BAKER COLLEGE
STUDENT LEARNING OUTCOMES

PTA 2550 Neurological Management

3 Semester Hours

Student Learning Outcomes and Enabling Objectives

At the completion of this course, the student will be able to perform the following outcomes with a minimum competency of 77% (C+) or better overall:

1. Review major components of neuroanatomy in relationship to impairments in each region and the effect on normal functional abilities.

2. Discuss the roles of the PTA and PT in the treatment of patients with neurological disorders from birth through adulthood.

3. Document treatment interventions and goals for patients with neurological impairments.

4. Describe the theories and stages of motor control and the relationship between motor control and normal and abnormal motor development.

5. Discuss the theories and phases of motor learning and the relationship to normal and abnormal motor development.

6. Apply neuromuscular relaxation, inhibition and facilitation techniques within the plan of care established by the physical therapist.
    a. Demonstrate effective instruction of positioning and handling techniques for facilitating postural alignment and transitional movements for patients with neurological deficits.
    b. Perform manual techniques for approximation and tone reduction in various functional positions to encourage head and trunk control.
    c. Demonstrate manual techniques for facilitation of transitional movements for various neurological impairments of the motor system.
    d. Discuss the use of adaptive equipment to facilitate mobility and stability for patients with neurologic deficits

7. Demonstrate and instruct balance and coordination activities for patients with various neurological deficits.

8. Demonstrate proprioceptive neuromuscular facilitation (PNF) techniques for the trunk and extremities to improve motor function in patients with neurologic deficits.
    a. Explain the basic principles of PNF including manual contact, body position, stretch, manual resistance, irradiation, joint facilitation, timing of movement, patterns of movement, visual cues, and verbal input.
    b. Identify the appropriate PNF techniques to facilitate movement for various stages of motor control.
    c. Identify the application and goals of commonly used PNF techniques including rhythmic initiation, rhythmic rotation, hold relax active movement, hold relax, contract relax, alternating isometrics, rhythmic stabilization, slow reversal, slow reversal hold, agonistic reversals and resisted progression.
    d. Perform PNF patterns using principles of intervention for various developmental activities and positions including hooklying, rolling, prone, quadruped, kneeling, sitting, scooting, sit-to-stand, standing and pre-gait activities.

9. Provide appropriate treatment interventions for patients with history of cerebrovascular accidents within the plan of care established by the physical therapist.
    a. Describe the types of stroke, and the clinical manifestations, medical management and complications of each type.
    b. Explain the stages of recovery following cerebrovascular accidents (CVA).
    c. Discuss common motor impairments caused by cerebrovascular accidents and common assessment tools for staging the deficits.
    d. Explain the impact of impairments in sensation, cognition and autonomic functions on treatment of patients with history of cerebrovascular accidents.
    e. Discuss the goals and common treatment interventions used for patients with stroke at various stages of recovery.
    f. Perform positioning, movement assessment, scapular mobilization, facilitation and inhibition techniques, neurodevelopmental treatment (NDT) and functional activities for patients with stroke.

10. Examine common gait deviations presented by patients with neurologic deficits.
    a. Analyze abnormal gait patterns and select techniques to correct deviations.
    b. Demonstrate appropriate application and instruction of assistive devices based on gait assessment.

11. Explain causes and mechanisms of traumatic brain injury (TBI) and specific treatment interventions to facilitate functional movements and improve cognitive deficits in patients with TBI.
    a. Explain the stages of recovery from a TBI and the implications for rehabilitation.

12. Demonstrate appropriate interventions for patients with spinal cord injury (SCI) to improve ROM, strength and function including wheelchair transfers and mobility, within the plan of care established by the physical therapist.

a. Identify the types of spinal cord injuries.
b. Describe the causes, complications and clinical manifestations of spinal cord injuries.
c. Explain how the level of injury of the spinal column relates to the functional level of patients with spinal cord injuries.
d. Instruct patients with spinal cord injuries in strategies for maximizing respiratory function including breathing exercises and postural drainage.
e. Demonstrate assisted breathing exercises, chest wall stretching and ROM activities for patients with spinal cord injuries.
f. Identify the goals for physical therapy intervention at various stages of recovery from spinal cord injury.
g. Perform mat activities and transfers for patients at various stages of recovery from spinal cord injury to improve mobility, stability, strength and functional independence.

13. Demonstrate testing and assessment procedures of the neuromuscular and nervous system including pain assessment, cranial nerve testing, reflex testing, nerve tension testing, and sensory testing.

14. Identify the psychological and physiological reactions of the patient to neurological disability and appropriate intervention strategies to minimize those reactions.

15. Discuss the clinical manifestations, interventions and treatment goals for other neurologic disorders including Parkinson's Disease, amyotrophic lateral sclerosis, multiple sclerosis, post-polio syndrome and Guillain-Barre syndrome.

16. Educate patients and caregivers in proper handling techniques, exercise interventions, and positioning for a home management program.

17. Demonstrate professional behaviors in the classroom and laboratory including effective teaching, active listening skills, empathy in dealing with others, reliability and effective use of feedback.

BIG IDEAS:

- Motor control/motor learning
- Adult neuro interventions (PNF, NDT)
- CVA, TBI, SCI

Required Elements

RE 1: Clinical Competency Scenarios and Rubrics.
RE 2: The final practical patient scenario and rubric based on the plan of care established by the physical therapist

These SLOs are not approved for experiential credit.

Effective: Fall 2018