuables since the building may be closed for some time.
- Everyone should report to either the designated outdoor rally point or the indoor rally point (should conditions make it necessary to seek shelter in another building). Our outdoor rally point is in the area to the west of McGill Hall – at least 300 feet from the building exit. Our indoor rally point is in the Adams Center Lobby. We should reconvene as a group at the rally point so we can determine if anyone is missing.
- Do not use elevators as a means of evacuating, and do not use cell phones until safely away from the building.
- As the instructor of this course, I would ask students who feel they may require assistance in evacuating to privately inform me of that need. Together we will preplan appropriate assistance.

- I would also request that students with a medical condition that could present an emergency privately inform me of that situation. Again, this notification is so we can preplan an appropriate response should an emergency occur.

Therapeutic Modalities

Notebook Assignment Guidelines

Students are required to keep a notebook for this class. The notebook should serve as a reference for the student once the course is completed.

- Notebooks should be a 3 ring binder and should contain a cover page on the **outside** of the notebook, which lists the course name, student name, and semester/ year.
- Inside the notebook, a similar cover page should be placed at the front.
- The notebook should be sub-divided into sections using dividers with tabs (preferably typed). A section should be created for each unit/topic covered and should be labeled accordingly.
- Materials to be included in the notebook:
 - Any articles that are assigned in class must be included
 - Any assignments/worksheets
 - Power points/lectures
 - Modality paper and handouts from classmates
 - Lab assignments
 - Other handouts supplied in class

Students will be evaluated on content, neatness, organization, and completion of assignments

Course Outline

Date	Topic	Readings/Assignments
August 26	Intro; Activity; Introduction to Evidence Based Medicine	Chapters 1-4
August 28	Introduction to Modalities	Chapters 1-4 continued
August 30	Lab: Goal Setting/Records Search	
September 2	Labor Day- No Class	
September 4	Tissue Response to injury; Immediate care of injury	Chapters 5, 6 (p90-98), 7 Myth buster Topic Due
September 6	Lab: Healing Process	
September 9	Pain Control Theories	Chapters 8,9
September 11	Pain Control Theories	
September 13	Lab: Pain Control Theories	
September 16	Thermotherapy	Chapter 10, 11
September 18	Thermotherapy Lab	Outline of Myth Buster Methods Due
September 20	Cryotherapy	Chapter 12, 13
September 23	Cryotherapy Lab	
September 25	Ultrasound	Chapter 14
September 27	Research Day- No Class Meeting	
September 30	Research Day- No Class Meeting	
October 2	Ultrasound Lab	
October 4	Diathermy	Chapter 15
October 7	Diathermy Lab	Draft 1 Myth buster Due: Intro, Methods, References
October 9	Review for Midterm Exam	
October 11	Midterm Written Exam	
October 14	Practical Exam 1	
October 16	Practical Exam 1	
October 18	Electrotherapy	Chapter 16, 17
October 21	Electrotherapy	
October 23	Electrotherapy	
October 25	Research Day-No Class Meeting	
October 28	Electrotherapy Lab	
October 30	Electrotherapy Lab	
November 1	Electrotherapy Lab	
November 4	Electrotherapy Lab	
November 6	Massage	Chapter 18
November 8	Massage	Draft 2 Myth Buster Due: All sections
November 11	Veteran's Day- No Class Meeting	
November 13	Traction	Chapter 19
November 15	Traction	
November 18	Research Day- No class meeting	
November 20-22	Thanksgiving Holiday	
November 25	Laser/Light Therapy	Chapter 20
November 27	Clinical Decision Making	Chapter 21
November 29	Clinical Decision Making	
December 2	Research Presentations	Final Myth Buster Paper Due
December 4	Research Presentations	Notebooks Due
December 6	Final Exam Review/Wrap Up	
December 9-13	Final Practical Exam	TBD
December 9-13	Final Written Exam	TBD

Athletic Training Educational Competencies 5th edition AHAT 336-337:
Therapeutic Modalities (TM)

HHP 366 - (AHAT 336) Therapeutic Modalities			
Code	Description	Instructed	Evaluated
AC-38	☒ Apply appropriate immediate treatment to protect the injured area and ... minimize the effects of hypoxic and enzymatic injury.	✔	✔
AC-43	☒ Instruct the patient in home care and self-treatment plans for acute ... conditions.	✔	✔
EBP-1	☒ Define evidence-based practice as it relates to athletic training ... clinical practice.	✔	✔
EBP-4	☒ Describe a systematic approach (eg, five step approach) to create and ... answer a clinical question through review and application of existing research.	✔	✔
EBP-5	☒ Develop a relevant clinical question using a pre-defined question format ... (eg, PICO= Patients, Intervention, Comparison, Outcomes; PIO = Patients, Intervention, Outcomes)	✔	✔
EBP-6	☒ Describe and contrast research and literature resources including ... databases and online critical appraisal libraries that can be used for conducting clinically-relevant searches.	✔	✔
EBP-7	☒ Conduct a literature search using a clinical question relevant to ... athletic training practice using search techniques (eg, Boolean search, Medical Subject Headings) and resources appropriate for a specific clinical question.	✔	✔
EBP-9	☒ Use standard criteria or developed scales (eg, Physiotherapy Evidence ... Database Scale [PEDro], Oxford Centre for Evidence Based Medicine Scale) to critically appraise the structure, rigor, and overall quality of research studies.	✔	✔
EBP-10	☒ Determine the effectiveness and efficacy of an athletic training ... intervention utilizing evidence-based practice concepts.	✔	✔
TI-1	☒ Describe and differentiate the physiological and pathophysiological ... responses to inflammatory and non-inflammatory conditions and the influence of these responses on the design, implementation, and progression of a therapeutic intervention.	✔	✔
TI-2	☒ Compare and contrast contemporary theories of pain perception and pain ... modulation.	✔	✔
TI-3	☒ Differentiate between palliative and primary pain-control interventions.	✔	✔
TI-4	☒ Analyze the impact of immobilization, inactivity, and mobilization on the ... body systems (eg,cardiovascular, pulmonary, musculoskeletal)	✔	✔

	and injury response.		
TI-5	☐ Compare and contrast the variations in the physiological response to ... injury and healing across the lifespan.	✓	✓
TI-8	☐ Explain the theory and principles relating to expected physiological ... response(s) during and following therapeutic interventions.	✓	✓
TI-9	☐ Describe the laws of physics that (1) underlay the application of ... thermal, mechanical, electromagnetic, and acoustic energy to the body and (2) form the foundation for the development of therapeutic interventions (eg, stress-strain, leverage, thermodynamics, energy transmission and attenuation, electricity).	✓	✓
TI-10	☐ Integrate self-treatment into the intervention when appropriate, ... including instructing the patient regarding self-treatment plans.	✓	✓
TI-13	☐ Describe the relationship between the application of therapeutic ... modalities and the incorporation of active and passive exercise and/or manual therapies, including, therapeutic massage, myofascial techniques, and muscle energy techniques.	✓	✓
TI-14	☐ Describe the use of joint mobilization in pain reduction and restoration ... of joint mobility.	✓	✓
TI-19	☐ Identify manufacturer, institutional, state, and/or federal standards ... that influence approval, operation, inspection, maintenance and safe application of therapeutic modalities and rehabilitation equipment.	✓	✓

HHP 367 - (AHAT 337) Therapeutic Modalities Lab

Code	Description	Instructed	Evaluated
TI-11	Design therapeutic interventions to meet specified treatment goals.	✓	✓
TI-11a	☐ Assess the patient to identify indications, contraindications, and ... precautions applicable to the intended intervention.	✓	✓
TI-11b	Position and prepare the patient for various therapeutic interventions.	✓	✓
TI-11c	☐ Describe the expected effects and potential adverse reactions to the ... patient.	✓	✓
TI-11e	☐ Apply the intervention, using parameters appropriate to the intended ... outcome.	✓	✓
TI-11f	☐ Reassess the patient to determine the immediate impact of the ... intervention.	✓	✓
TI-12	☐ Use the results of on-going clinical examinations to determine when a ...	✓	✓

	therapeutic intervention should be progressed, regressed or discontinued.		
TI-20	<input checked="" type="checkbox"/> Inspect therapeutic equipment and the treatment environment for potential ... safety hazards.		