

Research Abstract

Academy Title:Hawkins et al. 2012

Research Article: Effect of topical menthol gel on power output during 30-second high intensity anaerobic exercise. (Abstract)

Effect of topical menthol gel on power output during 30-second high intensity anaerobic exercise.

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Menthol-based gels have been reported to reduce acute pain and reduce inflammation. However, the effect of topically applied menthol on power output during high intensity anaerobic bouts has not been studied.

PURPOSE: To determine if the topical application of menthol enhances power output during a 30-second sprint. **METHODS:** 30 participants (14 male; 16 female) aged 20-38 (24.4 ± 4.8) years each completed two trials, one with menthol gel and one without, with 48 hours between trials. For the trial with gel, a dose of 1ml of gel for every 200 cm² sq cm of surface area was applied bilaterally to the thigh of each participant. For both trials, following a brief (2-3 sec) unloaded acceleration period, participants pedaled as fast as possible against a load of 0.75 kg • kg⁻¹ body mass for 30 sec. Peak and average power for the 30 sec trials, average power for each 5 sec interval, and overall fatigue index were recorded. **RESULTS:** Mean \pm SD of the two trials are provided below. There were no significant differences ($p < 0.05$) in any variable between trials. Additional analyses also revealed that, although males achieved greater power outputs compared to females, there were no differences between trials when grouped by gender. **CONCLUSION:** Many products including topical gels have been theorized to improve human performance during high intensity anaerobic exercise. Menthol-based gels have long been accepted as a chemical cryotherapy agent but this study indicates that menthol gels do not increase power output. Future studies should explore the benefits of menthol based topical gels on recovery from DOMS.

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Power Output (watts)

	With Menthol	Without Menthol
Peak Power over 30 sec (W)	804.7 +/- 268.9	790.0 +/- 272.8
Average power over 30 sec (W)	561.5 +/- 159.7	545.7 +/- 156.8
Average power 0-5 sec (W)	746.1 +/- 241.4	732.9 +/- 237.7
Average power 5-10 sec (W)	638.5 +/- 191.6	634.4 +/- 189.6
Average power 10-15 sec (W)	561.4 +/- 168.0	556.1 +/- 166.0
Average power 15-20 sec (W)	505.3 +/- 148.2	500.2 +/- 148.8
Average power 20-25 sec (W)	456.8 +/- 128.5	452.5 +/- 130.1
Average power 25-30 sec (W)	409.6 +/- 110.4	406.1 +/- 112.1
Fatigue Index (%)	50.0 +/- 0.12	50.0 +/- 0.14

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