

Modalities

Ultrasound parameters

Goal	Frequency	Duty cycle	Intensity	Duration
Deep tissue (up to 5 cm)	1 MHz	Continuous (100%)	1.0–2.0 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

Ultrasound contraindications: malignancy, pregnancy (over the 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	1–2 s	10:50 s	10–20 min
Spasm reduction	35–80	150–200	1 s	5:5 s	15–30 min
Pain (sensory TENS)	80–150	50–100	0	Continuous	20–30 min
Pain (motor TENS)	2–10	150–250	2 s	1:1	20–30 min
Edema (acute)	100–120	40–100	0	Continuous	20–30 min

Electrode placement: over the motor point or dermatome. **E-stim contraindications:** pacemaker, pregnancy (over the abdomen), over the carotid sinus, malignancy

Emergency and safety

✓ CPR:

- 30 compressions : 2 breaths
- Rate: 100–120/min
- Depth: at least 2 in (adults)
- AED: as soon as available

✓ Autonomic dysreflexia:

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

Research and stats

✓ Validity:

- **Face:** looks like it works
- **Construct:** tests the concept
- **Content:** covers the topic
- **Criterion:** compared with a gold standard

✓ 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 (strongest first):

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