Miami Dade College

Course Description

PHT2701 | Rehabilitation Procedures | 3.00 credits

This course presents treatment techniques related to physical therapy interventions and rehabilitation concepts and principles for neurological and other medical conditions across the lifespan and continuum of care. Prerequisites: PHT2120, PHT2120L, PHT2224, PHT2224L, PHT2801C; Corequisites: PHT2162, PHT2701L, PHT2810.

Course Competencies:

Competency 1: The student will understand the basic concepts associated with rehabilitative procedures by:

1. Identifying the essential components of the neurological evaluation.
2. Discussing functional Vs quality.
3. Describing the anatomical structure of a muscle spindle and intrafusal muscle fibers.
4. Differentiating between characteristics of an upper motor neuron and a lower motor neuron lesion.
5. Defining the following disturbances in muscle tone are defined: hypotonia, hypertonia, spasticity, and rigidity.
6. Defining the following terms: tremors, spasms, choreiform movements, athetoid movements, ataxia and clonus.
7. Defining the types of aphasia (receptive, expressive, and global).
8. Defining hemianopsia.
9. Defining apraxia.

Competency 2: The student will understand the neurorehabilitation technique ROOD by:

1. Describing the underlying philosophy and uniqueness of the treatment system.
2. Identifying the rationale for the multi-sensory approach to neuro rehab.
3. Differentiating sympathetic from parasympathetic activity.
4. Describing appropriate methods for the common sensory modalities used in sensorimotor techniques.
5. Differentiating between light work and heavy work muscle activity.
6. Describe the four functional differences between group 1 and group 11 muscles (flexors and extensors).
7. Sequencing the components of ontogenetic motor development under the headings of reciprocal innervation, co-innervation, heavy work, and skill.
8. Discussing the treatment approach for Parkinson's disease.
9. Defining rigidity, tremors, bradykinesia, festinating gait, retropulsion, and Simeon posture.

Competency 3: The student will understand neurorehabilitation techniques BRUNNSTROM / PNF by:

1. Defining the stages of recovery following a CVA, which form the framework of the Brunnstrom approach.
2. Defining associated reactions.
3. Discuss how associated reactions can influence the therapeutic approach to treatment.
4. Discussing the therapeutic significance of posture and attitudinal reflexes.
5. Briefly describe the goal of treatment according to the stages of recovery.
6. Defining PNF.
7. Describe and state the rationale for the following basic PNF procedures: manual contacts, commands, stretch stimulus, traction, approximation, and maximal resistance.
8. Describing and demonstrating the basic PNF patterns (D1 / D2).
9. Describe and state the rationale for the following technique to emphasize in PNF techniques: repeated contractions hold–relax active motion, contract-relax, rhythmic initiation, and rhythmic stabilization.

Competency 4: The student will demonstrate an understanding of neurorehabilitation techniques NDT by:

1. Discussing Bobath's definition of normal tone.

2. Discuss abnormal movement patterns as seen in hemiplegia.
3. Defining basic NDT terminology: facilitation, inhibition, placing reflex, tapping.
4. Discussing the importance of weight bearing in treatment.
5. Discuss the significance of the following: midline orientation, bilateral activities, handhold, positioning, and inhibition/facilitation techniques.
6. Given a simulated patient problem, solving for treatment needs, rationale for goals, and treatment aims.

Competency 5: The student will demonstrate an understanding of neurorehabilitation UMN treatment strategies by
1. Discussing integration of various techniques.
2. Listing common obstacles to successful treatment of CVA and TBI Patients.
3. Comparing synergies, equilibrium, vision, and cognition.
4. We will discuss the team approach: PT, OT, Speech, Nursing, RT, MD, Social Services, and Patient/ family.
5. Discuss the approach to the treatment of MS during exacerbation and remission.
6. Discussing the treatment approach for ALS.
7. Discussing the treatment approach for Cerebellar disorder.

Competency 6: The student will demonstrate an understanding of the treatment approach for SCI /LMN by:
1. Defining quadriplegia and paraplegia.
2. Discussing the significance of lesions above C
3. Describing the expected level of function as per level of injury.
4. Describing the periods of spinal shock and post-spinal shock regarding bowel/bladder functions, sexual functions, and metabolic functions.
5. Given a level of spinal cord lesions, matching the appropriate functional losses, key muscle groups, functional goals, necessary assistive devices, and ADL restrictions.
6. Given the level of spinal cord lesions and treatment goals, list appropriate stretching, strengthening, positions, and functional goals.

Competency 7: The student will demonstrate an understanding of the wheelchair, orthotics, and prosthetics by:
1. Identifying factors in a wheelchair selection.
2. Reviewing the essential components of a standard wheelchair.
3. List the characteristics of a properly fitted wheelchair, including seat width, seat depth, seat height, footrest adjustments, and arm height.
4. Describing selected adjustments and indications for their use, including one- arm drive, molded seats, power-drive, posterior wheel placement, angle–in–space, and postural adaptations
5. Describe the wheelchair accessories and indications for their use.
6. Identifying the differences in prescribed chairs for various disorders.
7. Identifying how the cost analysis and funding sources may influence the prescription of a wheelchair.
8. Identifying common architectural barriers to wheelchair access and suggest appropriate environmental modifications.
9. Defining orthotists and listing the three significant purposes of bracing and the use of orthotics, giving an example of each.
10. Listing indications for the application of an orthosis or brace.
11. Listing key indicators for choosing the appropriate orthosis or brace.
12. Identifying naming principles in identifying an orthosis.
13. Discuss the significance of an improper-fitting orthosis or brace on developing secondary complications.
14. Identifying comfort measures that can be utilized to assure patient compliance with orthotic or brace wear.
15. Listing the guidelines for the care of braces.
16. Discuss the importance of skin inspection and care and identify areas of abnormal and normal pressure during the wear of an orthotic or prosthetic device.
17. Identifying appropriate therapeutic exercises that should be reinforced using an orthosis.

18. Discussing the use and management of orthotics and braces with UMN, LMN, Pediatric, Fractures, M.S., Arthritis, and other pathologies.
19. Reviewing common braces for the neck, back, long- leg braces, ankle – foot orthosis, wrist and hand braces.
20. Describing what is meant by elective versus traumatic amputation.
21. Listing the major indications for surgical amputation.
22. Naming a given amputation according to its anatomical level.
23. Discussing the pre- operative and post- operative physical therapy management of the patient with a lower extremity amputation. (Include bed positioning, stump wrapping, therapeutic exercises and gait training).
24. Identifying secondary complications that may arise post- operatively.
25. Defining prosthetics and identifying the components of the A-K or B-K prosthesis.
26. Discussing the fabrication, fitting, alignment and suspension of AK and BK prosthesis. aa) Discussing the skin problems of the amputee. bb) Given a list of gait deviations and a list of amputee causes matching deviations with appropriate cause. cc) Given an amputee cause of a gait deviation, suggesting appropriate exercises to be performed in order to correct deviation. dd) Listing prosthetic devices available for the UE and LE amputee.

Competency 8: The student will demonstrate an understanding of the physical therapy associated with the geriatric patient by:

1. Discuss the related primary changes that occur in the physiology and anatomy of the aging process.
2. Identifying the common diseases in the geriatric population in the following categories: cardiovascular, pulmonary, skeletal, muscular, neurological, and neurosensory.
3. Recognizing and describing common symptoms and complaints of the geriatric patient.
4. Discussing considerations for physical therapy management in the above disorders.
5. Discuss various public and private resources which offer assistance to the senior population.
6. Identifying common characteristics and challenges of delivering physical therapy services in home health settings.

Competency 9: The student will understand Burns, Wounds, and a Review of hydrotherapy/Asepsis by:

1. Reviewing the anatomy and physiology of the skin.
2. Stating the principles of documenting progress and intervention in wound and burn care.
3. Describing the mechanism of injury and repair.
4. Discussing burns in terms of etiology, pathology, and sequelae.
5. Describing differences between wound care and burn care.
6. Describing “The Iceberg Effect.”
7. Discuss the approaches to the classification of the severity of a burn injury.
8. Explaining the use of pressure garments and orthotics.
9. Describing how to present the formation of contractures following a burn and or wound.
10. Explain the following cleaning, debriding, and dressing processes.
11. Reviewing the role of hydrotherapy in the care of burns and wounds.
12. Recalling the principles of infection control and universal precautions.

Competency 10: The student will demonstrate an understanding of Cardiopulmonary Rehabilitation and Treatment of P.V.D. by:

1. Identifying the important anatomy related to respiration, including the thorax, primary and accessory muscles of respiration, and the respiratory tree.
2. Describing the movements of the above in inspiration and expiration.
3. Identifying common respiratory disorders and their clinical manifestations.
4. Stating which respiratory disorders are commonly identified as COPD.
5. In a general way, the indications and goals of Chest P.T.
6. Identifying components of a physical therapy evaluation of a patient with a respiratory disorder, including common findings.

7. Defining normal and abnormal breath sounds and discussing the clinical significance.
8. Defining PVD, listing the structures affected by this diagnosis, and identifying risk factors related to PVD.
9. Describing treatment goals and management of patients with arterial disease.
10. Describe and discuss physical therapy management for the patient with venous insufficiency.
11. Comparing arterial ulcers to venous ulcers.
12. Describing/reviewing the anatomy and physiology of the heart.
13. Identifying the nervous system control of the heart.
14. Explaining the importance of the electrocardiogram.
15. Identifying the risk factors associated with cardiovascular disease.

Competency 11: The student will demonstrate an understanding of the physical therapy associated with the pediatric patient by:

1. Identifying the role of the PT.
2. Identifying the role of the PTA.
3. Demonstrating the appropriate roles and level of communication between the PT and the PTA.
4. Discussing the developmental sequence.

Competency 12: The student will demonstrate an understanding of the neurorehabilitation technique: Task-Oriented Approach by:

1. Discussing the main concepts of neurological rehabilitation, motor control theory, and the task-oriented approach
2. Defining motor control
3. Analyzing a motor task and listing the components (Balance, STS, Gait, and Reaching and Manipulation)
4. Defining balance and its components
5. Identifying the components of reaching and manipulation
6. Comparing other theories of neurological rehabilitation
7. Recognizing and describing normal and abnormal motor behavior

Competency 13: The student will demonstrate an understanding of gait as it relates to stroke by:

1. Listing the phases of normal gait using the original or traditional Ranchos Los Amigos (RLA) terminology
2. Comparing the original or traditional and Ranchos Los Amigos terminology
3. Distinguishing between normal and abnormal gait patterns
4. Demonstrating normal and abnormal gait patterns
5. Defining the tasks required for normal gait
6. Describing causes of abnormal gait patterns
7. Recognizing gait deviations and compensatory strategies
8. Listing age-related changes for gait
9. Analyzing abnormal gait patterns
10. Listing functional tests for gait and impaired balance

Competency 14: The student will demonstrate an understanding of balance as it relates to stroke rehabilitation by:

1. Defining balance
2. Listing the body systems required for average balance
3. Listing standard internal mechanisms for postural adjustments
4. Listing compensatory strategies with a focus on stroke
5. Comparing balance adjustments and automatic postural tone
6. Identifying the role of the cerebellum in balance and coordination
7. Listing normal and abnormal alignment components of trunk and extremities at rest and during activities
8. Listing age-related changes that affect balance
9. Identifying everyday strategies needed to balance during sitting, transfers, standing, and gait
10. Identifying adaptations with abnormal balance
11. Describing balance training activities and strategies for sitting, standing, and during gait
12. Determining the safety, status, and progression of patients while engaged in balanced activities

13. Explaining proper use of a harness system for controlled weight bearing and balance activities n)) Listing functional tests for balance assessment

Learning Outcomes:

1. Communication
2. Critical Thinking
3. Social Responsibility
4. Ethical Issues
5. Computer / Technology Usage