



College of Health and Human Performance

Department of Exercise Sciences



ES 415 Therapeutic Modalities

Winter 2009, 11:00 MWF

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Hours: 12-1 M,W,F; 9-11 Thurs. Or drop in anytime I'm there

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Course Objective

Assist students to acquire the knowledge, skills, and values required of an entry-level Certified Athletic Trainer to plan, implement, document, and evaluate the efficacy of therapeutic modalities in the treatment of injuries to, and illnesses of, the physically active. The cognitive, psychomotor, and affective knowledge and clinical skills identified by the National Athletic Trainers Association (see attached) will form the basis of this class.

Class Activities/Grading:

Lecture, Discussion

Exam One: 100 pts.

Exam Two: 100 pts.

Exam Three: 100 pts.

Clinical Activities : 50 pts.

TOTAL: 350 pts.

Extra Credit: I will discuss this as I discuss the text

Grading Scale

A 100%-93% C 76%-73%

A- 92%-90% C- 72%-70%

B+ 89%-87% D+ 69%-67%

B 86%-83% D 66%-63%

B- 82%-80% D- 62%-60%

C+ 79%-77% E 59% or less

Grading Detail

1. **Exams:** multiple choice (4 & 5 choice); matching and essay. Keys will be on available in my secretaries office (116 RB) the morning of the 4th day after the test closes.

2. **Clinical Activities (50 points total)** This includes 10+ activities from the manual. Perform labs in part one. In part two, practice and apply various therapeutic modalities to a class mate, who will grade you as you do so. For full credit, you must apply each modality without notes or prompting from others. (Hint, practice a few times before attempting to pass it off). Grading is done like the NATA Oral-Practical Exam; you perform and your tester checks the items as you perform them (actually circles a letter or number). Each group consists of 2-4 modalities. Don't wait until the last minute to perform the applications. Will be deducted 1 pt. each day it is late.

Texts & Readings

Knight KL, Draper DO. *Therapeutic Modalities; the Art and Science*. Baltimore: Lippincott, Williams & Wilkins, 2007

BYU Policies

I agree with, personally follow, and advocate the following BYU policies for students, faculty, and staff.

Preventing Sexual Harassment

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or

activity that receives federal funds. The act is intended to eliminate sex discrimination in education. Title IX covers discrimination in programs, admissions, activities, and student-to-student sexual harassment. BYU's policy against sexual harassment extends not only to employees of the university but to students as well. If you encounter unlawful sexual harassment or gender based discrimination, please talk to your professor; contact the Equal Employment Office at 378-5895 or 367-5689 (24-hours); or contact the Honor Code Office at 378-2847.

Students With Disabilities

Brigham Young University is committed to providing a working and learning atmosphere which reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the Services for Students with Disabilities Office (378-2767). Reasonable academic accommodations are reviewed for all students who have qualified documented disabilities. Services are coordinated with the student and instructor by the SSD Office. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures. You should contact the Equal Employment Office at 378-5895, D-282 ASB.

BYU Honor Code

Brigham Young University, Brigham Young University-Hawaii, Ricks College, and LDS Business College exist to provide an education in an atmosphere consistent with the ideals and principles of The Church of Jesus Christ of Latter-day Saints. That atmosphere is created and preserved through commitment to conduct that reflects those ideals and principles. Members of the faculty, administration, staff, and student body at BYU, BYU-H, Ricks College, and LDSBC are selected and retained from among individuals who voluntarily live the principles of the gospel of Jesus Christ. Observance of such is a specific condition of

employment and admission. Those individuals who are not members of The Church of Jesus Christ of Latter-day Saints are also expected to maintain the same standards of conduct, except church attendance. All who represent BYU, BYU-H, Ricks College, and LDSBC are to maintain the highest standards of honor, integrity, morality, and consideration of others in personal behavior. By accepting appointment on the faculty, continuing in employment, or continuing class enrollment, individuals evidence their commitment to observe the Honor Code standards approved by the Board of Trustees "at all times and . . . in all places" (Mosiah 18:9).

Honor Code Statement

We believe in being honest, true, chaste, benevolent, virtuous, and in doing good to all men. . . . If there is anything virtuous, lovely, or of good report or praiseworthy, we seek after these things (Thirteenth Article of Faith).

As a matter of personal commitment, students, faculty, and staff of Brigham Young University, Brigham Young University-Hawaii, Ricks College, and LDS Business College are expected to demonstrate in daily living on and off campus those moral virtues encompassed in the gospel of Jesus Christ, and will

- Be honest
- Live a chaste and virtuous life
- Obey the law and all campus policies
- Use clean language
- Respect others (Please call me Dr. Draper or Brother Draper, not David, Dave, Davey, Big D or D BIZZZZZZ.).
- Abstain from alcoholic beverages, tobacco, tea, coffee, and substance abuse (and cell phone use in class)
- Observe Dress and Grooming Standards **{DON'T LOOK LIKE A BUM – LOOK SHARP!}**
- Participate regularly in church services
- Encourage others in their commitment to comply with the BYU Honor Code

Specific policies embodied in the Honor Code include:

- Academic Honesty

•Dress and Grooming Standards

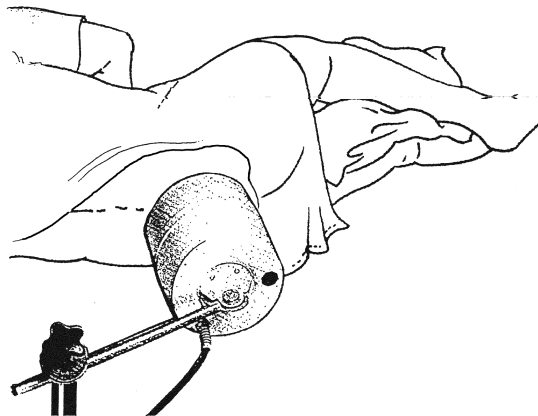
- Residential Living Standards
- Continuing Student Ecclesiastical Endorsement

Each of these are discussed in detail on the BYU Home Page of the World Wide Web, in the Undergraduate Catalog (p6-9 in the 2000-2001 edition), or can be obtained from the Honor Code Office at 378-2847.

Lecture & Lab Activities Outline

Approximate Discussion Assigned Assignments (due
Dates Topic Reading *prior to class) Will be announced

	JAN 5 Introduction to class	
	7 What are Therapeutic Modalities ch 1 Rehabilitation	
	9 Modality Application; 5-steps ch 2	
	12 Record keeping ch 3	
	14, 16, 21 Inflammation, edema ch 4	
	23, 26 Immediate Care-Theory ch 5	
	28, 30 Wound Healing ch 6	
FEB 2	Review for exam one {Text parts 1 & 2}	LRC Feb 3-5
	Feb 6, 9, 11 Pain & Pain Relief ch 7, 8	
	Feb 13, 17 Electricity Background ch 9	
	18, 20, Electrical Currents (in, out) ch 9	
	23-29 Therapeutic Application (<u>Lab</u>) ch 10	
	Mar 2, 4 Therapeutic Application (<u>Lab</u>) cont. ch 10	
6	Review for exam two {Text parts 3 & 4}	LRC Mar 7, 9, 10
	11, 13 Thermotherapy foundation ch 11	
	16 Whirlpool (<u>Lab</u>) ch 12	
	16 Hot packs, (<u>Lab</u>) ch 12	
	16 Paraffin, Infrared, UV (<u>Lab</u>) ch 12	
	18-27 Ultrasound & (<u>Lab</u>) ch 15	
	30-4/3 Diathermy & (<u>Lab</u>) ch 16	
	April 6, 8 Massage (<u>Lab</u>) ch 17	
	10 Cervical & lumbar traction ch 18	
	13 Review for Final & Key concepts of Text {parts V & VI}	
	Final Exam (TBA)	



NATA Educational Competencies for Therapeutic Modalities

This domain is a collection of knowledge, skills, and values required of the entry-level Certified Athletic Trainer to plan, implement, document, and evaluate the efficacy of therapeutic modalities in the treatment of injuries to and illnesses of the physically active.

Cognitive Domain

(Knowledge and Intellectual Skills)

1. Determines goals and objectives in selecting therapeutic modalities.
2. Defines methods of evaluating and recording progress related to therapeutic modality treatment.
3. Computes limb edema/effusion with volumetric and anthropometric measurements to determine effectiveness of treatment outcomes.
4. Understands physiological responses of the body during and following application of therapeutic modalities.
5. Identifies precautions in the case of surgical implants, prosthetics, and hardware as they relate to selection of therapeutic modalities.
6. Understands the role and function of common prescription and non-prescription pharmacological agents utilized in conjunction with therapeutic modalities. (Topical, phonophoresis, iontophoresis)
7. Understands principles of electrophysics including basic concepts associated with the electromagnetic and acoustic spectra. (Frequency, wavelength, etc.)
8. Interprets terminology, principles, and basic concepts associated with electrical units. (Amperes, volts, watts, ohms, etc.)
9. Identifies prevailing pain control theories.
10. Assesses the selection and use of therapeutic modalities for the control of acute and chronic pain.
11. Understands electrophysics, biophysics, and specific physiological effects associated with the use of (a) electrical stimulating currents, (b) thermotherapy, (c) cryotherapy, (d) diathermy, (e) ultrasound, (f) intermittent compression, (g) cervical and lumbar traction, (h) laser, (I) EMG and bio-feedback (j) massage, (k) other contemporary therapeutic modalities.

12. Understands typical physiological and psychological response to trauma relative to utilization and application of therapeutic modalities.

13. Interprets local, state, and federal standards related to operation and safety standards of therapeutic modalities.

Psychomotor Domain

(Manipulation and Motor Skills)

1. Uses patient assessment skills to determine specific therapeutic modality indications, contraindications, and precautions.
2. Measures limb edema/effusion via volumetric tank procedures and anthropometric measurements as related to therapeutic modality outcomes.
3. Compares patient specific indications and contraindications and precautions for specific therapeutic modality application. (i.e.: age, underlying pathology, disease processes)
4. Performs appropriate patient preparation and positioning for therapeutic modality application.
5. Performs appropriate therapeutic modality set-ups.
6. Selects and applies appropriate therapeutic modality parameters and modifies as required. (e.g. intensity, length of time, duration, frequency)
7. Operates and applies contemporary therapeutic modalities according to established guidelines. (electrical stimulating currents, thermotherapy, cryotherapy, diathermy, ultrasound, intermittent compression, cervical and lumbar traction, laser, EMG and biofeedback massage, other contemporary therapeutic modalities).
8. Evaluates patient response to therapeutic modalities during and following application. (skin, comfort, etc.)
9. Formulates appropriate progress notes and treatment outcomes relevant to the selection and application of therapeutic modalities.

Affective Domain

(Attitudes and Values)

1. Accepts the professional, ethical, and legal parameters that define the proper role of the Certified Athletic Trainer in the treatment and rehabilitation and reconditioning of the physically active with therapeutic agents.
2. Respects for the proper role of attending physicians and other medical and allied health personnel in the treatment and rehabilitation and reconditioning of the physically active with therapeutic agents.
3. Advocates accepted medical protocol involving confidentiality of medical information relative to therapeutic modality treatments.
4. Initiates accepted medical protocol regarding therapeutic prescriptions.
5. Promotes accepted medical protocol regarding health care referral as related to the rehabilitation and reconditioning process.

Clinical Proficiencies

The student will demonstrate the ability to apply therapeutic modalities.

Specific Outcomes

1. Cryotherapy: The student will demonstrate the ability to properly select the appropriate parameters, prepare, and apply a(n):
 - a. cold whirlpool treatment
 - b. controlled cold therapy unit
 - c. ice bag
 - d. vapo-coolant spray
 - e. ice immersion
 - f. ice massage
 - g. contrast bath
 - h. cryokinetics
2. Thermotherapy: The student will demonstrate the ability to properly select appropriate parameters, prepare, and apply a(n):
 - a. moist heat pack
 - b. paraffin treatment
 - c. warm whirlpool treatment
 - d. fluidotherapy
 - e. diathermy
 - f. infrared

3. Electrotherapy: The student will demonstrate the ability to properly select appropriate parameters, prepare, and apply a(n):
 - a. sensory-level pain control treatment
 - b. noxious-level pain control treatment
 - c. motor-level pain control treatment
 - d. muscle re-education treatment
 - e. muscle pumping treatment
 - f. acute edema treatment
 - g. chronic edema treatment
 - h. muscle spasm treatment
 - i. muscle splinting treatment
 - j. muscle atrophy retardation treatment
 - k. iontophoresis treatment
 - l. MENS treatment

The student will demonstrate proficiency in the setup and application of the following types of electrical stimulation units:

- a. Monophasic stimulator (e.g., high volt stimulation)
- b. Biphasic stimulator (e.g., TENS, NMES)
 - c. Direct current (e.g., iontophoresis)
 - d. Alternating current (e.g., interferential, NMES)

4. Ultrasound: The student will demonstrate the

- ability to properly select appropriate parameters, prepare, and apply a:
- a.thermal direct/indirect ultrasound treatment
 - b.non-thermal direct/indirect ultrasound treatment
 - c.combination electric-stimulation/ultrasound treatment
 - d.phonophoresis treatment

- 5.Traction: The student will demonstrate the ability to properly select appropriate parameters, prepare, and apply:
- a.mechanical traction
 - b.manual traction
 - c.positional traction

- 6.Intermittent Compression: The student will demonstrate the ability to properly select appropriate parameters, prepare, and apply intermittent compression.

- 7.Massage: The student will demonstrate the ability to prepare and apply a massage treatment.

The student will demonstrate the ability to properly perform massage strokes.

- a.effleurage
- b.petrissage
- c.friction
- d.tapotement
- e.vibration

Suggested Study Habits:

1. Your success in, and enjoyment of, this class will be more a matter of your learning than my teaching.
2. I deeply believe my purpose in the classroom is to "go before" eternal brothers and sisters to show you the way. I realize many of you may have progressed much farther than I did in pre-mortal life and therefore have far greater spiritual, intellectual, and emotional capacity than I do, and have, or will, greatly exceed my accomplishments in your families, church work, profession, and community. The only way I may be superior to you is in age.

3. I feel my responsibility is to facilitate your learning by directing you to the proper course material and encouraging you to commit yourself to seeking the spirit, living worthy to receive it, and engaging yourself with the course material sufficiently that the Holy Ghost can teach you.

4. I commit myself to seeking the spirit of the Lord in directing this class and will strive to conduct my personal life in such a way that I am worthy of receiving His direction as I guide this class.

5. Consider the following:

- a. "And by the power of the Holy Ghost ye may know the truth of **all** things." (Moroni 10:5).
- b. We are to ask for all that we need, both spiritual & **temporal** (Alma 7:23), because
- c. Spiritual & **temporal** are in likeness of each other (D&C 77:2), and
- d. **All** things are spiritual unto the Lord (D&C 29:34-35).
- e. Father gives us "knowledge by the . . . unspeak-able gift of the Holy Ghost. . ." (D&C 121:26).
- f. The Holy Ghost knows **all** things (D&C 35:19), and
- g. will manifest **all** things that are expedient for us to know (D&C 18:18).
- h. The Holy Ghost both teaches us and helps us remember what we have previously learned (John 14:26, 2 Ne 33:1)
- i. We must combine study with our faith if the Lord, through the Holy Ghost, is going to bless us (James 2:17-20).
- j. If we keep the commandments of the Lord, we will be "blessed in all things, both **temporal** and spiritual;" (Mosiah 2:41, D&C 14:11, D&C 24:3)
- k. Faith without works is dead (James); and along with faith we We must experiment on the word (Alma 32:)

6. The "works" I expect from you include:

- a. You must come to class every day, prepared by having read the material ahead of time, and with questions to ask. Write them down
- b. listen to what is being said during class (by me and other students).
- c. participate in class discussions by asking questions about things you do not understand, adding comments, experimenting with concepts by suggesting connections with other ideas & concepts.
- d. compare and contrast information presented in class with what you have learned in other classes, read about, and/or experienced or observed during related activities.
- e. spend at least 90 hours outside of class studying & working on class material (2 hrs outside/each hour in class).
- f. experiment with techniques and ideas presented in class during your clinical assignments.

g. discuss concepts and information with others outside of class, especially during your clinical assignment.

h. Study with others on an ongoing basis; not just before an exam.

7. Taxonomy for learning. You learn at various depths. As you deepen your understanding you will progress through the following:

- a. Comprehend: understand what you read/hear (it makes sense).
- b. Remember: you can recall or recognize info.
- c. Understand: you can explain info to others,
- d. Apply: use the information to solve problems, relate parts to one another.
- e. Evaluate: judge the value of information, compare/contrast what you have read/heard with material from other classes and life experiences.
- f. Create: use the info to produce original work.

8. By studying in groups and experimenting with the material outside of class, you will deepen your level of understanding.