

3-3 STUDENT

STATIC MAGNETS REDUCE MYOFASCIAL TRIGGER POINT PAIN. M. Brantley*, D. Cheben*, H. Gay*, L. Wright*, A. Thompson*, D. Lake*. Department of Physical Therapy, Armstrong Atlantic State University, Savannah, Georgia, USA 31415.

INTRODUCTION: A previous study (Valbona, et al., 1997, Arch Phys Rehabil, 78, 1200-1203) reported a decrease in myofascial trigger point (MTP) pain following a 45-minute exposure to a static magnet. That study involved a highly specialized population of post-polio patients.

OBJECTIVE: The objective of this study was to test the effects of therapeutic static magnets on MTP pain in a general myofascial pain population. The hypothesis was there would be a significant reduction in pain in the magnet group but no change in the sham control group.

METHODOLOGY: This study was a randomized, double blind, clinical trial. Thirty subjects with MTPs were randomly assigned to active (14) or sham magnet control (16) groups. Both the experimenters and subjects were blinded to group assignment. A single identified MTP on each subject was tested with a pressure algometer, and the subjects were asked to indicate the maximum pressure that could be tolerated (pain tolerance). Algometer pressure readings were recorded. The subjects then filled out the McGill pain questionnaire (MPQ), the Present Pain Index (PPI) from the McGill pain questionnaire and a visual analog scale (VAS) indicating pre-treatment pain level. Subjects were then exposed to either an active or sham magnet (BIOflex Medical Magnetics, FL) for 45 minutes. Both active and sham magnets were 40 mm diameter circles, 3 mm thick and looked identical. The active magnet was a composite of bipolar and axially magnetized flexible ferrite. The average magnetic field at the surface of the magnet was 450 G. The magnetic field decayed (normal to the magnet surface) to an average of 45 G at 1 cm, 10 G at 3.5 cm and background at 9 cm. The magnetic field at the surface of the sham magnet was not significantly different from background. Identical pressure was then applied to the same MTP using the pressure algometer, and the subjects again filled out the MPQ, the PPI and the VAS. Pre-test/Post-test differences in pain levels for each measurement were compared using the one-tailed, paired t-tests for both control and magnet groups. Pre-test measures between the magnet and control groups were compared using two-tailed, unpaired t-test.

RESULTS: The results of the Kolmogorov-Smirnov normality test indicated that parametric analysis could be used for all 3 pain measures. There were no significant differences using the two-tailed, unpaired t-test in the pain level upon algometer pressure application between the pre-test measures for all measures between the active and control groups ($p = .111$, $p = .621$, $p = .202$ for the McGill, PPI and VAS respectively). There was a significant pre-post decline measured using the one-tailed, paired t-test in all 3 pain measures in the active group. The McGill pain score was reduced by 55% ($p=.011$), The PPI score was reduced by 39% ($p=.020$) and the VAS score was reduced by 23% ($p=.044$). A moderate effect size was seen in the McGill total score ($d=.69$), a large effect size was seen in the PPI ($d=.88$) and a moderate effect size was seen in the VAS (0.68). There were no significant changes in any pre-test to post-test measures in the subjects treated with the sham control magnets.

CONCLUSIONS: This study suggests that 500 gauss therapeutic static magnetic fields with the configuration utilized in this study can decrease the pain associated with pressure applied to myofascial trigger points after one 45 minute treatment. This confirms a previous study by Vallbona, et al. (1997) who reported a decrease in pain in myofascial trigger points in a post-polio population. This study expands upon those results to suggest that static therapeutic magnets may have a beneficial effect in reducing pain in a wider range of patients with myofascial trigger points.