

University of Montana

ScholarWorks at University of Montana

University of Montana Course Syllabi

Open Educational Resources (OER)

Fall 9-1-2008

PT 516.00: Musculoskeletal Evaluation I - Movement System Exam and Evaluation

Elizabeth Ikeda

University of Montana, Missoula, elizabeth.ikeda@umontana.edu

Kim J. Mize

University of Montana, Missoula, kimberly.mize@umontana.edu

Steve Fehrer

University of Montana, Missoula, steve.fehrer@umontana.edu

Reed Humphrey

University of Montana, Missoula, reed.humphrey@umontana.edu

Susan Ann Ostertag

University of Montana - Missoula, susan.ostertag@umontana.edu

Follow this and additional works at: <https://scholarworks.umt.edu/syllabi>

Let us know how access to this document benefits you.

Recommended Citation

Ikeda, Elizabeth; Mize, Kim J.; Fehrer, Steve; Humphrey, Reed; and Ostertag, Susan Ann, "PT 516.00: Musculoskeletal Evaluation I - Movement System Exam and Evaluation" (2008). *University of Montana Course Syllabi*. 12011.

<https://scholarworks.umt.edu/syllabi/12011>

This Syllabus is brought to you for free and open access by the Open Educational Resources (OER) at ScholarWorks at University of Montana. It has been accepted for inclusion in University of Montana Course Syllabi by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

Movement System Exam and Evaluation , PT 516
Syllabus Fall 2008

Professors: Elizabeth (Beth) Ikeda, PT, DPT, MS, MTC, OCS
Kim Mize- Humphrey, PT, DPT, CSCS
Steve Fehrer, PT, PhD
Reed Humphrey PT, PhD
Sue Ostertag, PT, DPT, lab assistant
Student Lab assistants

Course Description:

Credit hours: 6
Musculoskeletal pathology- 16 lecture hours- Dr Fehrer
Movement system exam and evaluation: 95 hours + tests
Lecture: 60 hours
Lab : 37 hours
Tests: 2x2 hour midterm, 20 and 30 minute practical exams, final

Time: Monday, Wednesday, Friday 8-10, Tuesdays 10-11 (optional 11-12- check schedule below)

Location: Lectures- Skaggs 025
Labs - 020

Course description: Introduction to pathology, clinical reasoning, examination, and evaluation of the movement system. This course (first of two) is the basis of testing and measurement for all future clinical classes and is coordinated with the interventions classes taught in the first year. Content includes taking vital signs, introduction to radiology, observation, posture assessment, palpation, goniometry, manual muscle testing, joint play assessment, and ancillary testing for the cervical spine, upper extremity and temporal mandibular joint.

Teaching methods, learning experiences: The class includes lecture, guided laboratory experience, study questions are provided to help with application and integration of material. Case studies are used in class and as individual assignments. **Radiology unit is a SELF-PACED unit** using the McKinnis CD. Written and practical exams are designed as learning tools as well as assessment.

Required Texts (please complete assigned reading before class):

Clarkson: Musculoskeletal Assessment, 2nd ed
Magee, D: Orthopedic Assessment 5th ed
Biel, A: Trail Guide to the Body, 3rd ed
O'Sullivan, S: Physical Rehabilitation 5th ed
Hall and Brody: Therapeutic Exercise
Faculty packet- notebook in LSS
Neumann DA: Kinesiology of the Musculoskeletal System
American Physical Therapy Association Guide to PT Practice
Kisner and Colby: Therapeutic Exercise
Ciccone, C.D. Pharmacology in Rehabilitation, 4th ed., F.A. Davis
McKinnis L, Craig J Medical Imaging in Rehabilitation CD ,2007 (chapters 1+2)

For the Pathology unit (Steve Fehrer) readings have been placed on electronic reserve at Mansfield library. You can obtain access to these articles through a computer at the University or at your home by the Mansfield Library Webpage. The password is MUSCLE. Class notes, powerpoint presentations and review questions will be placed on Blackboard.

Recommended resources for your enrichment of Pathology unit:

Magee, D. et al., Scientific Foundations and Principles of Practice in Musculoskeletal Rehabilitation, Saunders Elsevier, 2007. The book is on reserve at Mansfield Library.

Nordin, M. and V.H. Frankel, Basic Biomechanics of the Musculoskeletal System, 3rd edition, Lippincott Williams and Wilkins, 2001.

Goodman, C.C. and W.G. Boissonault, Pathology Implications for the Physical Therapist, W.B. Saunders Company, 2003.

Recommended resource texts for movement system exam:

Cyriax J: Textbook of Orthopedic Medicine

Donatelli: Orthopedic Physical Therapy

Hertling: Management of Common
Musculoskeletal Disorders

Hoppenfeld: Physical Examination of the
Spine and Extremities

Kendall: Muscles- Testing and Function

Recommended videos: Movement system examination- on CD in LSS (there is one disk available for copying, please leave the other in LSS)

Study questions: You will be provided with study questions. You are not required to answer these questions. You may make an appointment to discuss the answers to the questions with the faculty.

AUGUST

25 +26 +27(1st hr) Introduction/ decision making/ tests and measures (principles)- Beth

Reading: Hypothesis oriented algorithm (Fac pac for PT 503)

O'Sullivan, 3rd ed, chapter 5 (notebook in LSS) –

"Model of Orthopedic dysfunc..."(notebook in LSS)

Magee- start to review chapter 1 esp pp14-20

Carr and Shephard, Movement Science Foundations for Therapy in Rehabilitation. Read pages 23-28. (note on electronic reserve)

Assignment: first 4 sections of McKinnis CD (on your own) Knowledge of the material will be assessed on Test 2 and Final exam

27 (2nd hour) + 29 (1st hr)

Pathology – 3 hr Steve –Enablement/Disablement Models, Model of Tissue Repair, Wound Repair Process

Reading: The following are on electronic reserve at Mansfield Library Website.

Carr and Shephard, Movement Science Foundations for Therapy in Rehabilitation. Read pages 23-28.

Jette, Toward a common language for function, disability, and health. *Physical Therapy* 86(5), May 2006 pages 726-734.

Mueller and Maluf, Tissue adaptation to physical stress: A proposed “physical stress theory” to guide physical therapists practice, education and research. *Physical Therapy* 82(4) April 2002. Read pages 383-392 and scan literature review 392-399.

Magee et al., Scientific Foundations and Principles in Musculoskeletal Rehabilitation. Pages 1-22.

29 (2nd hr) Interviewing/ chart review 1 hr Kim
Reading: Magee 1-10

SEPTEMBER

1 Holiday

2 (11:00) Pathology- 1 hr Steve – Bone formation and repair
Reading: Magee et al., Scientific Foundations and Principles in Musculoskeletal Rehabilitation. Pages 122-139.

3 + 5 Interviewing/ chart review 4 hr Kim
Reading: Magee pages 1-14

8 Pathology- 2 hr Steve – Bone fractures, compartment syndrome, metabolic bone disease; Tendons and Ligaments
Reading: Magee et al., Scientific Foundations and Principles in Musculoskeletal Rehabilitation. Pages 23- 41, 47-69.

9 (11:00) Pathology- 1 hr Steve – Tendons and Ligaments
Reading: Magee et al., Scientific Foundations and Principles in Musculoskeletal Rehabilitation. Pages 23- 41, 47-69.

10 Pathology- 1 hr Steve – Joint types, cartilage repair
Reading: Magee et al., Scientific Foundations and Principles in Musculoskeletal Rehabilitation. Pages 144-167.

Vital Signs - 1 hr Reed

12 Vital Signs lab 2 hr - Reed

15 Pathology- 2hr Steve – Joint diseases; Skeletal muscle repair and immobilization
Reading: Magee et al., Scientific Foundations and Principles in Musculoskeletal Rehabilitation. Pages 97-117. (Pages 79-96 are a review of basic muscle physiology and response to activity. Review as you see necessary as you should already be very familiar with this information)

16 (11:00) Pathology- 1 hr Steve –Skeletal muscle diseases

17 Pathology- 2 hr Steve –Principles of Pharmacotherapeutics, Pharmacology of

Inflammation

Reading: Ciccone, Pharmacology in Rehabilitation pages 199-213.

19 Introduction to palpation- 1hr Beth

Pathology – 1 hr Steve – Pharmacology of inflammation continued

Reading: Ciccone, Pharmacology in Rehabilitation pages 221-222.

22 Posture- basic principles/scoliosis- 2 hrs Beth

reading: Magee, pp 14-16 and chapter 15
Hall and Brody, pp 167-178

23 (2 hrs) + 24 1st hr Posture lab/ observation- 4 hrs Beth

24 (2nd hr) + 26 Intro to palpation, goniometry, decision making- Beth

reading: Clarkson, Chapter 1
Magee- pp28-34, 54-57

Assessing joint integrity and mobility (joint play), special tests, function

reading: Magee pp 39-50, 54

Intro to muscle testing, palpation, decision making

reading: Clarkson, Chapter 1
Magee pp 30-34

Neurologic screening- sensation and reflexes

reading: Magee pp20- 28, 50-54

SO BASICALLY ALL OF CHAPTER ONE EXCEPT THE FUNCTIONAL ASSESSMENT AND RADIOLOGY(this part is helpful, though). Be sure to use the chart on page 61.

29 Cervical Spine Pathology 1 hr Steve
1 hr Beth

30 (2 hrs) Pathology C spine impairments, function, posture/position, palpation – 2 hrs Beth

reading: Magee, Chapter 3

Anatomy trails

OCTOBER

1 C spine –screen myotomes, reflexes, sensation, circulation, 2 hr Kim

3 TEST 1

6 + 7 (2 hr) + 8+10+13+14

C spine- ROM, MMT, Spec tests -Beth

reading: Clarkson, pp34-42, 61-67, 94-95

14 2nd hour- radiology overview

15 Shoulder surgery/ pathology- Steve 2 hr **reading: TBA**

17 and 20 OFF

21 (2 hrs) +22+24+27+

28 (2 hrs) +29 Shoulder exam, cont - 14 hrs Kim

reading: Magee: Chapter 5
Clarkson: Chapter 3

31 Shoulder case 2 hrs- Kim

NOVEMBER

3+5+7+10 Elbow/forearm exam- Kim

reading: Magee: Chapter 6
Clarkson: chapter 4

11 Holiday

Practical Exams begin this week

12 Wrist and Hand- 2 hrs Beth

reading: Magee: Chapter 7
Clarkson: Chapter 5

14 TEST 2 (INCLUDES RADIOLOGY!)

17+ 18 (2 hours) + 19+ 21+24+25 Wrist and hand 11 hrs Beth

26-28 Holidays

DECEMBER

1+2+3 TMJ - 5 hrs Kim

reading: Magee: Chapter 4

5 Review

FINAL EXAM – TBA- comprehensive (includes radiology)

***This class is designed to have a large lab component, you will be expected to dress in appropriate clothing to fully expose the body part we are examining that day. Inappropriate dress hurts your partner, not you. You may be asked not to participate if you are not dressed properly!

*** You are expected to read the assignment for the day **BEFORE** coming to class. This will help you appreciate the subtleties of the in-class demonstrations and will save you time and energy in the long run. You should also plan on reviewing the videotapes. A list of the "special tests" which you are expected to know will be given to you (Some of them are not described in your text and some are not on the video, which is currently being revised).

***Class participation is expected, attendance will not be taken. You will be responsible for obtaining information from missed classes. You must contact me on or before the day of a test if you are sick (243-5190 or 728-6858) or leave a message with the office (243-4753).

***Points will be deducted for late assignments at the rate of 10 percent per day, unless otherwise arranged.

***Grading (grades will be calculated for all units on the basis of percentage of hours):

PT 516 grades

Test 1	100 points
Test 2	100 points
Comprehensive Final	200 points
case studies	15 points each
quizes ?	25 pts

.....

practical 1	Pass/not pass
practical 2- comprehensive	25 points

Physical Therapy Program Grading Policy

See student handbook.

NOTE ON PRACTICAL EXAMINATIONS:

Practical exams are given over a period of days, so there are times when some students have completed the exam while others are still studying. In order to insure equality of testing procedures for all students please adhere to the following regulations:

1. Do not solicit any information from students who have already taken the exam.
2. Do not discuss any part of the exam with classmates who have not taken the exam (or with someone else in their presence).
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.

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. Please refer to the

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

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 at

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

For information on plagiarism please visit this link: <http://www.rbs2.com/plag.htm>

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

For help with references- <http://www.apastyle.org/electref.html>

Disabilities: We are more than willing to provide accommodations to any student with a disability, but we need to have prior notification. Please contact us as soon as possible.

QUESTIONS?: If you have any questions or problems, feel free to contact Beth (course coordinator) at 243-5190, 728-6858 (home) or leave a message in the office. Remember that I am available to help you outside of class, but you must take the responsibility to come to me. Asking for help is **NOT** a sign of weakness- we (PT's) would be out of business if people did not ask for help.

Pathology	16 hours
Intro to testing	7 hours
Interviewing	5 hours
Vital signs	3 hours
Posture	5 hours
C spine	15 hours
Shoulder	14 hours
Elbow	8 hours- Kim trades for ortho hand unit
Wrist/hand	13 hours
TMJ	5 hours
Integration (cases, review)	4 hours
Testing	written- 2 midterms, final Practical- midterm and final

Beth 40 + review and tests

Kim 33 + review and tests

Steve 16 + tests

Reed 3

OBJECTIVES for Movement System Exam and Evaluation (PT 516 and PT 519)

Threads: Clinical reasoning (HOAC2, Disablement model, ICF), Documentation, EBP, Pharmacology, Physical Stress Theory, Lifespan issues

- 1- Knowledge and Comprehension
- 2- Application
- 3- Psychomotor
- 4- Analysis, synthesis, evaluation
- 5- Affective

- A. Movement System as scope of Physical Therapist practice.
 - 1.1 Describe the components of the movement system
 - 1.2 Identify tests and measures that are appropriate for base, modulator, biomechanics and support components of the Movement System
 - 2.1 Given a case history/interview, identify the components of the Movement System that must be examined

Clinical Reasoning: Disablement model and Patient/Client Management model from the “Guide to Physical Therapy Practice”, and Hypothesis Oriented Algorithm for Clinicians II (HOACII)

- 1.1 Explain the relationship between the components of the Disablement model 5.19, 5.31, EXO2
- 1.2 Discuss the benefits of using the HOACII or other models of decision making 5.19, 5.20, 5.31 , EXO2, EXO3
- 1.3 Identify two different problem solving strategies
- 1.4 Identify when to refer to other practioners 5.27 EXO9
- 2.1 Given a case, write appropriate patient oriented goals and outcomes 5.45, EXO2
- 4.1 Given a specific case, use the “Guide” and HOACII to plan the examination, evaluation, prognosis, diagnosis 5.19, 5.20 EXO2
- 4.2 Given a case, decide when to re-evaluate and what 5.36, 5.45 tests to use EXO2

B. Evidence Based Practice

- 1.1 Define Specificity and Specificity 5.22, 5.23 EXO3
 - 2.1 Choose a test/measure for a case, based on specificity and sensitivity 5.22, 5.23 EXO3
 - 3.1 Given a case, find appropriate research to guide/support the exam, evaluation, diagnosis 5.21, 5.22, 5.23 EXO3
- C. Patient/Client Management Model- components of Examination, Evaluation, Diagnosis, Prognosis, and communication (intervention is not covered in this course).

**EXAM- general goals for all aspects of testing

- 1.1 List and explain tests
- 1.2 State sequence of examination and rationale 5.19 EXO2
- 1.3 List contraindications and precautions for testing 5.19, EXO2, EXO3
- 1.4 Know where to find and how to use screening tools.5.27, 5.29, EXO2-4
- 1.5 Describe Cyriax principles of identifying soft tissue lesions EXO2
- 1.6 Describe the Sahrman concept of relative flexibility EXO2, EXO3
- 1.7 Explain the role of the PTA in testing 5.57 EXO6
- 2.1 Identify the correct test and instrument for a given pathology, impairment, or functional limitation or find a test using technology 5.19 EXO1 EXO2 EXO3
- 2.2 Interpret results of each test, relate to pathology and functional limitation, give sensitivity and specificity, if known (published) 5.19, 5.20. 5.23 EXO3
- 2.3 Develop goals for a specific case 5.19 EXO2 EXO3
- 2.1 Given a case, identify factors that might influence recurrence or secondary impairments 5.52
- 3.1 Correctly and efficiently perform all components of physical exam, including: observation, palpation, ROM, MMT, special tests, girth and length tests, neurologic screen, and function assessment 5.30 EXO2

- 3.2 Use appropriate manual contact, direction, and force for all tests 5.30 EXO2
- 3.3 Use proper body mechanics 5.30 EXO2
- 3.4 Address comfort and positioning of clients 5.6, 5.8 EXO8
- 3.5 Give clear and concise verbal commands 5.17 EXO8
- 3.6 Document accurately and concisely 5.1, 5.17 EXO11 CXO5
- 3.7 Clearly and concisely, educate pts (students) about the tests and measures, diagnosis and prognosis 5.17, 5.26 EXO8
- 3.8 Practice examination techniques in and out of class
- 3.9 Accept feedback from instructor and adjust performance accordingly 5.4
- 3.10 Read assigned material prior to class
- 3.11 Dress appropriately for class
- 3.12 Exhibit professional behavior in all interactions 5.11 EXO5, EXO8
- 3.13 Share expertise and experience with classmates 5.15, 5.26 EXO8 EXO9
- 4.1 Propose a strategy for examining a specific case integrating previous knowledge of anatomy, goniometry, posture, etc. 5.28, 5.30 EXO1 EXO2
- 4.2 Given limited exam time, decide which tests and measures are essential for a screen 5.27 EXO 1-3
- 4.3 Critique a case, suggest additional or redundant components to the exam/evaluation 5.19, 5.20, 5.22 EXO1, EXO3
- 4.4 Given a specific case, formulate a hypothesis relating pathology to impairments and dysfunction and construct a PT diagnosis
 - a. Give rationale for your hypothesis and diagnosis, eg which components of the examination support it
 - b. Propose additional testing to confirm or reject your hypothesis and diagnosis 5.19, 5.22, 5.23 EXO3
- 4.5 Given a case, propose an intervention strategy that is goal directed and addresses the identified impairments, functional limitations, and/or pathology. EXO4

I. Interviewing/ taking a History

- 1.1 List the components of a complete history of recent/current episode 5.28 EXO2
- 1.2 List components of a systems review 5.29 EXO2
- 1.3 List the components of a past medical history 5.28 EXO2
- 1.4 Write the components of the McGill Pain Questionnaire 5.30p EXO2
- 2.1 Given a specific case, develop a list of appropriate questions to ask 5.28 EXO2
- 3.1 Given a case, conduct an interview in a timely, clear, and concise manner 5.28
- 4.1 Given a case history, formulate a preliminary clinical hypothesis 5.19, 5.28 EXO3
- 4.2 Given a case history, propose appropriate tests and measures 5.19, 5.28 EXO3
- 5.1 Actively participate in labs

II. Observation

- 1.1 Recognize abnormal movement, eg. Assymetries, guarding, increased or decreased movement range, ease of movement, pain with movement. 5.30k EXO2
- 1.2 Identify abnormal or assymetrical muscle mass or bone formation 5.30b EXO2
- 1.3 Identify abnormal skin and nail appearance 5.30j EXO2
- 4.1 Propose a cause for observed behavior or condition 5.19 EXO3

Posture Assessment

- 1.1 Identify the causes abnormal postural alignment 5.30q EXO2
- 1.2 Identify postural abnormalities in all planes 5.30q EXO2

- 1.3 List impairments or pathology which can result from abnormal posture 5.30q EXO2
- 2.1 Given a client, identify abnormal and normal standing and sitting postures, observing from four sides. 5.30q EXO2
- 3.1 Demonstrate a postural assessment using a plumb bob, posture grid and/or photograph. 5.30q EXO2
- 4.1 Given a client, identify postural abnormalities, possible causes, and possible resulting impairments. 5.19 EXO3

Gait Analysis

a. Terminology

- 1.1 Recognize and recall terminology of the human gait cycle. 5.30i
- 2.1 Identify gait cycle phases. 5.30i EXO2

b. Adult and Child Gait Characteristics

- 1.1 List characteristic biomechanical and kinesiological parameters of each phase of the adult gait cycle. 5.30i EXO2
- 1.2 List muscle activation patterns of the adult gait cycle 5.30i EXO2
- 1.3 List developmental progression of human gait cycle. 5.30i EXO2

c. Impairments and Pathology

- 1.1 List typical gait impairments and associate them with certain pathologies. 5.30i EXO2
- 2.1 Given a case study or video or live patient demonstration, be able to identify gait impairments. 5.30i EXO2

III. Anthropometric measures

- 1.1 Describe body measurements, eg. Body mass, height, edema, effusion, girth 5.30b EXO2
- 3.1 Perform measurements

IV. Palpation

- 1.1 Give precautions for touching and possible patient reactions to touch (cultural, past abuse, etc) 5.17, 5.18 EXO2
- 1.2 Describe anatomy of any body part (muscle layers, vascular structures, nerves, and bone) CC1 EXO1
- 1.3 List indications for palpation (identify landmarks, differentiate tissue dysfunction, temperature, etc) CC3 EXO2
- 3.1 Ask permission to touch (explicit, implicit) 5.17 EXO8
- 3.2 Identify important bony landmarks
- 3.3 Identify soft tissue landmarks and boundaries
- 3.4 Identify normal and abnormal or asymmetrical mm tone, swelling, masses, tenderness, or temperature differences 5.30j EXO2
- 4.1 Given a patient or case, interpret findings 5.19

V. Neurologic Screening

a. Myotome screen 5.30f EXO2

- 1.1 Define myotomes for upper and lower extremities 5.30f EXO2
- 1.2 Match myotomes to corresponding dermatomes 5.30f EXO2
- 2.2 Compare mm performance impairment between peripheral and central nerve pathology

5.30f

3.1 Perform a myotome screen completely, accurately, and in a timely manner 5.30f

4.1 Given a specific case, determine how to further delineate a neurologic impairment/pathology 5.19 EXO3

b. Sensory testing (sharp/dull, light touch, temperature, deep touch, position sense, movement sense, graphesthesia, stereognosis, tactile localization, two-point discrimination, vibration, agraphesthesia) CCEXO2

1.1 Identify the purposes of performing a sensory assessment (related pathology, function) CC3, CC5.30v EXO2

1.2 Identify objective methods for measuring patient response to sensory testing 5.30v EXO2

1.3 Describe the testing protocol for each sensory modality 5.30v EXO2

1.4 Describe the location of the dermatomes 5.30v EXO2

2.1 Identify impairments/pathology which could cause the sensory deficit 5.30v EXO2

2.2 Identify impairments or functional limitations which could result from a sensory deficit 5.30v EXO2

3.1 Demonstrate sensory testing in an accurate and timely manner 5.30v EXO2

4.1 Given a specific case, determine how to further delineate a neurologic impairment or pathology 5.19 EXO3

c. Reflexes: DTR, Babinski, and Oppenheim

1.1 Identify the purposes of performing reflex testing (related pathology, function)

1.2 Describe the testing protocol 5.30f EXO2

1.3 Describe normal and abnormal responses 5.30f EXO2

2.1 Demonstrate reflex testing in an accurate and timely manner 5.30f EXO2

4.1 Given a specific case, determine how to further delineate a neurologic impairment or pathology 5.19 EXO3

VI. Examination and Evaluation of Range of Motion 5.30s EXO2

a. Instrumentation

1.1 Identify common instruments used to measure joint motion. 5.30s EXO2

1.2 Describe reliability and validity for ROM measurement procedures. 5.30s EXO2

1.3 Given a case, select the appropriate instrument. 5.30s EXO2

b. Principles of evaluation and application.

1.1 Give rationale for measuring ROM. 5.30s EXO2

1.2 List indications and contraindications. 5.30s EXO2

1.3 Explain normal and abnormal joint end-feel. 5.30s EXO2

1.4 Explain the sequencing of goniometric procedure. 5.30s EXO2

1.5 Identify the correct bony landmarks, client position and stabilization, and goniometer position. 5.30s EXO2

1.6 State normal ROM and functional ROM values for joints. 5.30s EXO2

1.7 Describe a technique to perform a screen of upper and lower extremity ROMs. 5.30s EXO2

2.1 Given a case, determine which joints to measure. 5.30s EXO2

2.2 Select the appropriate instrument for the joint and client. 5.30s EXO2

2.3 State factors accounting for differences in active and passive motion. 5.30s EXO2

2.4 Explain when you would assess active versus passive motion. 5.30s EXO2

2.5 Identify substitutions and suggest stabilization or alternate test positions. 5.30s EXO2

- 2.6 Demonstrate clear/concise documentation of ROM measures as a form of communication with other health care providers. 5.17, 5.42 EXO11
- 4.1 Given a specific case, including end-feel, active and passive ROM measurements, and pain level, determine possible origins of pathology. 5.19 EXO3
- 4.2 Differentiate restrictions due to joint vs muscle CC3, 5.19, EXO3
- 4.3 Propose further testing for a specific client. 5.19 5.27 EXO3

VII Examination of Joint Play

- 1.1 List the indications/contraindications/precautions for assessing joint play 5.30k EXO2
- 1.2 Give the 6 point rating system for joint mobility 5.30k EXO2
- 1.3 Explain the procedures for assessing joint play 5.30k EXO2
- 1.4 Describe the normal arthro and osteokinematics for each joint CC1 EXO1
- 1.5 Give impairments or pathology that may result from abnormal arthrokinematics CC3 EXO1
- 2.1 For a given joint motion restriction, assess the appropriate joint play 5.30k EXO2
- 2.2 For given joint hypermobility, name appropriate joint integrity tests 5.30k EXO2
- 2.3 Propose alternative positions, hand holds for given patient case 5.30k EXO2
- 3.1 For a given joint, accurately and efficiently assess joint play 5.30k EXO2
- 4.1 Given a case, delineate specific tissue etiology of abnormal findings CC3 5.19 EXO3
- 4.2 Given a case, propose further testing to confirm abnormal findings 5.19, 5.27 EXO3

VIII Manual Examination and Evaluation of Muscle Performance CC5.30l; 5.30m EXO2

a. Principles of muscle performance.

- 1.1 Operationally define strength, endurance, and motor control. 5.30l; 5.30m EXO2
- 1.2 Identify functional classifications of muscles, CC1 EXO1
- 1.3 List the three types of muscle contraction. CC1 EXO1
- 1.4 Name factors that impact muscle force performance. CC3 EXO1

b. Principles of evaluation and application.

- 1.1 Give rationale for measuring muscle strength and endurance. 5.30l; 5.30m EXO2
- 1.2 Describe common instruments to test muscle strength/endurance. 5.30l; 5.30m EXO2
- 1.3 Describe “make” vs “break” isometric testing. 5.30m EXO2
- 1.4 Define the manual muscle testing grading scale. 5.30m EXO2
- 1.5 List indications and contraindications to muscle testing. 5.30m EXO2
- 1.6 Explain the procedure for performing a MMT. 5.30m EXO2
- 1.7 Identify the correct client position, manual contacts, stabilization, and verbal cues to perform MMTs. 5.30l; 5.30m EXO2
- 1.8 Describe techniques to perform a general screen of upper and lower extremity strength. 5.30m EXO2
- 2.1 Given a specific muscle or muscle group, choose the correct position, manual contact and verbal commands to make a manual assessment of strength. 5.30m EXO2
- 2.2 Determine if MMT is the most appropriate measure of muscle performance for a given client. 5.19, 5.30l; 5.30m EXO2
- 2.3 Identify substitution patterns and implement stabilization or alternative test positions. 5.30l; 5.30m EXO2

- 2.4 Identify ways to differentiate motor control dysfunction vs weakness or paresis 5.30l; 5.30m EXO2
- 2.5 Demonstrate clear/concise documentation of strength measures to facilitate communication between health care providers. 5.17, 5.42 EXO11
- 3.1 Accurately conduct MMT for a given muscle group and grade 5.30m EXO2
- 4.1 Develop a hypothesis of origin of muscle impairments, given a specific case. 5.19 EXO3
- 4.2 Recommend alternative strategies (positions, hand placement, equipment, etc) when given an atypical patient case 5.30l; 5.30m EXO2
- 4.3 Propose further testing to evaluate. 5.19, 5.27, EXO3

X Vital Signs

- 1.1 Identify the reasons for monitoring vital signs 5.30e, 5.30w EXO2
- 1.2 Identify normative and abnormal ranges 5.30e, 5.30w EXO2
- 1.3 Describe normal variations and factors that influence these changes 5.30e, 5.30w EXO2
- 2.1 Explain vital signs can assist in planning examination and intervention 5.30e, 5.30w EXO2
- 2.2 Explain how vital signs are used to assess response to intervention 5.30e, 5.30w EXO2
- 3.1 Take peer's pulse, respiration rate, blood pressure, and temperature accurately and efficiently. 5.30e, 5.30w EXO2
- 4.1 Given a case, relate how abnormal vital signs can influence the exam and plan of care CC3, 5.19, EXO3

XI. Functional assessment

- 1.1 Know where to locate and how to use common standardized tools (Oswestry, SPADI, ADL scales, etc) 5.30u; 5.30x , 5.45 EXO2
- 2.1 Explain components of objective measures for functional activities 5.30u; 5.30x EXO2
- 3.1 Conduct tests including; timed BAPS, hopping, walk and stop, etc. 5.30u; 5.30x EXO2
- 4.1 Given a case, create a functional test for given impairments 5.19, 5.30u; 5.30x EXO2
- 4.2 Given a case, describe how to differentiate poor motor control from other impairments (weakness, hypermobility, etc) in functional performance 5.19, 5.30l, 5.30u, EXO2, EXO3

XII. Diagnostic Imaging 5.30 CC1 EXO1

- 1.1 Explain the basic science of radiographs, ultrasound, and magnetic resonance imaging and their general capabilities and limitations
- 1.2 Identify three dimensional transformation in two dimensional images
- 1.3 Know patient positioning for examination
- 1.4 Know identification markers on radiographs
- 1.5 Recognize factors that affect quality of images and sources of diagnostic error
- 1.6 Identify the pathological categories of skeletal disease and related radiographis predictive factors
- 2.1 Explain the use of imaging in a physical therapy examination
- 2.2 Understand what information on an image may useful to the PT
- 3.1 Communicate effectively regarding imaging
- 3.2 Given a radiograph, present the ABC's search pattern to a colleague
- 4.1 Compare the advantages and disadvantages of basic and advanced imaging techniques for a given case 5.19 EXO3

D. Musculoskeletal Pathology unit

I. Tissue adaptation to stress

- 1.1 Describe the Nagi disablement model. CC1, CC3, EXO1
- 1.2 Describe the ICF disablement model. CC1, CC3, EXO1
- 1.3 Describe the “Physical stress theory”. CC1, CC3, EXO1
- 1.4 Describe the steps of the tissue repair process as it relates to skin, bone, ligaments, tendons, skeletal muscle, and synovial joint structures. CC1, EXO1
- 1.5 Describe the time frames for tissue repair of the various tissues associated with the musculoskeletal system. CC1, EXO1
- 1.6 Describe the common bone fracture types. CC1, CC3, EXO1
- 1.7 Describe the routine medical interventions for bone fracture repair. CC1, CC3, EXO1
- 1.8 Describe the impact a period of immobilization has on an individual’s physiological status and articular, periarticular, extraarticular tissues. CC1, CC3, EXO1
- 2.1 Explain how the Nagi and ICF models differ in their approach to describing disablement. CC1, CC3, EXO1
- 2.2 Demonstrate how the physical stress theory applies to common client pathologies encountered in physical therapy practice. CC1, CC3, EXO1
- 2.3 Demonstrate use of correct terminology in describing tendon and ligament injuries. CC1, CC3, EXO1

II. Pathological conditions

- 1.1 Describe the risks and interventions for compartment syndrome. CC1, CC3, EXO1
- 1.2 Describe the pathology associated with osteoporosis, rheumatoid arthritis, osteoarthritis, muscular dystrophy, and myasthenia gravis. CC1, CC3, EXO1
- 4.1 Differentiate between primary and secondary osteoporosis. CC1, CC3, EXO1
- 4.2 Differentiate between rheumatoid and osteoarthritis. CC1, CC3, EXO1
- 4.3 Determine the implications of medical management of these pathologies on physical therapy intervention. CC1, CC3, EXO1

III. Pharmacology management of inflammation

- 1.1 Explain the difference between chemical name, generic name, and proprietary name for a drug. CC3, EXO1
- 1.2 Identify the common pharmacokinetic and pharmacodynamic properties of drug classes. CC1, CC3, EXO1
- 1.3 Describe common classes of analgesic/anti-inflammatory drugs. CC1, CC3, EXO1
- 1.4 List the commonly used analgesic/anti-inflammatory drugs. CC1, CC3, EXO1
- 1.5 List the common drug interactions and potential adverse effects of NSAID or glucocorticoid use. CC1, CC3, EXO1
- 4.1 Using a study of a client with musculoskeletal damage, appraise the influence the prescribed drugs will have on the tissue repair process CC1, CC3, EXO1

IV. Cervical, thoracic, lumbar and SIJ pathology

- 1.1 Describe regional spine differences: tissue structure, motion CC1, CC3, EXO1
- 1.2 Describe common congenital deformities of the spine. CC1, CC3, EXO1
- 1.3 Describe the common degenerative disorders of the spine. CC1, CC3, EXO1
- 1.4 Describe the common traumatic injuries of the spine. CC1, CC3, EXO1
- 1.5 Recognize abnormal imaging of the spine CC1, CC3, EXO1
- 1.6 Describe the common surgical interventions used to address pathology. CC1, CC3, EXO1
- 2.1 Given a pathology, describe impairments that may result CC1, CC3, EXO1

V. Extremity and TMJ pathology

- 1.1 Describe the major components of the anatomy. CC1, EXO1
- 1.2 Describe the common types of injury/pathology that occur CC1, CC3, EXO1
- 1.3 Recognize abnormal radiographs for fractures and dislocations CC1, CC3, EXO1
- 1.4 Describe the common surgical interventions used to manage pathology. CC1, CC3, EXO1
- 1.5 Describe common physical therapy rehabilitation strategies. CC1, CC3, EXO1
- 2.1 Relate impairments to pathologies CC1, CC3, EXO1

8/08