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Spring 1-2003

### PT 568.01: Neurorehabilitation II

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*University of Montana - Missoula*

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**PT 568 Neurorehabilitation II – 2 credits**  
Course Syllabus Spring 2003

**Instructor:** Dr. Steve Fehrer  
SB 107, 243-2429  
[sfehrer@selway.umt.edu](mailto:sfehrer@selway.umt.edu)

**Class Schedule:**

Monday 1:10 – 2:00 PM SB 113/018  
Wednesday 8:10 – 10:00 SB 020 (Lab activities)  
Friday 8:10 – 10:00 SB CP 204

**Required Textbook:**

Somers MF. Spinal Cord Injury Functional Rehabilitation 2<sup>nd</sup> edition, Prentice Hall 2001.

**Additional Resources:**

Umphred DA. Neurological Rehabilitation 4<sup>th</sup> edition, Mosby 2001.

O’Sullivan SB and TJ Schmitz. Physical Rehabilitation Assessment and Treatment 4<sup>th</sup> edition, FA Davis, 2001.

Shumway-Cook A. Motor Control Theory and Practical Applications 2<sup>nd</sup> edition, Lippincott Williams and Wilkins, 2001  
612.7S562m

Bromley I. Tetraplegia and Paraplegia A Guide for Physiotherapists 5<sup>th</sup> edition, 1998  
616.837062B868t

Campbell M. Rehabilitation for Traumatic Brain Injury Physical Therapy Practice in Context, 2000  
616.806C189r

**Grading:**

Student performance evaluation will be based on two 25-point quizzes, a 50-point midterm exam and a 75-point comprehensive final exam. A portion of the midterm exam and the second quiz will be composed of a “take-home question” activity. Each student will be expected to complete the “Take home question” without any assistance from other persons. Grade distribution: A = 90-100%, B = 80 - 89%, C = 70 – 79%, <70% requires retake of quiz or exam.

Any evidence of cheating or plagiarism will result in failure of the course and possible remand to Academic Court for possible suspension or expulsion.

**Schedule:**

Mon 1/27	Introduction, Classification of SCI (Reading in text 2-29)
Wed 1/29	Lab: ROM, Pressure Management (171-174)
Fri 1/31	Primary and secondary effects of SCI (30-37)

Mon 2/3	Outcomes following SCI (156-159)
Wed 2/5	Lab: Transfers by the Therapist, Bedmobility skills (165-179, 183-199, 218)
Fri 2/7	Outcomes continued
Mon 2/10	SCI, acute care management (38-54)
Wed 2/12	Videotape: Respiratory Management of the Patient with Quadriplegia (VT 10498). You will view this videotape on your own either at the library or in SB 018.
Fri 2/14	No class
Mon 2/17	Presidents Day – no class
Wed 2/19	Lab: Respiratory management techniques (121-142)
Fri 2/21	Videotape: Clinical kinesiology applied to persons with tetraplegia
Mon 2/24	<b>Quiz 1</b>
Wed 2/26	Lab: Functional mat skills – tetraplegia (187-203)
Fri 2/28	ASIA classification system – videotape (144-156)
Mon 3/3	FIM classification system – mobility tasks
Wed 3/5	Lab: Transfer training skills – tetraplegia (228-252)
Fri 3/7	MDS and inpatient rehabilitation
Mon 3/10	Home assessment – OASIS (Chapter 15 Architectural Adaptations on web site)
Wed 3/12	Lab: Basic wheelchair skills
Fri 3/14	Wheelchair assessment
Mon 3/17	Bladder function following SCI (Chapter 14 Bowel and Bladder Management on web site)
Wed 3/19	Lab: More advanced wheelchair skills
Fri 3/21	Bowel and sexual function following SCI (71-91)
3/24 – 3/28	Spring Break
Mon 3/31	Ambulation; Provided “Take home question” (349-406)
Wed 4/2	Case study - groups
Fri 4/4	<b>Midterm Exam and “Take home question” due</b>
Mon 4/7	Introduction Traumatic Brain Injury
Wed 4/9	Lab: De-escalation strategies
Fri 4/11	Rancho Los Amigos Level of Cognitive Function (LOCF) - videotape
Mon 4/14	Client management based on LOCF, Behavior modification

Wed 4/16	Case study – rehabilitation team
Fri 4/18	Behavior modification, retraining cognition
Mon 4/21	Vestibular dysfunction and TBI; Provided “Take home question”
Wed 4/23	Videotape review Common Movement Disorders
Fri 4/25	Physical Therapy for People with Parkinson Disease
Mon 4/28	<b>Quiz 2 and “Take home Question” due</b>
Wed 4/30	Assessment of gait and balance disorders in PD
Fri 5/2	PT interventions continued
Mon 5/5	Multiple Sclerosis – review of pathology
Wed 5/7	Videotape and PT interventions
Fri 5/9	PT interventions

**Final exam** date Wed May 14 10:10 – 12:10.

### **Course Objectives:**

Course Objectives:

- 1 = knowledge and comprehension
- 2 = application
- 3 = psychomotor
- 4 = synthesis
- 5 = affective

### **Spinal Cord Injury (SCI), Traumatic Brain Injury (TBI), Parkinson Disease (PD), and Multiple Sclerosis (MS)**

#### A. Pathophysiology

- 1.1 Understand the etiology for SCI, TBI, PD, and MS.
- 1.2 Describe the lifestyle risk factors associated with SCI, TBI, and PD.
- 1.3 Understand the mechanisms and cellular damage in SCI, TBI, PD, and MS.
- 1.4 Identify systemic complications of SCI, PD, MS.
- 1.5 Understand the difference between UMN and LMN lesions.
- 1.6 Identify and locate spinal cord tracts and their respective function.
- 1.7 Understand principles of medical management of SCI, TBI, PD and MS.
- 1.8 Understand the functional expectations based upon level of injury.
- 1.9 Identify prognostic indicators for clinical and medical improvement following TBI.
- 4.1 Demonstrate the application of primary and secondary prevention interventions appropriate for clients with SCI, TBI, PD, and MS.

#### B. Examination/Evaluation

- 1.1 Understand classification of SCI by injury level and paraplegia versus tetraplegia.
- 1.2 Understand the classification of SCI as complete versus incomplete.
- 1.3 Understand the importance of environment on TBI evaluation outcome.
- 2.1 Apply understanding of ASIA, Glasgow Coma Scale, Rancho Levels, Hoehn and Yahr, United Parkinson Disease rating Scale, and Expanded Disability Status Scale when planning appropriate examination activities.
- 2.2 Differentiate the clinical signs of UMN and LMN lesions.
- 2.3 Identify types of spinal cord lesions from clinical signs.

- 2.4 Explain the potential for achievement of functional ambulation given the level of the client's SCI injury.
- 3.1 Independently examine a client and obtain history and potential for community and work reintegration.
- 3.2 Demonstrate proper technique for client examination.
- 4.1 Demonstrate clinical decision making skills in evaluation, differential diagnosis, and planning treatment.
- 4.2 Using case studies, assess clients with SCI, TBI, MS, and PD for optimal utilization of assistive and adaptive devices.
- 4.3 Using a case study, construct an effective physical therapy examination protocol for a client exhibiting SCI/TBI injuries, PD, or MS.
- 4.4 Using the results of a physical therapy examination of a client with SCI, TBI, PD, or MS, in the form of a case study, complete an evaluation of the client and propose a physical therapy diagnosis.
- 5.1 Demonstrates appropriate professional behavior during model client examination/evaluation lab.

#### C. Cognition/Behavior

- 1.1 Understand impact of TBI, MS, and PD on overall cognitive function.
- 1.2 Understand the effect of cognitive impairments on client performance in physical therapy.
- 4.1 Identify factors that can influence a client's cognitive performance based on knowledge of cognitive impairment.
- 5.1 Demonstrates understanding of severity of client's cognitive impairment and acts accordingly.

#### D. Clinical Management

- 1.1 Understand general physical therapy treatment strategies for SCI, TBI, PD, and MS.
- 1.2 Understand the psychosocial issues that accompany SCI, TBI, PD, and MS.
- 1.3 Identify assistive and adaptive equipment commonly used by clients with SCI, TBI, PD, and MS.
- 1.4 Describe appropriate extremity and trunk orthotics for use by clients with SCI, TBI, and MS.
- 2.1 Apply ASIA, Glasgow, and Rancho scales to clients based on role playing case studies.
- 2.2 Explain how you would incorporate training in self-care and home management.
- 3.1 Demonstrate techniques of bedmobility, mat activities, transfers, and wheelchair skills.
- 3.2 Demonstrate appropriate use of assistive and adaptive devices for clients with SCI, TBI, PD and MS.
- 3.3 Demonstrate by role playing how you would instruct the client in functional training.
- 3.4 Demonstrate appropriate physical therapy interventions for cough assist, breathing sequence, and respiratory muscle strengthening for clients with SCI.
- 4.1 Monitor and adjust plan of care in response to client status.
- 4.2 Using the results of a physical therapy examination of a client with SCI, TBI, PD, or MS in the form of a case study, construct an intervention program for the client during the initial week in an inpatient rehabilitation program.
- 4.3 Illustrate the utilization of the UDS-FIM system for collective outcomes assessment of clients with SCI, TBI, PD, or MS.