

Bioelectronic Impact

DC Microcurrent vs. Transcutaneous Electronic Nerve Stimulation



TENS IS NOT DC MC

TENS can block pain at receptors, but DC MC drives biologic impact at the cellular level.



ATP PRODUCTION

DC MC stimulates the production of additional ATP which triggers changes that reduce inflammation.



CELLULAR IMPACT

Less micro edema and tissue loss following surgery, injury, or strain. Accelerated recovery & healing.

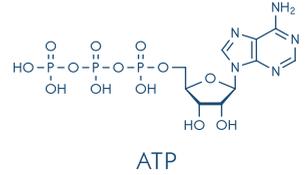
BIOLOGICAL EFFECT

DC Microcurrent (DC MC) in the low μ Amp (millionth of an Ampere) range has biologic effect because cells operate on DC signaling. Pulsed Direct Current is delivered deeply into the tissue bed which in turn promotes healing. The MOA (Mechanism Of Action) is increased ATP production, transitioning the Inflammation Phase of the Healing Cascade to Proliferation phase more quickly.

SURGICAL BENEFITS

- Reduced inflammation, edema, pain
- Shorter Post-op recovery & less tissue loss
- Able to start rehab sooner
- Shorter recovery intervals between rehab sessions
- ROM (Range Of Motion) goals attained faster

BIOELECTRONIC COMPARISONS



Only DC Microcurrent stimulates ATP production deep into tissues to lower inflammation, edema, and pain while promoting microcirculation and accelerating the healing process.

	DC Microcurrent	TENS	NMES
	Low μ Amp DC Microcurrent	Transcutaneous Electronic Nerve Stimulation	Neuro Muscular Electronic Stimulation
Mechanism of Action	Increases ATP production altering cell membrane potential and promoting healing via release of VEGF (Vascular endothelial growth factor)	Occupies pain receptor neural synapse (Pain Gate Theory) with AC (Alternating Current) stimulation. <i>(Same pain receptors occupied by analgesics)</i>	Uses AC stimulation to fire muscles and muscle groups
Impact Effect	Drives biological impact at cellular level as increased ATP stimulates the sodium potassium pump modulating edema and inflammation, lowering pain, and promoting faster healing.	Effective mid-term pain relief for chronic pain, but the body typically acclimates to stim diminishing effect over time	Good tool for rehab and recovery of muscles, effective combatting atrophy
Limitations	In 8-hr nocturnal mode with intensity levels set to subsensory (Low) patients may question whether device is having impact. <i>Educate: "The body can't feel a few millionths of an Amp!"</i>	Not as effective with acute pain and no biologic impact beyond that of an analgesic. The body can acclimate to the TENS and effectiveness diminishes over time, No impact on inflammation or edema.	No positive impact on inflammation or edema
Ramp Speed ¹	Three (3) ms is 13x faster than TENS - fast Ramp Speed moves current past epidermis level - deep into tissues	Forty (40) ms (slow) reaches nerves just below skin level to send signals to neural synapses/receptors in the brain	Four (4) ms - <i>also fast</i> so that it can reach deeper nerves to fire muscles and muscles groups

1. Ramp Speed is the time from "Current On" to the top of the first wave.