

**Microcurrent: what is it, what is it used for,
and what does the evidence say?**

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Microcurrent: An Overview

Physical therapists choosing to provide electrotherapeutic interventions are presented with a variety of waveform options on modern commercial devices. Common to many of the conventional multi-waveform electrical stimulators is a microcurrent waveform. In contrast to other electrotherapeutic waveforms often included with these devices, such as Russian, interferential, and high volt, use of microcurrent appears much less yet it remains an offering on many clinical electrical stimulators. The relative discrepancy in the use of microcurrent is likely predicated on confusion and misunderstanding that persists as to the therapeutic benefit and efficacy of microcurrent. Despite several decades of literature from basic and clinical sciences addressing the electrobiophysical characteristics of endogenous microcurrents, much confusion remains regarding use of exogenous microcurrent. This session will address the fundamental principles and electrobiophysical characteristics of endogenous and exogenous microcurrent and provide a review and synopsis of the peer-reviewed literature reporting use of therapeutic microcurrent. Discussion and interpretation of therapeutic application and outcomes will be the primary focus. This session will: 1) describe and differentiate the fundamental principles and electrobiophysical characteristics of endogenous microcurrent, 2) describe the waveform characteristics of therapeutic exogenous microcurrent, 3) address the current evidence for use of exogenous microcurrent, and 4) identify whether the effects attributed to therapeutic microcurrent as reported in the literature accurately reflect the properties of microcurrent.

Outline

- I. Fundamentals of microcurrent
 - a. Early origins and development
 - i. Electrophysiologic basis of endogenous potentials
 - ii. Identification of the microamperage current of injury
 - b. Advent of modern microcurrent
 - i. Terminology
 - ii. Waveform characteristics
 - iii. Differentiation of microcurrent
- II. Physiologic responses of tissues to microamperage electrical fields
 - a. Generalized responses to electrical field
- III. Analysis of use of microcurrent in the literature
 - a. Proposed uses of microcurrent
 - b. Areas of application in the literature
 - i. Fracture healing/bone stimulation
 - ii. Wound healing
 - iii. Infection and inflammation
 - iv. Pain and edema
- IV. Bottom line and questions
 - a. Is common clinical use of microcurrent consistent with the evidence and commercialism?

References

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