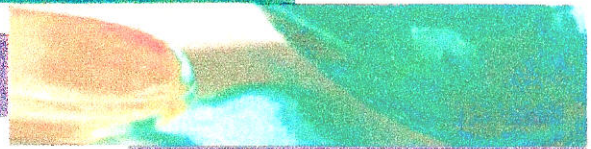




YEAR'S END UPDATE  
2004



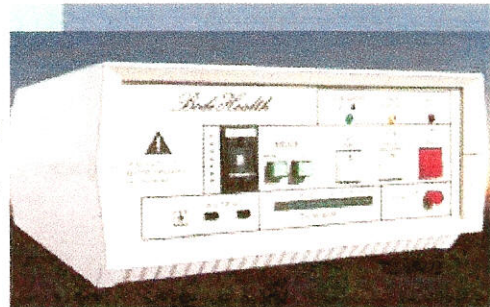
TREATMENT  
STUDIES

Year's End Update >> CAM for the Military, Grant Activities

**NFAM RESEARCH HIGHLIGHT:**

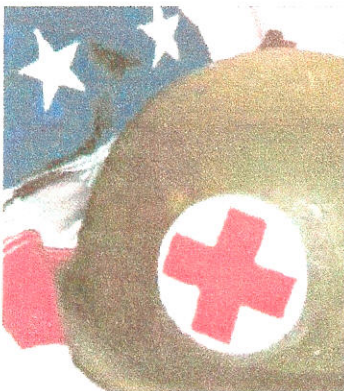
## CAM FOR THE MILITARY. GRANT ACTIVITIES

In November, NFAM completed the year one grant activities to screen clinical practices and evaluate therapies that have direct relevance for U.S. military readiness (ie, easily administered, portable treatments for acute and chronic pain, wound healing). Over the past year, NFAM screened 11 clinical practices (that used electromagnetic, acupuncture, and other approaches), and completed three field investigation/ retrospective studies. From these studies, NFAM found two electromagnetic devices that appear to offer immediate and long-term pain relief: Electro Pressure Regeneration Therapy (EPRT) and the PAP Ion Magnetic Inductor (PAPIMI). These energy devices deliver a pulsed electromagnetic field to the cells and increase circulation and the flow of nutrients, among other hypothesized actions, to accelerate healing. The third field study examined the use of direct microcurrent plus silver plated nylon dressing for wound healing for patients suffering from severe burns.



Finally, in collaboration with the Samueli Institute, NFAM managed a clinical study evaluating auricular acupuncture for patients presenting with acute pain in the emergency room setting at a military hospital. The study was based on scientific data showing that acupuncture stimulates the release of endorphins (endogenous opioids) for an analgesic effect. The study findings will be published soon.

**"The MILCAM program allows NFAM to be the eyes and ears of the CAM field and to collect reliable data on low-cost complementary and alternative therapies for a range of health concerns"**



For year 2, NFAM has proposed several outcome studies to evaluate the therapies identified in year 1. Since military personnel spend limited time on the battlefield, our site visits and field investigations will be expanded to include therapies for non-battlefield health concerns that confront soldiers and veterans. The MILCAM program allows NFAM to be the eyes and ears of the CAM field and to collect reliable data on lowcost CAM therapies for a range of health concerns.

National Foundation for Alternative Medicine  
5 Thomas Circle Ste 500  
Washington, DC 20005

[www.nfam.org](http://www.nfam.org)  
202.463.4900  
[inquire@nfam.org](mailto:inquire@nfam.org)





**RETROSPECTIVE STUDIES OF THE EFFECT OF BIOELECTROMAGNETIC DEVICES ON PAIN.** M. A. Richardson<sup>1</sup>, J. Li<sup>2</sup>, C. C. Lin<sup>3</sup>, N. Marquina<sup>4</sup>, J. Kiernan<sup>5</sup>, T. Procyshen<sup>6</sup>. <sup>1</sup>National Foundation for Alternative Medicine, <sup>2</sup>Univ of Maryland, <sup>3</sup>George Mason Univ, <sup>4</sup>Clinical Technologies Research/Virginia State Univ, <sup>5</sup>Kiernan Chiropractic and Sports Injury Center, <sup>6</sup>Bio-Medical Pain Center, USA.

**Objectives:** Pain is one of the most common symptoms and the primary cause of one third of all first consultations. Treatment remains a challenge, particularly with an unidentified etiology, and includes non-steroidal anti-inflammatory drugs, steroids, ultrasound, physical therapy, moist heat, massage, transcutaneous electrical nerve stimulation. The objectives of this study were to extract data from patient records and evaluate the clinical outcomes of two electromagnetic treatments for pain. One device (PAPIMI) delivers a pulsed electromagnetic field (PEMF) of a high intensity and short duration whereas the other, Electro Pressure Regeneration Therapy (EPRT) delivers a bipolar balanced waveform.

**Methods:** The PAPIMI is a noncontact electromagnetic device induces an alternating electrical field of high peak (instant) electric current of high bio-energy and limited heat. Frequency = 0.3 to - 0.5 MHz, amplitude =125 Gauss; repetition rate = 1 to 3.5 Hz; with a square wave shape. The magnetic field penetrates and induces micro-currents up to 6 inches into the body tissues. The therapeutic effects are attributed to the high amplitude electromagnetic pulses of rapid rise time (nanoseconds) and short duration (microseconds), which are produced by a patented plasma resonance chamber. The applicator probe of the device is a low impedance 15cm diameter loop that is held flat against the clothing or skin over the affected area of the body for ten to fifteen minutes. The EPRT device is a long-term alternating, bipolar balance waveform, battery operated, investigational device that delivers a direct current

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*Bioelectromagnetics 2005, Dublin, Ireland*

(maximum of 3 milliamperes) of one polarity for 11.5 minutes and the opposite polarity for another 11.5 minutes. This device can be considered a long-term bipolar balanced waveform device. Frequency = 0.000732 Hz; square wave shape; repetition rate = 11.5; amplitude = 1mill-amp to 1000 nanoamps. Medical records were reviewed for patients who were treated for pain between September 2003 and September 15, 2004 with the PAPIMI at the Bio-Medical Pain Center, Calgary Canada and with the EPRT at the Kiernan Chiropractic and Sports Injuries Center in Rockaway Park, New York. Data extracted included demographics (age, sex, ethnicity), clinical (date of diagnosis, level of pain, use of medication) and treatment related (treatment duration and frequency, concomitant therapies). Change in the pain rating score, as measured by the verbal Numerical Rating Scale (NRS), was the primary endpoint. Data was reported as frequencies and cross tabulations; statistical techniques (chi-square tests, general linear models, ANOVAS) were used to evaluate changes in pain scores over time.

**Summary:** A total of 127 patients were treated with the PAPIMI primarily for knee and shoulder pain (54.5%) and on average, with 6.87 treatments (SD 4.35; range 1-22). Patients were 55 years of age (SD 14.02), 55.9% women, and 100% Caucasian. Of those with pre and post pain scores (n=56), initial pain scores were 6.41(SD 2.14) and post treatment pain scores were 2.08 (SD 1.92), indicating a significant reduction in pain (mean=4.33, SD 2.48, range 2.67-4.99,  $t(55)=13.07$ ,  $p < .0001$ ). Possible confounders did not modify the effect of PAPIMI on pain: age ( $p < .335$ ), gender ( $p < .532$ ), or number of treatments ( $p < .938$ ). A total of 20 patients were treated with the EPRT primarily for shoulder (35%), low back (25%), and knee pain (15%) and on average, with 7 treatments (SD 6.19; 75%  $\leq 7$  treatments). Patients were 57.2 years of age (SD 14.9), 55% men, and 65% Caucasian. Initial pain scores were 7.85 (SD 0.99) whereas post treatment pain scores were 2.0 (SD 2.62), indicating a significant reduction in pain (mean=5.85, SD 2.48, range 1-9,  $t(19)=10.50$ ,  $p < .0001$ ). Possible confounders did not modify the effect of EPRT on pain: number of treatments ( $p < .80$ ), gender ( $p < .45$ ), other medications ( $p < .56$ ), home treatment ( $p < .334$ ), gender ( $p < .45$ ), age ( $p < .96$ ).

**Conclusions:** Based on these retrospective studies, the data collected within the clinical practice settings indicate that these bio-electromagnetic treatment devices provided significant reductions in patients' perception of pain. Moreover, the number of treatments, pain medication and other treatments, age, or gender did not modify these effects. The findings are the first systematic assessments of the benefits of these devices and merit further examination in more rigorous prospective, sham-controlled, outcomes studies.