

MuscleCare™ Pain Relief Therapy is as Effective in the Relief of Trapezius Trigger Point Musculoskeletal Pain as Voltaren® Without the use of Non-Steroidal Anti-Inflammatory Drugs.

Ryan Sless¹ and Jack Goodman¹

¹Department of Exercise Sciences, Faculty of Kinesiology and Physical Education, University of Toronto, Canada

Introduction: Chronic pain is on the rise in the American population, often associated with inflammatory markers.¹ Numerous non-prescription topical medications for chronic pain have emerged, however little scientific proof of their efficacy exists. A previous study has demonstrated that MuscleCare™ causes a significantly greater increase in pain pressure threshold (PPT) than other leading national brands including Biofreeze and IcyHot.² However, there are currently no data describing the efficacy of MuscleCare™ against any products including a Non-Steroidal Anti-inflammatory Drugs (NSAID), like Voltaren®, which uses Diclofenac as its active ingredient. Therefore, the purpose of this study was to determine the difference between MuscleCare™, an all-natural topical pain relief ointment, and Voltaren®, which contains Diclofenac.

Methods: Subjects, aged 18-65, with identifiable trapezius trigger point were recruited for participation in a double-blinded, randomized, placebo-controlled single-arm trial, assessing the efficacy of various MuscleCare™ preparations against Voltaren®. Baseline measurements of PPT and a Visual Analog Scale (VAS) were assessed by a blinded investigator with the use of a pressure algometer. A second investigator, blinded to all PPT measurements, applied one of 5 active topical preparations or a placebo, which were all placed in identical containers. Approximately 10 minutes after the application of the pain relief preparations or placebo the PPT and VAS were reassessed. Data were analyzed using paired T-tests and repeated measures ANOVA using Statistical Package for the Social Sciences (SPSS).

Results: 120 subjects participated in the study, with 20 subjects randomly allocated to each treatment group. A MuscleCare™ preparation showed significant within group differences in the PPT from baseline to post-treatment $F(1,57)=4.79$, $p=0.03$, whereas the other groups showed no improvement in PPT from baseline to post-treatment (Figure 1). However, there were no significant between group differences $F(2,57)=1.18$, $p=0.31$. Time from baseline to treatment was similar between all groups.

Conclusions: This study demonstrated that although MuscleCare™ was not significantly better at increasing PPT than Voltaren®, it was the only formula to show an increase in PPT from baseline to treatment. Within group variability and our small sample size may have contributed to an insufficient power to detect significant changes using a 2-factor analysis. The within group differences only revealed a significant effect for change in PPT in the MuscleCare™ formulation. To our knowledge, this is the first study to demonstrate that an all-natural product (MuscleCare™) is at least as effective as a product containing a NSAID (Voltaren®) at improving PPT in the trapezius trigger point. In addition, as an all-natural alternative, MuscleCare™ has proven to be safe to use in pregnancy and during lactation.³



Product	Pre-test PPT (kg/m ²)	Post-test PPT (kg/m ²)	PPT Difference (kg/m ²)
MuscleCare™	4.59 ± 1.88	5.34 ± 2.43	0.75 ± 1.14*
Voltaren®	4.93 ± 1.66	4.90 ± 1.19	-0.03 ± 1.18
Placebo	5.58 ± 2.19	5.94 ± 2.62	0.36 ± 1.50

*p<0.05

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