Contraindications, Precautions, Adverse Reactions to Electrical Stimulation
(as used in Physical Therapy)

General Contraindications:

1. DO NOT apply to the thoracic area (or transthoracically) of a patient with arrhythmia, congestive heart failure, recent myocardial infarction, and other heart condition.
2. DO NOT apply anywhere on the body of a patient with a demand-type implanted cardiac pacemaker or cardiac defibrillator.
3. DO NOT apply through the carotid sinus area (at the bifurcation of the common carotid artery); it may cause a rise in blood pressure, reflex vasodilatation and slow the heart rate.
4. DO NOT apply transcerebrally (thru the head) at a milliamp level because it may cause changes in brainwave patterns. Microcurrent can be applied transcerebrally.
5. DO NOT apply through cancerous (malignant) tissue.
6. DO NOT apply through areas of broken or irritated skin. The current flows through breaks in the skin, causing discomfort. (This is different from using electrical stimulation for wound healing.)
7. DO NOT apply near or touching protruding metal such as surgical surface staples or external pins because they are excellent conductors of electricity.
8. DO NOT use on any patient who reacts very negatively to the experience or to the sensation of stimulation.
9. DO NOT apply to a patient with undiagnosed pain.
10. DO NOT apply to patients who cannot provide adequate feedback concerning the level of stimulation (infants, individuals with mental disorders).
11. NMES: DO NOT apply to a patient with neurological, neuromuscular, or muscular disease.
12. NMES: DO NOT apply to a patient with uncontrolled hypo- or hyper-tension.
13. NMES: DO NOT apply to a patient with vascular disorders such as venous thrombosis or thrombophlebitis.

General Precautions (Be Cautious)

1. USE CAUTION in applying at high amplitude directly over areas where bone is superficial. Periosteal pain can result.
2. USE CAUTION when applying in areas of excessive adipose tissue since the high levels of stimulation necessary to activate underlying structures may cause pain or autonomic reactions.
3. USE CAUTION in applying within 3 feet of a transmitting cellular phone or two-way radio. This may cause electrotherapy equipment malfunction.
4. USE CAUTION in applying near the uterus during pregnancy and delivery. (The possible effects on a fetus is not known.)
5. USE CAUTION in applying within 10 feet of Group 2 ISM equipment that generates high frequency or high energy electromagnetic radiation. Such equipment includes welding or cutting equipment, diathermy units & surgical electrocautery units. This may cause electrotherapy equipment malfunction.

6. USE CAUTION when applying in the region of the urinary bladder because the current may interfere with normal function.

7. USE CAUTION when applying over scar tissue because the scar will have an increased electrical resistance. The current will preferentially travel around the scar causing increased current density at the edges of the scar with possible burning.

Adverse Reactions

1. Pain, skin irritation, burn
2. Autonomic stimulation

General Expectations for Documentation

1. Area treated and impairment/Rx objective
2. Patient positioning
3. Stimulation parameters and any co-interventions
4. Electrode placement
5. Treatment time
6. Pt response to intervention & any adjustment needed

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CARE OF THE SELF-ADHERING ELECTRODES:

- Every student will be issued one set (4) of small and one set of large electrodes for lab and one set of small electrodes for home. These electrodes must last for the whole semester, so proper care is essential. Keep them stored in a sealed bag.

- Electrodes: In order for the electrode to deliver a consistent and effective stimulus, the electrodes must be firmly and uniformly attached to the skin, no bubbles, hair, etc.
  
  o Clip the hair close to the skin, if necessary
  o Clean skin with alcohol swab
  o Make sure the electrodes stay firmly attached; strap them down if necessary.

- If the electrode surface is dry at the end of lab, rub water over the sticky surface, put the electrodes back on the plastic sheet, and close the package. The next time you use them, they will be somewhat rejuvenated.