Chapter Objectives

• Discuss the purpose of therapeutic modalities
• Explain the legal implications associated with the use of therapeutic modalities
• List the different types of modalities discussed in this chapter
  – Explain how they are used
• Discuss several safety considerations involved with the use of therapeutic modalities.

• Experience various modalities in a lab setting.
Key Terms

• Cryotherapy
• Diathermy
• Electrical modality
• Electrical muscle stimulation (EMS)
• Fluidotherapy
• Galvanic stimulation
- Hydrocollator pack
- Ice massage
- Ice pack
- Ice water immersion
- Interferential stimulation (IFS)
Therapeutic Modalities

• Various methods and agents used to manipulate circulation (blood flow)
  – In the treatment of muscles and joints
• To improve or restore an individual’s range of motion
• Help regain strength and cope with pain
• Help the injured regain the ability to engage in daily activities and athletic endeavors to his or her optimal performance level
Legal Implications Associated with Using Therapeutic Modalities

• Therapeutic modalities
  – Provide great benefits in the rehabilitative process
  – Procedures must be properly used
Legal Implications Associated with Using Therapeutic Modalities

• Regulations
  – States vary as to what procedures the athletic trainers can perform
  – Athletic trainers must be aware of individual state laws
• Essential to document all therapeutic treatments to ensure continuity of care and track treatment efficiency
• Documentation can be used as a part of a defense in a lawsuit
Choosing a Modality

• There is a wide range of therapeutic modalities to choose from to achieve the best results

• Will the choice be exercise, applications of heat, cold, electrical or mechanical stimulation?
• Three factors when treating an injury:
  – Is it safe for use on this type of injury?
  – Will modality contribute to rehabilitation and total recovery for the person?
  – Is the person applying the modality sufficiently trained and authorized to do this procedure safely and efficiently?
Temperature Variation Modalities

• Thermotherapies
  – Modalities that use heat to manipulate circulation in the muscle tissues

• Cryotherapies
  – Modalities that use cold
• Cryotherapies
  – To reduce the temperature of the body tissues in order to decrease blood flow to an area (vasoconstriction)
  – For reducing pain, edema, and muscle spasms
• Thermotherapies
  – Use heat to increase the temperature of the body to increase blood flow to the tissues (vasodilatation)
Cooling or Heating the Body

• Conduction:
  – Method of heat transfer by direct contact with another medium
    • Heat packs, ice packs

• Convection:
  – Method of heat transfer indirectly through a secondary medium
    • Fluid therapy, whirlpool baths
• Radiation:
  – Heat transfer by or from its source to the surrounding environment in the form of waves or rays
    • Infrared and ultraviolet light, laser
• Conversion:
  – Heat transfer through sound, electricity or chemicals
    • Ultrasound, heating/cooling ointments
• Evaporation:
  – Heat transfer that takes place when a liquid is converted to a gas
    • Perspiration, vapo-coolant sprays
Guides for Cryotherapy

• Never apply any form of cold:
  – On an open wound without a protective covering
  – To anesthetized skin. **WHY?**

• Do not apply cryotherapy to patients with decreased circulation, diabetes, or cardiac conditions
• Raynaud’s Phenomenon
  – Do not use cold therapy if a patient has an allergy to cold causing restriction of arterial blood flow
Applying Cryotherapy

- Ice bags
- Ice massage
- Vapo-coolant sprays
• Ice water immersion
• Whirlpool baths with cooled water
• Contrast baths alternating heat and cold
Types of Thermotherapy

• Heat therapies
  – Provide comfort by increasing circulation and decreasing localized pain, edema, muscle spasms, and joint stillness.
• Types include:
  – Moist heat packs
  – Warm whirlpool baths
  – Fluid therapy
  – Paraffin baths
  – Dry heat packs
Guidelines for Thermotherapy

• Never apply heat to:
  – An area where any loss of sensation exists
  – Immediately after an injury, which can cause swelling
  – To the eyes or genitalia
  – To the abdomen if the patient could possibly be pregnant
• Never apply heat to:
  – An open wound, burn, or over a cancerous area
  – Patients with a history of reduced thermal regulation or diabetes

• To avoid further injury to tissues, always monitor the time for which thermotherapy is applied, using proper padding or towels.
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  – Always monitor the time for which thermotherapy is applied
  – Use proper padding or towels
Electrical Modalities

• Use electricity to influence healing
  – Stimulate body tissues to speed their healing
  – Electrical modalities penetrate deeper into the tissues than other methods
  – Among the most effective ways of decreasing healing time
• Low voltage stimulation can help control pain
• High voltage stimulation is used to increase blood flow
Guidelines for Electrical Modalities

- Follow the physician or therapist’s orders for all electrical modalities
- Make sure equipment works properly
  - Plugged in
  - Powered through a circuit served by a ground fault interrupter
• Thoroughly explain procedure to the patient
• Expose and cleanse the area to be treated with soap and water or alcohol
• Dry it thoroughly so that electrodes will stick to the skin
• Place electrode pads according to manufacturer’s instruction
• Avoid prolonged point contact when using ultrasound
• Follow the manufacturer’s instructions for use of all equipment
• Improper use may result in burns to the patient
• Turn treatment channels off before carefully removing the adhesive electrodes from the patient’s skin
• Leave the treatment area clean when finished
• Follow manufacturer’s instructions to prevent infection and ensure safe use of the unit
• Never use electrical modalities on a open wound
• Do not use this modality for a patient with a pacemaker without the physician’s permission
• Avoid high fluid areas of the body
• Do not use electrical modalities over the carotid arteries
• Electrical modalities should not be used on the trunk of anyone pregnant
• Stop treatment if the patient has more pain with the treatment
Types of Electrical Modalities

- Ultrasound therapy
- Electrical muscle stimulation (EMS)
- Galvanic stimulation
- Interferential stimulation (IFS)
- Iontophoresis
- Transcutaneous electrical nerve stimulation (TENS)
- Diathermy
Mechanical Modalities

• Mechanical modalities
  – Intermittent compression, traction, and massage therapy
  • Assist in healing by exerting pressure to the soft tissues, increasing circulation and/or distracting (pulling) bony structures
  – This pressure can be applied manually or with a device
• Guidelines
  – Follow manufacturer’s instructions for all equipment
  – Frequently check circulation
  – Stop treatment if the patient’s pain increases
Types of Mechanical Modalities

- Intermittent compression
- Traction
- Massage therapy