Physical Agents in Rehabilitation
Physical Agents

Various forms of energy and materials applied to patents and their means of application.

- EX. Heat, cold, water, pressure, sound, electromagnetic radiation, and electrical currents
3 Types of Physical Agents

- Thermal
  - Ex. Water, heat

- Mechanical
  - Ex. Traction, compression, water, ultrasound

- Electromagnetic
  - Ex. TENS unit, Muscle Stimulation
Thermal

- Transfer energy to a patient to produce an increase or decrease in tissue temp.
- Hot pack produces the greatest change in temp. Ultrasound produces heat up to 5cm deep and only in a small area
- Function is to decrease pain, increase metabolism, vasodilation, increase flexibility
Thermal Agents

- Hydrocollator
- Ultrasound Unit
Mechanical Agents

Apply mechanical force to increase or decrease pressure in or on the body.

- 4 types
  - Traction
  - Compression
  - Water
  - Ultrasound
Traction

- Traction is used to alleviate pressure on structures, such as nerves or joints that become inflamed when compressed.
Compression

Compression is used to counteract fluid pressure and control or reverse edema (swelling)
Water can be applied by immersion or non-immersion techniques.

- Known as hydrotherapy
- Temperature determines usage
Ultrasound

Ultrasound is a form of sound that cannot be heard by humans because of its high frequency. It is a mechanical form of energy composed of alternative waves of compression.
Apply electromagnetic energy in the form of electromagnetic radiation or an electrical current

Varying effects depend on waveform, intensity, duration, and direction of the current flow and type of tissue
The Role of Rehabilitation in Patient Care

Rehab is a goal-oriented treatment process designed to maximize independence in individuals who have compromised function due to underlying pathological processes and secondary impairments.
3 Different Pathologies

- Impairments
- Functional Limitations
- Handicap
Impairments

- Alteration in anatomical, physiological, or physiological structures.
- Ex. Decrease in muscle response or tendon flexibility
Functional limitations

- Inability to perform the components of tasks or behaviors recognized as essential to daily life.

- Ex. Functional ADL’s
  - Brushing teeth, making bed, eating, walking, dressing, etc....
Handicap

- The social disadvantage of disability, such as being unemployable unless the work-place is modified or being unable to care for one’s own child