EFFECTS OF HIGH-VOLTAGE PULSED ELECTRICAL CURRENT ON PAIN, SWELLING AND FUNCTION FOLLOWING DELAYED ONSET MUSCLE SORENESS

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**Context:** Delayed onset muscle soreness (DOMS) commonly affects athletes and the general population following unaccustomed bouts of intense exercise. High-volt pulsed current (HVPC) is commonly applied to curb pain and edema formation, which is thought to hasten recovery following soft tissue injuries, although no research conclusively supports this notion or practice. **Objective:** To determine if, following DOMS, intermittent or continuous HVPC curbs pain or swelling, or hastens recovery relative to controls. **Design:** Double-blind, placebo-controlled, randomized clinical trial. **Setting:** Research Laboratory. **Patients or other Participants:** A sample of 13 uninjured college student volunteers (seven females: 21+/- 3 years, and six males: 21+/- 3 years) was randomly divided into two groups. Simulating an athletic training or physical therapy setting, one group (4 females and 4 males) received daily 20 minute treatments of HVPC for three consecutive days. The other (3 females and 2 males) received HVPC continuously for approximately 72 hours. **Interventions:** DOMS was induced in both calves of each subject by performing a series of bi-lateral calf raises. Subjects were fitted with bipolar stocking electrodes that were powered by miniature HVPC stimulators. One limb of each subject received sub-sensory HVPC, and the other limb received placebo stimulation. Placebo channels provided live stimulation, but for just 3 minutes after the final subsensory intensity settings were entered. Indicator lights remained illuminated regardless of actual output. Subjects and data collectors were blind to stimulator assignment throughout data collection. **Main Outcome Measure(s):** Pain and self assessment of function (via visual analog scales), lower leg swelling (via girth measurements), and function (via one-legged hop tests) were measured before and after DOMS induction and for the next 5 days. Changes from baseline (i.e., Post DOMS – Pre DOMS) were calculated for each variable. Data were analyzed by repeated measures ANOVA, with alpha level was set at 0.05. **Results:** HVPC, whether intermittent or continuous, did not influence pain (F(4,48) = 0.319, p = 0.643, MSE = 15.26), pain during walking (F(4,48) = 0.063, p = 0.878, MSE = 13.91), pain during hopping F(4,48) = 0.555, p = 0.509, MSE = 16.601), swelling (F(4,48) = 0.591, p = 0.605, MSE = 0.218), or distances hopped (F(4,48) = 1.895, p = 0.148, MSE = 51.945), compared to control limbs. **Conclusions:** HVPC, as applied in this study, did not curb pain, swelling, or hasten return of function compared to sham stimulation following experimentally induced DOMS. The 'placebo', as it was applied in this study, had no discernable effects on the dependent variables.

*Graduate Poster Award FINALIST