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Course Syllabi

Fall 9-1-2000

PT 567.01: Principles of Adult Neurological Rehabilitation

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PT-567/568
PRINCIPLES OF ADULT NEUROLOGICAL REHABILITATION

I. PT-567/568 Principles of Adult Neurological Rehabilitation

II. Credit: 5 Credits

III. Instructor: Chuck Leonard, Ph.D., PT

IV. Clock Hours: 6 hours per week for 5 weeks
Class meets M, W, F 8-10

V. Course Description: Various medical and societal aspects of adult-onset stroke are presented in addition to physical therapy and medical rehabilitation procedures. Pathophysiology, prognosis, spasticity (mechanisms and treatment), gait assessment, motor control issues, functional outcome measures, and various treatment approaches are discussed.

VI. Required Reading:
Faculty Packet

Neurological Rehabilitation by Darcy Ann Umphred

VII. Schedule and Course Content (subject to change)

Week 1
Reading Assignment (Based on 3rd Edition):
Umphred pp. 681-697
Leonard '94 article; p.753 (read for definitional terms)

Impact of Stroke on the Health Care System
Stroke Risk Factors

Principles of the Neurological Examination

Neuroscientific Principles Related to CVA

Pathophysiology of CVA

Processes of Recovery
Pediatric vs. Adult

Chart Documentation

Week 2

Reading Assignment: Umphred (relevant paragraphs) 704, 705

Spasticity

Gait Analysis of the Hemiplegic Patient

Shoulder/Hand Syndrome Following CVA
Reflex Sympathetic Dystrophy

Treatment (Progression from acute phase…)

Patient Presentation #1 (Students are expected to dress in a professional manner for these presentations)

Week 3

Reading Assignment: Umphred pp. 697-701; 706-715

Measurement of Functional Outcomes

Guide to PT Practice (Adult CVA)

Prognosis
Time course of recovery from acute to chronic stages.
Treatment implications.

LAB- (Spasticity Reduction, Balance, Coordination, Transfers, Trunk, UE, LE.

Patient Presentation #2

Week 4

Motor Control/Learning Theory and Techniques

Constraint Induced (Forced Use) Therapies
Treadmill Training
Computer/Robot Assisted Therapies

Patient Presentation #3

Week 5

Reading Assignment: pp.715-719; 902-904

Historical Treatment Perspectives
- Neurodevelopmental Treatment (NDT; Bobath)
  - Theory/Rationale/Philosophy
  - Treatment Techniques for Lower Extremity
  - Upper Extremity
- Rood Treatment Approaches
  - Theory/Rationale/Treatment Techniques
- Brunnstrom
  - Theory/Rationale/Treatment Techniques
- PNF

Miscellaneous "Stuff"
Biofeedback; Inhibitive Casting; Medications to decrease spasticity; PNF; Dorsal Root Rhizotomies; Weird Science/Continuing Educ. in Neuro. Rehab.

Hospital Neurological Ward Rounds or
Patient Presentation or
Physician (Neurologist or Physiatrist) Lecture

Cumulative Written Final

VIII. Objectives: See attached

IX. Course Requirements and Methods of Evaluation:
- Cumulative written final: 80%
- Laboratory observation: 10%
- Classroom participation: 10%

PT 567/568 NEUROLOGICAL REHABILITATION
TREATMENT OF CHILDREN WITH MOVEMENT DISORDERS
Fall Semester 2000

DATES: October 9 through November 9
TIME: Monday, 8:10 – 10:00 and 1:10-2:00 PM
Wednesday, 8:10 – 10:00
Wednesday, 1:10-2:00 for Oct 25, Nov 1,8)
Friday, 10:10 -12:00

TOTAL CONTACT HOURS: 35 hours
INSTRUCTOR: Carrie Gajdosik, MS, PT
OFFICE HOURS: Whenever

Required Materials: Faculty Packet at the Bookstore
Physical Therapy for Children by Campbell

Students need to bring a large rag doll with floppy shoulders and hips to class for labs. Always be prepared with shorts and t-shirts for participating in lab class.

Evaluation: 90-100 = A
80-89 = B
70-79 = C
<70 = retake

50 Points – presentation
100 points – Take home test

PT 567/568 – NEUROLOGICAL REHABILITATION: Fall Semester 2000

OCT 9 **8-10, 1-2** Introduction to Children With Cerebral Palsy (Campbell 1st ed, Ch 19; 2nd ed, Ch 20)

OCT 11 **8-10** Abnormal & pathological development

Oct 13 **10-12** Case study

Oct 16 **8-10** **LAB:** Handling and Positioning (bring dolls)
1-2 Musculoskeletal development

Oct 18 **8-10** Pediatric musculoskeletal exam, effects of intervention, life span issues

Oct 20 **No Class**

Oct 23 **8-10, 1-2** Student presentations

Oct 25 **8-10** Adaptive equipment for children (Campbell 1st ed, Ch 23, 2nd ed Ch 24)
1-2 **LAB:** transitions, head and trunk control

Oct 27 **10-12** Components of Assessment (Campbell 1st ed, pps 29-34, 66-69, 2nd ed, pp36-41, 75-78)

Oct 30 **8-10, 1-2 LAB:** Standardized tests

Nov 1 **8-10 1-2 LAB:** extremities, gait, functional activities

Nov 3 **10-12** Dr. Cary Mielke, surgical intervention with children

Nov 6 **8-10** Demo of treatment by Elaine Carmichael, MS, PT
1-2 PT in the school system (Campbell 1st ed, Ch 31, 2nd ed Ch 32)

Nov 8 **8-10** Case studies
1-2 Receive take home test

Nov 9 **10-12** **Kid's lab** (Research Class will be from 8-10 AM)

Nov 10 **Holiday**

Nov 21 **Take home test due**

Neurological Rehabilitation PT 567
Spinal Cord Injury and Traumatic Brain Injury
Fall 2000
Steven Fehrer, Ph.D., P.T.
SB 107 243-2429 sfehrer@selway.umt.edu

This portion constitutes one third of the 5 credit course Neurological Rehabilitation. This portion will meet 10:10 – 12:00 and 1:10 – 2:00 Monday and Wednesday, and 10:10 -12:00 Friday, beginning Monday November 13, 2000.

Required Reading:
O'Sullivan, S.B. and T.J. Schmitz. Physical Rehabilitation Assessment and Treatment 3rd edition. F.A. Davis Company, 1994.
Chapters 12, 24, and 26

Umphred, D.A. Neurological Rehabilitation 3rd edition. Mosby, 1995
Chapters 14 and 16.

Supplemental Reference:
Somers, M.F. Spinal Cord Injury Functional Rehabilitation. Appleton and Lange, 1992. Can be borrowed from Dr. Fehrer.

Grading:
Four written quizzes 10 points each = 40 points
Take home final examination (two case studies) = 60 points

This exam will be composed of two written parts. Part A will deal with physical therapy evaluation of clients with stroke, spinal cord, and/or traumatic brain injury (15 points each case study). Part B will deal with subacute rehabilitation goals, prognosis, and treatment of clients with stroke, spinal cord, and/or traumatic brain injury (15 points each case study). Part A will be issued to the students on December 13 and should be turned in on or before December 18. Part B will be issued when the student turns in Part A. Part B must be turned in on or before December 20. Each student is expected to work on each part INDEPENDENTLY and is not to discuss the problem with anyone.

Grade distribution: A = 90-100%, B = 80-89%, C = 70-79%, < 70% requires retake of quizzes and/or examination.

SCHEDULE:
Spinal Cord Injury – Read O'Sullivan Chapter 26 and Umphred Chapter16.

Nov 13 (Mon)
10:10 Introduction, mode of injury, UMN/LMN, Syndromes
11:10 Lab: ROM, sitting tolerance, what is paraplegia or tetraplegia like!
1:10 Clinical picture of spinal cord injury

Nov 15 (Wed)
10:10 Clinical picture of spinal cord injury continued
11:10 Lab: Physical therapist transfer skills
1:10 Outcomes following traumatic spinal cord injury

Nov 17 (Fri)
10:10 Questions of review; **Quiz 1**
11:10 Lab: Bedmobility skills – paraplegia

Nov 20 (Mon)
10:10 Breathing – videotape
11:10 Lab: Practice of breathing and cough techniques
1:10 Lab: Bedmobility skills – tetraplegia

Nov 27 (Mon)
10:10 Acute management of clients with spinal cord injury
11:10 ASIA assessment system – videotape
1:10 ASIA assessment system continued

Nov 29 (Wed)
10:10 Subacute rehabilitation of clients with spinal cord injury
11:10 Lab: Client transfer skills
1:10 Psycho/social issues of spinal cord injury

Dec 1 (Fri)
10:10 Questions of review, **Quiz 2**
11:10 Lab: Basic wheelchair skills

Dec 4 (Mon)
10:10 Bowel, bladder, reproduction issues
11:10 Lab: Advanced wheelchair skills
Time to be determined – session at Community Rehab on wheelchairs, cushions and other transfer devices.

Dec 6 (Wed)
10:10 Home assessment and barrier evaluation (Read Chapter 12 in O'Sullivan)
11:10 Lab: Case studies dealing with rehabilitation of clients with spinal cord injury – evaluation.
1:10 Lab: Case studies continued – treatment.

Dec 8 (Fri)
10:10 Questions of review, **Quiz 3**
11:10 Gait training with paraplegia

Traumatic Brain Injury – Read O'Sullivan Chapter 24,
review Umphred Chapter 14

Dec 11 (Mon)
10:10 Introduction
11:10 Clinical rating scales, Glasgow Coma Scale
1:10 Rancho Los Amigos Levels and treatment

Dec 13 (Wed)
10:10 Rancho Levels and treatment continued
11:10 Rehabilitation management of the TBI client
1:10 Clinical case studies – evaluation and treatment
Students will be provided with Part A of final examination.

Dec 15 (Fri)
10:10 Community progression of the TBI client
11:10 Questions of review, **Quiz 4**

Dec 20 (Wed)
Part B of final examination is due.

Course Objectives: Spinal cord injury (SCI) and Traumatic brain injury (TBI)
1 = knowledge and comprehension
2 = application
3 = psychomotor
4 = synthesis
5 = affective

Pathophysiology
1.1 Understand the ethiology and risk factors for SCI and TBI.
1.2 Understand the mechanisms and cellular damage in SCI and TBI.
1.3 Identify systemic complications of SCI.
1.4 Understand the difference between UMN and LMN lesions.
1.5 Identify and locate spinal cord tracts and their respective function.
1.6 Understand principles of medical management of SCI and TBI.
1.7 Understand the functional expectations based upon level of injury.
1.8 Identify prognostic indicators for clinical and medical improvement following TBI.

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 and Rancho Levels when planning appropriate evaluation techniques.

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.
5.1 Demonstrates appropriate professional behavior during model client evaluation lab.

Cognition/Behavior
1.1 Understand impact of TBI 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.

Clinical Management
1.1 Understand general physical therapy treatment strategies for SCI and TBI.
1.2 Understand the psychosocial issues that accompany SCI and TBI.
1.3 Identify adaptive equipment.
1.4 Understand and contribute to family education.
2.1 Apply ASIA, Glasgow, and Rancho scales to clients based on role playing case studies.
2.2 Monitor and adjust plan of care in response to client status.
2.3 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 by role playing how you would instruct the client in functional training.