



**Thorp Institute**  
Advanced Sports Medicine

## RESEARCH & RELATED SCIENCE

Sports Rehabilitation and Pain Management Systems  
Treatment, Training and Equipment  
Relieves Swelling, Inflammation and Pain and Increases Range of Motion Quickly

### 1983 MICRO CURRENT STIMULATION AND PLACEBO EFFECT.

F.P. Meyer MD and Anthony Nebrensky PHD

Forty Subjects with chronic back pain were divided into two groups- One received real stimulation and the other placebo. The subjects in the real group experienced an average pain reduction of 37.26% greater than the placebo group. A two month follow-up showed a significant difference, 75.22% pain reduction in the real and 6.30 pain reduction in the Placebo group.

### 1982 THE EFFECTS OF ELECTRIC CURRENTS ON ATP GENERATION, PROTEIN SYNTHESIS AND MEMBRANE TRANSPORT IN RAT SKIN

Ngok Cheng MD., Harry Van Hoof MD., Emmanuel Bockx MD., Michel J. Hoogmartens MD., Joseph C. Mulier MD., Frans J. De Dijcker PHD., Willy M. Sansen PHD., and Willian De Loecker MD.

The skin of locally inbred rats was longitudinally cut in two equal parts one was electrically stimulated and the other served as a non-treated control.

**Summary:** Direct electric currents ranging from 10 uA to 1000 uA increase ATP concentrations in the tissue and stimulate amino acid incorporation into the proteins of rat skin. The effects on ATP production can be explained by proton movements on the basis of the chemiosmotic theory of Mitchell, while the transport functions are controlled by modifications in the electrical gradients across the membranes.



Myopluse



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### 2002 PILOT STUDY OF IMPEDANCE-CONTROLLED MICROCURRENT THERAPY FOR MANAGING RADIATION-INDUCED FIBROSIS IN HEAD-AND-NECK CANCER PATIENTS (Elsevier Clinical Investigation)

Extension Arlene j. Lennox PHD., Jeffrey P Shafer MD., Madeline Hatcher RN., Janice Beil RN., and Sandra J. Funder RN., *Int. J. Radiation Oncology Biol. Phys.*, Vol. 54, No. 1, pp. 23-34, 2002 Copyright © 2002 Elsevier Science Inc. Printed in the USA. All rights reserved.

**Methods and Materials:** Between January 1998 and June 1999, 26 patients who were experiencing late effects of radiotherapy were treated with impedance-controlled micro-current therapy for 1 week. Objective range- of-motion measurements were made for cervical rotation, extension/flexion, and lateral flexion before therapy, at the end of each treatment day, and monthly for 3 months. In addition, each patient's subjective complaints were tabulated before treatment and reevaluated at the last follow-up visit. No additional physical therapy or electrical stimulation was permitted during the follow-up period.

**Results:** At the end of the course of micro-current therapy, 92% of the 26 patients exhibited improved cervical rotation, 85% had improved cervical extension/flexion, and 81% had improved cervical lateral flexion. Twenty-two patients returned for the 3-month follow-up visit. Of these, 91% had maintained a cervical rotation range of motion greater than their pre-therapy measurements. Eighty-two percent maintained improved cervical /flexion and 77% maintained improved lateral flexion.

**Thorp Institute, Advanced Electrotherapy**

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### 2005 HARVARD SOCIETY FOR THE ADVANCEMENT OF ORTHODONTICS, BOSTON, MASSACHUSETTS, USA

*Pain relief utilizing impedance controlled microcurrent therapy. Anthony Marino.*

**Materials and Methods:** Instruments used in this study Twenty consecutive patients, aged 8-75 years, experiencing neuromuscular pain from TMD and bruxing were treated with ICCM therapy. The TMJ questionnaire by Grummons was used before and after the study. All 20 patients demonstrated Angle's Class I or II type malocclusions, and 5 were being treated actively with orthodontic appliances.

**Results:** ICCM therapy reduced the pain sensation levels in 19 of the 20 patients after the completion of the 3-5 sessions regimen. All 20 patients felt less pain or no pain after the 1 hour sessions. The pain level decreased an average of 1-2 levels following each treatment session, regardless of which pain level the patient started at before the 1 hour treatment. Only one patient reported that the pain and discomfort had returned within 24 hours after each treatment. Other findings included a greater range of motion of arms, shoulders, neck and mandible; bruxing minimized or eliminated; TMJ popping and/or crepitis minimized or eliminated. Moreover, patients reported reduced number and frequency of headaches and migraines, and that they were taking less prescription and over the counter medications for pain. The patients concluded that the ICCM treatment resulted in a general improvement of their quality of life. No patients reported any adverse effects, nor were any adverse effects observed. ICCM therapy was found to quickly relax tender muscles to their full normal resting length, reducing spasms, causing fascia release, reducing fibrosis and improving blood flow.



**Electro-Acuscope**

### 1991 NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE: WAS AWARDED "FOR THEIR DISCOVERIES CONCERNING THE FUNCTION OF SINGLE ION CHANNELS IN CELLS"

First published in 1976, in determining the mechanism by which cells regulate the voltage across their membranes. Called the patch-clamp method, this technique allows researchers to measure individual ion channels in the cell membrane, to the level of picoamperes ( $10^{-12}$  amperes), by eliminating the membrane's electrical noise.

\*\*\* Complete studies can be provide upon request.

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