

LAST REVIEW: 2010-2011 **NEXT REVIEW:** 2015-2016 **STATUS:** A**COURSE TITLE:** Rehabilitation Procedures**COMMON COURSE NUMBER:** PHT 2704**CREDIT HOURS:** 3**CONTACT HOUR BREAKDOWN***(per 16 week term)***CLOCK HOURS:**Lecture: **48** Lab:

Clinic: Other:

PREREQUISITE(S): PHT 2162**COREQUISITE(S):** PHT 2704L and PHT 2931**PRE/COREQUISITE(S):****COURSE DESCRIPTION:**

Advanced course designed to develop skill in and understanding of the underlying principles of advanced physical therapy plans of care including motor learning principles. Techniques presented include advanced therapeutic exercise programs (stroke, spinal cord injured, etc.) proprioceptive neuromuscular facilitation (PNF), Bobath and Brunnstrom. Amputations and principles of prosthetics are detailed with fitting and check-out procedures reviewed.

UNIT TITLES

- 1.0 Joint Mobilization
- 2.0 Lower Extremity Amputation and Prosthetics
- 3.0 Upper Extremity Amputation and Prosthetics
- 4.0 Principles of Neurorehabilitation
- 5.0 Developmental Sequence
- 6.0 Facilitation/Inhibition Techniques
- 7.0 Specific Neurological Approaches
- 8.0 Proprioceptive Neuromuscular Facilitation
- 9.0 Cognitive Deficits and Behavior Management
- 10.0 TBI Rehabilitation
- 11.0 CVA Rehabilitation
- 12.0 Upper Extremity Orthotics
- 13.0 SCI Rehabilitation
- 14.0 Pediatric Rehabilitation
- 15.0 Specialized Rehabilitation Techniques

ASSESSMENT:

Please provide a brief description (250 characters maximum) that details how students will be assessed on the course outcomes.

1. **Announced and unannounced quizzes and Unit examinations:**
2. **Mid-term and/or Final Exam (cumulative/comprehensive);**
3. **Assessment of reading and online assignments via submission of homework projects;**
4. **Participation in Discussion Forums on the e-learning site**
5. **Completion of Case Study Reviews, Grand Rounds or other projects (group or individual) as assigned**

Common Course Number: PHT 2704

Unit 1 Joint Mobilization

General Outcome:

- 1.0 The student will be able to understand the basic concepts of joint motion and correlate procedures for applying joint mobilizations.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 1.1 Define the terminology of joint mobilization.
- 1.2 Relate the basic concepts of joint motion.
- 1.3 List the indications and contraindications for joint mobilization.
- 1.4 Formulate goals for joint mobilization.
- 1.5 Identify common limitations to joint mobilization
- 1.6 Describe procedures for applying joint mobilization properly.
- 1.7 Propose items that may be included in patient education related to joint mobilization procedures.

Common Course Number: PHT 2704

Unit 2 Lower Extremity Amputation and Prosthetics

General Outcome:

- 2.0 The student will be able to discuss the rehabilitation process of an individual following a lower amputation and identify components of prosthetic devices.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 2.1 Discuss the etiology of lower extremity amputations.
- 2.2 List the various levels of lower extremity amputations.
- 2.3 Discuss the psychological aspects of amputation.
- 2.4 Detail the proper positioning used to prevent contractures following a transtibial and transfemoral amputation.
- 2.5 Detail a rehabilitation program for individuals following a lower extremity amputation including appropriate patient education.
- 2.6 Discuss the use of a stump shrinker.
- 2.7 Describe the wrapping techniques for transtibial and transfemoral amputation.
- 2.8 Discuss in the various components of lower extremity prosthetics including ankle-foot assembly, knee mechanisms, sockets and suspension systems.
- 2.9 Discuss the fabrication, fitting and alignment of the lower extremity prostheses.
- 2.10 Identify that patient and/or care givers' ability to adequately care for the prosthetic device.
- 2.11 Detail the check-out procedures for the transtibial and transfemoral prosthesis.
- 2.12 Understand how changes in skin condition that may occur while wearing a prosthesis may impact recovery.
- 2.13 Identify prosthetic and amputee causes of common gait deviations seen in individuals with ambulating with transtibial or transfemoral prosthesis.
- 2.14 Review necessary safety factors that patients and care givers should be aware of when using a prosthesis and/or assistive device

Common Course Number: PHT 2704

Unit 3 Upper Extremity Amputation and Prosthetics

General Outcome:

- 3.0 The student will be able to discuss the rehabilitation process of an individual following an upper extremity amputation and identify components of prosthetic devices.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 3.1 Discuss the etiology of upper extremity amputations.
- 3.2 List the various levels of upper extremity amputations.
- 3.3 Discuss the psychological aspects of amputation.
- 3.4 Detail a rehabilitation program for individuals following an upper extremity amputation.
- 3.5 Identify that patient and/or care givers' ability to adequately care for the prosthetic device.
- 3.6 Review necessary safety factors that patients and care givers should be aware of when using an upper extremity prosthesis.
- 3.7 Discuss in the various components of transradial and transhumeral prosthetics including terminal devices, wrist units, sockets and suspension mechanisms.

Common Course Number: PHT 2704

Unit 4 Principles of Neurorehabilitation

General Outcome:

- 4.0 The student will be able to identify key components of an advanced therapeutic plan of care for a neurologically involved patient.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 4.1 State the objectives of a plan of care for the neurological patient.
- 4.2 Define motor control and motor learning as it relates to the development of a motor plane.
- 4.3 Distinguish between the hierarchic and systems models theories of motor control.
- 4.4 Distinguish between the theories closed loop and open-loop theories of motor learning.
- 4.5 Relate the significance of motor development to a specific approach chosen to address a neurological condition.
- 4.6 Differentiate between the clinical approaches that are used to treat spasticity versus flaccidity.
- 4.7 Relate the stages of recovery for a neurological patient to the various interventions that might be utilized in the plan of care.

Common Course Number: PHT 2704

Unit 5 Developmental Sequence

General Outcome:

- 5.0 The student will be able to understand normal development and how to utilize appropriate developmental postures in neurorehabilitation programs.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 5.1 Describe various reflexes and explain how they may be modified/utilized in the plan of care for neurological patients.
- 5.2 Describe righting reflexes and their effect on patient achievement of long and short term goals within a plan of care.
- 5.3 Define developmental postures and discuss the utilization of these postures in the approach to neurological patients.
- 5.4 Describe how normal developmental milestones determine exercise progression.
- 5.5 Describe developmental strategies to improve motor control.
- 5.6 Define the stages of mobility, stability, controlled mobility and skill as they relate to developmental maturation.

Common Course Number: PHT 2704

Unit 6 Facilitation and Inhibition Techniques

General Outcome:

- 6.0 The student will be able to enhance awareness of miscellaneous facilitation and inhibition techniques to use as patient care interventions in neuromuscular rehabilitation.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 6.1 Explain various facilitation techniques and discuss their utilization as patient care interventions in neuromuscular rehabilitation.
- 6.2 Explain various inhibition techniques and discuss their utilization as patient care interventions in neuromuscular rehabilitation.
- 6.3 Describe biofeedback equipment's technical requirements.
- 6.4 Detail the variety of biofeedback units available and their applications in the field of physical therapy as an approach to neuromuscular rehabilitation.
- 6.5 Discuss the use of positioning schedules to manage abnormal tone and reflexes

Common Course Number: PHT 2704

Unit 7 Specific Neurological Approaches

General Outcome:

- 7.0 The student will be able to distinguish between specific approaches to neurological conditions such as Bobath and Brunnstrom techniques.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 7.1 List the common obstacles to successful patient care interventions for the neurological patient (synergies, equilibrium, vision, etc.).
- 7.2 Describe the various stages of recovery seen with a typical stroke patient.
- 7.3 Define associated reactions and discuss how they can be incorporated into a successful therapeutic approach to the plan of care for a neurological patient.
- 7.4 Define pathological reflexes and give examples of how they might be used in the treatment of a variety of neurological conditions:
- 7.5 Describe the basic principles of the Brunnstrom approach to neurological patients.
- 7.6 Describe the basic principles of the Bobath (neurodevelopmental technique – NDT) approach to neurological patients.

Common Course Number: PHT 2704

Unit 8 Proprioceptive Neuromuscular Facilitation

General Outcome:

- 8.0 The student will be able to relate the significance of utilizing PNF as a therapeutic technique in the management of a patient's condition.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 8.1 Define PNF.
- 8.2 Explain the principles of PNF.
- 8.3 Describe the basic PNF diagonals and how each is utilized to maximize a patient's performance or recovery of function.
- 8.4 Discuss the use of PNF principles for resisted gait and mat activities as an approach to facilitate improved function.
- 8.5 Describe various specific techniques that are used in PNF to address common neurological problems.
- 8.6 List the basic components of each diagonal pattern in terms of the movements that occur at each joint - both upper and lower extremity.
- 8.7 Relate PNF diagonal patterns to functional activities.
- 8.8 Understand the importance of utilizing basic principles (manual contacts, verbal commands, appropriate resistance, etc.) in order to achieve maximum benefit from the technique.

Common Course Number: PHT 2704

Unit 9 Cognitive Deficits and Behavior Management

General Outcome:

- 9.0 The student will be able to discuss specific considerations and interventions when working with cognitive and / or behavioral deficits.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 9.1 Describe specific cognitive deficits impacting patient achievement of physical therapy goals.
- 9.2 Detail specific patient populations who may present with cognitive deficits.
- 9.3 Document cognitive deficits in the SOAP format.
- 9.4 Identify appropriate interventions and treatment modifications for patients with cognitive deficits.
- 9.5 Discuss strategies that will improve cognitive deficits.
- 9.6 Detail strategies to communicate with patients with expressive and/or receptive aphasia.
- 9.7 Detail strategies to enhance physical therapy participation for patients with emotional lability, perseverations, and decrease attention span.
- 9.8 Detail strategies to manage aggressive, angry, combative and inappropriate patients.
- 9.9 Describe the roles of the interdisciplinary team members in managing patients with cognitive/behavioral deficits including occupational therapy, speech therapy and neuropsychology.
- 9.10 Distinguish between simple vs. complex commands.
- 9.11 Distinguish between single vs. multiple step commands.
- 9.12 Identify alternative communication strategies including communication boards/cards.
- 9.13 Distinguish between short and long term memory deficits and their impact in achieving physical therapy goals.
- 9.14 Discuss specific safety considerations for patient's following cognitive and behavioral impairment.

Common Course Number: PHT 2704

Unit 10 TBI Rehabilitation

General Outcome:

10.0 The student will be able to discuss specific considerations and interventions utilized in the physical therapy management of patients with traumatic brain injury.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 10.1 Detail specific physical therapy considerations for patients at various levels of the Ranchos Los Amigos Level of Cognitive Functioning scale.
- 10.2 Detail specific precautions when managing patients on ventilators
- 10.3 Describe the interdisciplinary team concept used in the rehabilitation of individuals with traumatic brain injury.
- 10.4 Identify the various team members involved in the management of the patient with traumatic brain injury and differentiate their respective roles.
- 10.5 Explain the specific cognitive considerations relative to performing physical therapy with patients following traumatic brain injury.
- 10.6 Detail specific physical therapy interventions utilized during the various stages of rehabilitation following a traumatic brain injury.
- 10.7 Discuss physical therapy considerations for patients with swallowing deficits.
- 10.8 Detail coma stimulation techniques and indications for their implementation during rehabilitations.
- 10.9 Describe wheelchair seating considerations for patients following traumatic brain injury.
- 10.10 Discuss specific safety considerations for patient's following traumatic brain injury.

Common Course Number: PHT 2704

Unit 11 CVA Rehabilitation

General Outcome:

- 11.0 The student will be able to discuss specific considerations and interventions utilized in the physical therapy management of patients with cerebrovascular accident.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 11.1 Identify and describe strategies utilized during rehabilitation following CVA.
- 11.2 Discuss constraint induced movement therapy.
- 11.3 Describe Pusher Syndrome and strategies to manage the condition.
- 11.4 Discuss specific indications, considerations, and precautions for the use of AFO's, air splints, and KAFO's.
- 11.5 Detail strategies to manage shoulder subluxations.
- 11.6 Discuss considerations relative to the use of upper extremity slings for patients with upper extremity neurologic deficits.
- 11.7 Detail strategies to manage perceptual deficits, visual field deficits and neglect.
- 11.8 Discuss specific safety considerations for patient's following CVA.
- 11.9 Identify the various team members involved in the management of the patient with CVA and differentiate their respective roles.
- 11.10 Describe wheelchair seating considerations for patients following CVA.

Common Course Number: PHT 2704

Unit 12 Upper Extremity Orthotics

General Outcome:

- 12.0 The student will be able to discuss the significance of the use of upper extremity orthotics in the management of a patient's condition.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 12.1 List the functions of upper extremity orthosis/splints.
- 12.2 Distinguish between a splint and an orthosis.
- 12.3 Discuss the characteristics of splints including: thumb spica splint, resting hand splint, cock up splint, dorsal hand splint, humeral fracture brace, clavicular splint, various upper extremity slings, and others presented
- 12.4 Determine methods to identify patient/clients and/or care givers ability to care properly for an upper extremity orthotic device.
- 12.5 Discuss the use and management of orthotics/splints in: peripheral nerve injuries, sprains, flaccidity/spasticity, tendon repairs/transfers, fractures, and others as presented
- 12.6 Recognize methods to determine proper fit including skin inspection.
- 12.7 Understand the value of educating the patient/client and/or care giver in proper fit of the orthotic device including information on how the device functions.
- 12.8 Determine appropriate means of addressing safety concerns regarding the proper use of the orthotic device.

Common Course Number: PHT 2704

Unit 13 SCI Rehabilitation

General Outcome:

13.0 The student will be able to discuss specific considerations and interventions utilized in the physical therapy management of patients with spinal cord injury.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 13.1 Detail specific physical therapy interventions utilized during rehabilitation following a spinal cord injury.
- 13.2 Discuss physical therapy considerations for patients with bowel and bladder dysfunction.
- 13.3 Describe wheelchair seating considerations for patients following spinal cord injury.
- 13.4 Discuss specific safety considerations for patient's following spinal cord injury.
- 13.5 Detail respiratory management strategies for patients with spinal cord injury.
- 13.6 Detail appropriate stretching programs for patients with various levels of spinal cord injury.
- 13.7 Describe fall prevention and recovery techniques.
- 13.8 Discuss ASIA SCI classifications.
- 13.9 Detail the relevance of tenodesis to hand function.
- 13.10 List adaptive equipment utilized to facilitate functional activities for patients with various levels of spinal cord injury.
- 13.11 Describe the indications for the standing frame.
- 13.12 Describe appropriate physical therapy interventions for the various phases of management following spinal cord injury.

Common Course Number: PHT 2704

Unit 14 Pediatric Rehabilitation

General Outcome:

14.0 The student will be able to discuss specific considerations and interventions utilized in physical therapy management of pediatric patients.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 14.1 Describe the use of positioning and handling as interventions to improve function in children with neurologic deficits.
- 14.2 List handling tips that can be used when treating children with neurologic deficits.
- 14.3 Explain transitional movements used in treating children with neurologic deficits.
- 14.4 Identify the goals for the use of adaptive equipment with children who have neurologic deficits.
- 14.5 Detail interventions to encourage head control.
- 14.6 Discuss the role of the family in pediatric rehabilitation.
- 14.7 Discuss weighted vest therapy.
- 14.8 Describe sensory integration techniques.
- 14.9 Discuss specific psychosocial considerations when treating pediatric patients including separation anxiety and family dynamics.

Common Course Number: PHT 2704

Unit 15 Specialized Rehabilitation Techniques

General Outcome:

15.0 The student will be able to discuss current trends in neurorehabilitation and indications for specific techniques

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 15.1 Define vestibular disorders.
- 15.2 Describe elements of rehabilitation for patients with vestibular dysfunction.
- 15.3 Define Tai Chi, Yoga and Pilates as rehabilitation techniques.
- 15.4 Discuss indications for Tai Chi, Yoga and Pilates as physical therapy interventions.