Patient Responses to Therapeutic Interventions

"Is this really supposed to make my knee so red?"
Terminology

Examination

- The process of obtaining a history, performing relevant systems reviews, and selecting and administering specific tests and measures
Terminology

Evaluation

- A dynamic process in which the physical therapist makes judgments based on data gathered during the examination
Terminology

**Intervention**

- Purposeful and skilled interaction of the physical therapist with the patient/client...using various physical therapy methods and techniques to produce changes in the condition that are consistent with the diagnosis and prognosis.
Terminology

After a thorough initial examination and evaluation, a plan of care is created by the physical therapist that includes anticipated goals and expected outcomes.
Physical agents and mechanical modalities are most commonly used for the goals of:

- Decreasing pain
- Reducing soft tissue/joint swelling and inflammation
- Increasing blood flow and enhancing delivery of nutrients to tissue
Physical agents and mechanical modalities are most commonly used for the goals of:

- Promoting muscle relaxation
- Increasing the extensibility of connective tissue
- Increasing muscle strength
Assessment

The importance of assessing the patient’s response to treatment cannot be overstated.

- How else will you know if what you are doing is accomplishing anything?
Skin (Integument) Assessment

- Characteristics
  - Color
  - Continuity
  - Temperature
Skin (Integument) Assessment

- Skin color
  - The amount of melanin
  - Uniformity of skin color
  - Presence of scars
Skin (Integument) Assessment

Checking for Circulatory Irregularities

- Capillary refill or “blanching”
- Mottling of the Skin
  - Spotting patches of erythema
  - Evidence of overheating or overcooling of the skin
Skin (Integument) Assessment

- Skin Surface Temperature
  - This can provide information regarding the circulatory status of the underlying tissue.
    - Warmth
      - Inflammation
    - Coolness
      - Poor circulation
  - Surface temperature of the skin should change in response to environmental influences.
Skin (Integument) Assessment

If the skin feels warm…

- The application of heat will cause local vasodilation
- An increase in the surface temperature of the skin
- Erythema
- Perspiration
Pain Assessment

1. Please mark on the scale how much pain you have.

Visual Analog Scale

Pain as Bad as it Could Be No Pain

2. Where is your pain?

On the drawings below, please mark the areas where you feel pain. Put E if external, or I if internal, near the areas that you mark. Put EI if both external and internal.

[Image of human figures with pain areas indicated]
Pain Assessment
Edema Assessment

Edema

- Abnormal increase in the amount of interstitial fluid
- Small quantities are a normal response to trauma and necessary for the repair process of tissue healing
- Prolonged or massive edema can interrupt repair by impeding diffusion of nutrients to cells
Edema Assessment

- Circumferential or Girth Measurements
- Volumetric water displacement
- Joint mobility
- Functional performance
Soft Tissue Assessment

Muscle Guarding

- The degree of motor unit firing to protect the muscle
- Prolonged muscle guarding can result in a shortening of the underlying tissue and a feeling of “hardening”
Soft Tissue Assessment

- Patients may report
  - “I feel a muscle spasm”***

- Some thermal agents are used to help reduce or eliminate this perception.

*** what they are referring to is muscle guarding, a protective response to injury
Soft Tissue Assessment

- Palpation before and after the application of the physical agent is important.
  
  - To determine…
Soft Tissue Assessment

- **Muscle Tone**
  - Resistance of the muscle to passive stretch or elongation
    - How tight does it feel?
    - It occurs in both the agonist and antagonist.
    - It can be measured with an EMG
Postural Assessment

- Patients in pain tend to “look the part.”
  - Forward head
    - After a “whiplash”
  - Lateral shift
    - Disc
Range of Motion Assessment
Muscle Strength Assessment
What about Mottling…. 

- **Histamine** - *Vasoactive amine* Mast cells, basophils, platelets
  - Stored in preformed granules, histamine is released in response to a number of stimuli
  - It causes **arteriole** dilation and increased **venous** permeability.