

LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

SPECIAL NOTE:

This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):

Please check with the LCC bookstore <http://www.labette.edu/bookstore> for the required texts for this class.

COURSE NUMBER: PTA 103

COURSE TITLE: PHYSICAL AGENTS AND THERAPEUTIC INTERVENTIONS

SEMESTER CREDIT HOURS: 5 (62.5 Contact Hours; 31 didactic; 31.5 lab)

DEPARTMENT: Health Science

DIVISION: Career Technical Education

PREREQUISITE: Admission to PTA Program

COURSE DESCRIPTION:

This course is designed to teach the PTA student various modalities used in rehabilitation setting. Also covered, is therapeutic massage, myofascial techniques and wound care interventions.

COURSE OUTCOMES AND COMPETENCIES:

Students who successfully complete this course will be able to:

1. Develop an understanding of physical agents and how they are used in the rehabilitation setting.
 - Define physical agents and list its categories.
 - Describe the role of physical agents in rehabilitation.
 - List general contraindications and precaution for the use of physical agents.
 - Describe the effects of physical agents on the healing process.
 - Describe the use of physical agents for pain modulation.
 - Justify the use of physical agents for motion restrictions.
 - Define muscle tone and how physical agents are helpful in normalizing tone.
 - Briefly describe why physical agents may be used in combination with each other or with other interventions.

2. Be able to safely and effectively apply heat and cold thermal agents to a variety of body parts.

- Discuss the physical principles of thermal energy.
- Describe the effects of cold on the body.
- Identify the uses of cryotherapy.
- List the contraindications and precautions for cryotherapy.
- Discuss the adverse effects of cryotherapy.
- Safely and effectively utilize the cryotherapy techniques of, cold packs, ice massage, and vapocoolant sprays.
- Describe the effects of heat on the body.
- Identify the uses of superficial heat.
- List the contraindications and precautions for thermotherapy.
- Discuss the adverse effects of thermotherapy.
- Safely and effectively utilize the techniques of thermotherapy including hot packs and paraffin.

3. Be able to safely and effectively apply ultrasound, UV radiation, various electrical currents, laser and diathermy to a variety of body parts.

- Define ultrasound, describe how ultrasound is generated and discuss its thermal and athermal effects.
- List the contraindications and precautions and adverse effects of ultrasound.
- Define frequency, duty cycle, intensity and duration as it relates to ultrasound.
- Define phonophoresis, identify its indications/contraindications and describe how it is delivered.
- Demonstrate the proper application of ultrasound.
- Safely and effectively deliver an ultrasound treatment to a specified body part.
- Demonstrate safe use of ultrasound under water and justify this treatment method.
- Document an ultrasound treatment.
- Define the terminology associated with electrical stimulation.
- Describe the effects of electrical currents on the body.
- Define muscle tone and discuss the challenges to assessing muscle tone.
- Describe the anatomical basis of muscle tone and activation.
- Identify atrophy in a given muscle or group of muscles.
- Justify the clinical applications of electrical currents including muscle contraction, pain modulation, tissue healing, edema control and iontophoresis.
- List the contraindications and precautions for the use of electrical stimulation.
- List the adverse effects of electrical currents.
- Demonstrate safe and effective use of electrical stimulation for muscle reeducation, pain modulation, edema management and tissue healing.
- Instruct a simulated patient in the use of a TENS unit for home use.
- Instruct a simulated patient in the use of electrical stimulation at home for muscle reeducation.
- Justify the use of iontophoresis and describe how it works.
- Set up an iontophoresis treatment using a simulated method (no medication).

- Document an electrical current treatment.
- Discuss the physical properties of diathermy.
- Discuss the thermal and athermal effects of diathermy.
- List the indications, contraindications and precautions of diathermy.
- Discuss the adverse effects of diathermy.
- Perform and document a diathermy treatment.
- Identify the physical properties and physiological effects of electromagnetic radiation.
- Describe the physical properties and physiological effects of lasers.
- List the clinical indications for the use of lasers.
- List the contraindications and precautions for lasers.
- Define the parameters for the use of lasers.
- Safely and effectively provide a laser treatment to a simulated patient.
- Document a laser treatment.
- Describe the physical properties of ultraviolet radiation and its physiological effects.
- List the indications, contraindications and precautions for using UV radiation on a patient.
- List the adverse effects of UV radiation.
- Describe and define the various erythematous response categories when performing a dose-response assessment.
- Perform a dose-response assessment on a simulated patient.
- List the steps involved in providing a UV radiation treatment to that same simulated patient.
- Document the dose-response assessment and the UV radiation treatment.

4. Safely and effectively provide massage, trigger point and myofascial therapies.

- Discuss the importance of skin as an organ system.
- List various lubricants used with massage therapy.
- Discuss the effects of massage on various body systems and body tissues.
- Using the gate theory, discuss how massage relieves pain.
- List the indications, contraindications and precautions for massage.
- List and discuss the endangerment sites and their significance.
- Discuss and demonstrate proper body mechanics during massage delivery.
- Discuss and demonstrate proper patient positioning.
- Discuss and demonstrate proper patient draping techniques.
- Describe and implement the basic elements used in applying Swedish massage strokes.
- Describe and perform the five basic Swedish massage strokes and their variations.
- Modify the patient's position to accommodate their special needs.
- List the guidelines for working with patients who have cancer.
- Describe the muscle-nerve physiology and contraction.
- Discuss the pathogenesis of myofascial trigger points.
- Discuss the clinical symptoms and physical findings with myofascial trigger points.
- Discuss referred pain pattern mechanisms.
- List and describe the classification of myofascial trigger points.

- Describe how the biomechanics of injury assists in determining a diagnosis of trigger point myofascial syndrome.
- Discuss the steps to a myofascial diagnosis.
- Discuss treatment options for myofascial diagnosis.
- Discuss different techniques for applying trigger point therapy.
- Discuss perpetuating factors in myofascial trigger points.
- List the contraindications to trigger point and myofascial therapy.
- Perform myofascial trigger point treatment by first identifying the referred pain pattern.

5. Be able to safely and effectively administer cervical and lumbar traction.

- Describe spinal traction and its effects.
- List and describe the clinical indications for the use of traction.
- List the contraindications and precautions for the use of spinal traction.
- List the adverse effects of spinal traction.
- Describe the advantages and disadvantages to mechanical traction.
- Safely and effectively provide lumbar traction to a simulated patient.
- Safely and effectively provide cervical traction to a simulated patient.
- Administer home traction on a simulated patient.
- Demonstrate various positional traction methods.
- Demonstrate manual traction for the lumbar and the cervical spine.
- Document a traction treatment.

6. Be able to safely and effectively apply external compression for edema management.

- Discuss the effects of external compression.
- List the clinical indications for the use of external compression.
- List the contraindications and precautions for the use of external compression or sequential compression pumps.
- Discuss the adverse effects of external compression.
- Safely and effectively apply compression bandaging and compression garments.
- Safely and effectively administer a treatment on a simulated patient using an intermittent pneumatic compression pump.
- Document a compression treatment.

7. Be able to safely and effectively provide a biofeedback treatment for muscle reeducation.

- Define biofeedback and identify its uses in a clinical setting.
- Contrast the various types of biofeedback instruments.
- Differentiate between auditory and visual feedback.
- Outline the equipment setup and clinical applications for biofeedback.
- Demonstrate use of EMG biofeedback on a simulated patient.

8. Be able to safely and effectively use hydrotherapy treatment techniques.

- Describe the physical properties of water.
- Describe the physiological effects of hydrotherapy along with its uses.

- List and describe the different types of hydrotherapy modalities.
- List the indications, contraindications and precautions for full and partial body immersion.
- List the contraindications and precautions associated with nonimmersion hydrotherapy and negative pressure wound therapy.
- Describe the adverse effects of hydrotherapy.
- Perform a safe and effective whirlpool treatment for a foot or hand.
- Discuss safety issues regarding hydrotherapy including infection control and pool safety.
- Document a hydrotherapy treatment.

<p>9. Be able to safely and effectively assess a simulated wound and apply/remove appropriate dressings.</p>
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- Describe the physiology and anatomical features of the skin.
- Compare and contrast the biomechanics of skin and scar tissue.
- Discuss the age related changes associated with skin.
- Outline normal and abnormal tissue healing.
- Describe how mobility impacts wound management.
- Describe changes in the gross appearance of an extremity that may be related to the etiology of a wound.
- Describe hydration, turgor and elasticity of skin and possible causes in changes of these properties.
- Differentiate among common types of wounds and correlate wound type with possible etiologies.
- Describe the mechanisms associated with the development of pressure ulcers.
- Describe the various stages of pressure ulcers.
- List risk factors for developing pressure ulcers.
- List areas of the body at risk for pressure ulcer development.
- Describe techniques for the prevention of pressure ulcers.
- List and discuss the efficacy of pressure redistribution devices.
- Discuss neuropathy and its relationship to wound development.
- Educate a simulated patient in basic foot care outlined by the American Diabetic Association.
- Discuss appropriate footwear for individuals with neuropathy.
- Discuss strategies for prevention of neuropathic ulcers.
- Identify risk factors for wounds caused by vascular diseases.
- List causes of traumatic wounds.
- Describe the wounds caused by surgery including amputations and possible complications such as dehiscence.
- Describe injuries to the skin caused by thermal, chemical and radiological burns and complications of burn injuries.
- List observations necessary for assessing wounds.
- Describe appropriate methods for documentation of the following and discuss the potential implications associated with: color of wounds, odor, drainage, extent and surrounding skin.

- Identify tissue types within a wound.
- Document undermining, pocketing, tunneling and sinus tracts.
- Describe and distinguish signs of infection and inflammation both locally and systematically.
- Discuss the need for infection control and use infection control measures.
- Contrast aseptic and sterile techniques.
- Demonstrate sterile and clean techniques for wound care.
- Describe appropriate OSHA regulations for handling potentially infectious material.
- Discuss appropriate debridement strategies for acute and chronic wounds.
- List the indications and contraindications for debridement.
- List types of enzymatic debriding agents and their indications.
- List different types of dressings and the indications for each.
- Demonstrate the application and removal of different types of dressings including foam dressings, hydrocolloid dressings, transparent dressings, hydrogel dressings and alginate dressings.
- Utilize methods to reduce the appearance of scars.
- Utilize methods to release adhesions due to cutaneous scars.
- Instruct a simulated patient in scar management.
- Discuss how skin grafting affects mobility and exercise programs.
- Discuss appropriate exercise for persons with thermal injuries.
- Discuss scar management following thermal injury.
- Document a wound and the appropriate management of a wound.