

Modalities

✔ Ultrasound parameters

Goal	Frequency	Duty Cycle	Intensity	Duration
Deep tissue (1-5 cm)	1 MHz	Continuous 100%	1.5–2.0 W/cm ²	5-10 min
Superficial (1-2 cm)	3 MHz	Continuous 100%	0.5–1.0 W/cm ²	5-10 min
Acute/Inflammation	3 MHz	Pulsed (20-50%)	0.1–0.5 W/cm ²	5-10 min

• Contraindications for ultrasound

Malignancy, pregnancy (abdomen), pacemaker, thrombophlebitis, eyes, reproductive organs.

✔ Electrical stimulation parameters

Goal	Frequency (pps)	Pulse Duration (μs)	Ramp	On/Off	Time
Muscle Strength (NMES)	35–80	200–600	1–2s	10:50s	10-20 min
Spasm Reduction	35–80	150–200	1s	5:5s	15–30 min
Pain (TENS — Sensory)	80–150	50–100	0	Continuous	20–30 min
Pain (TENS — Motor)	2–10	150–250	2s	1:1	20–30 min
Edema (Acute)	100–120	40–100	0	Continuous	20–30 min

• Electrode placement

Over motor point or dermatome.

• Contraindications for electrical stimulation

Pacemaker, pregnancy (abdomen), over carotid sinus, malignancy.

Emergency/safety

✔ CPR

- 30:2 compressions
- Rate: 100–120/min
- Depth: 2" (adults)
- AED: ASAP use

✔ Autonomic dysreflexia

- SCI above T6
- Sit upright
- Remove cause (tight clothing, full bladder)
- Call EMS if unresolved

Research and stats

✔ Validity

- **Face:** Looks like it works
- **Content:** Covers topic
- **Construct:** Concept tested
- **Criterion:** Gold standard comparison

✔ Reliability

- **ICC > 0.75** = Good
- **Kappa** = Categorical agreement
- **Cronbach's alpha** = Internal consistency

✔ Stats

- **P < 0.05** = Significant
- **Type I Error** = False positive
- **Type II Error** = False negative

✔ Levels of evidence

1. Meta-analysis
2. RCT (Randomized Controlled Trial)
3. Cohort
4. Case-control
5. Case series
6. Expert opinion