jissn
journal of the international society of sports nutrition

POSTER PRESENTATION Open Access

Effects of MSM on exercise-induced muscle and joint pain: a pilot study

Eric D Withee*, Kimberly M Tippens, Regina Dehen, Douglas Hanes

From The Twelfth International Society of Sports Nutrition (ISSN) Conference and Expo
Austin, TX, USA. 11-13 June 2015

Background

Participants in organized running commonly experience muscle and joint pain while training for and competing in distance events. Many runners report pain as a major influence on changes or breaks in training regimens, and as a common deterrent for returning to exercise after a break. Methylsulfonylmethane (MSM) is a sulfur-based nutritional supplement shown through several clinical trials to be effective in reducing pain associated with osteoarthritis, and to exhibit anti-inflammatory properties. To further investigate the role of MSM in pain management, this randomized, double-blind, placebo-controlled study evaluated the effects of MSM supplementation on exercise-induced muscle and joint pain.

Methods

Twenty-two healthy females (n = 17) and males (n = 5) (33.7 ± 6.9 yrs.) were recruited from the 2014 Portland Half-Marathon registrant pool. Participants were randomized to take either MSM (OptiMSM®) (n = 11), or a placebo (n = 11) at 3g/day for 21 days prior to the race and two days after (23 total). Pain was recorded using a 100 mm Visual Analogue Scale (VAS) for both muscle pain (MP) and joint pain (JP) on a single questionnaire. Participants completed the questionnaire at five time points. Baseline levels (T_0) were recorded approximately one month prior to the race. Post-race pain levels were recorded at 15 minutes (T_1), 90 minutes (T_2), 1 Day (T_3), and 2 days (T_4) after race finish. Data were analyzed using linear mixed models controlled for baseline, with time point as a repeated factor. Simple contrasts compared post-race time points to baseline, and Student's t-tests assessed between-group time point comparisons.

Results

Half-marathon completion resulted in significant time effects for increased pain in both MP ($p < 0.001$) and JP ($p < 0.001$). Mean MP at T_0 (14.7mm) significantly increased at T_1 (38.4mm; $p < 0.001$), T_2 (33.5mm; $p = 0.001$), and T_3 (36.3mm; $p = 0.001$), and fell to non-significant levels at T_4 (20.9mm; $p = 0.330$). Mean JP at T_0 (8.4mm) significantly increased at T_1 (33.5mm; $p < 0.001$), T_2 (31.5mm; $p < 0.001$), and T_3 (24.8mm; $p = 0.004$), and fell to non-significant levels at T_4 (16.1 mm; $p = 0.198$). The results showed a trend of lower pain levels in the MSM group. However, time-by-treatment effects did not reach significance in either MP or JP. Compared to placebo, MSM supplementation resulted in nearly significantly lower MP at T_1 (MSM = 27.3mm vs. placebo = 49.8mm, $p = 0.063$), and lower MP at T_2 (27.1mm vs. 40.0mm; $p = 0.300$), and T_3 (30.0mm vs. 41.9mm; $p = 0.306$). Similar results were seen for JP at T_1 (24.2mm vs. 42.4mm; $p = 0.156$), T_2 (22.7mm vs 39.3mm; $p = 0.204$), and T_3 (15.4mm vs. 32.2mm; $p = 0.152$).

Conclusion

Exercise-induced muscle pain and joint pain increase within 15 minutes of completing a half-marathon, continue through the following day, and diminish approximately two days post-race. Three weeks of MSM supplementation at 3g/day attenuated post-exercise muscle and joint pain at clinically significant levels compared to placebo. However, the pain reductions did not reach statistical significance, warranting further research on MSM and post-exercise pain among larger samples.

Acknowledgements

Eric D Withee is employed part-time at Bergstrom Nutrition (Vancouver, WA), manufacturers of MSM (OptiMSM™).

Published: 21 September 2015

* Correspondence: eric.withee@student.ncnm.edu
Helfgott Research Institute, National College of Natural Medicine, Portland, OR 97201, USA

doi:10.1186/1550-2783-12-S1-P8
Cite this article as: Withee *et al.*: Effects of MSM on exercise-induced muscle and joint pain: a pilot study. *Journal of the International Society of Sports Nutrition* 2015 **12**(Suppl 1):P8.