Level One Research Award Report

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Title: Is low intensity exercise sufficient to induce exercise-induced pain threshold modulation in people with persistent pain?

Authors:
Niamh Moloney [abc], Martin Rabey [cd], Julia Hush [a], Duncan Sanders [e], Tumelo Dube [e], Anna Marcuzzi [f]

a *Faculty of Medicine, Health and Human Sciences, Macquarie University, Sydney, NSW, Australia*
b *Department of Exercise Sciences, Faculty of Science, University of Auckland, New Zealand*
c *THRIVE Physiotherapy, Guernsey*
d *School of Allied Health, Curtin University, Perth, Western Australia, Australia*
e *Pain Management Research Centre, The University of Sydney, NSW, Australia*
f *Department of Public Health and Nursing, Norwegian University of Science and Technology (NTNU), Trondheim, Norway*

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Abstract

We investigated whether a 12-min walk test (12MWT) yielded exercise-induced pain threshold modulation (EIPM) in people with persistent pain (low back pain, hip or knee osteoarthritis) and whether baseline self-report and pain sensitivity measures differed according to their EIPM responses.

Cross-sectional study. Two cohorts (tertiary pain management clinic / community dwelling) (n = 88) with persistent pain underwent pressure pain threshold (PPT) testing before and after a 12MWT (low intensity / self-selected intensity) to determine EIPM responses. Baseline self-report measures including pain severity, pain distribution, psychological distress and sleep disturbance and baseline widespread pain sensitivity (WPS) (high/low) were recorded. Individual EIPM responses were categorised as hyperalgesic, no change and hypoalgesic responses. Differences in baseline self-report and pain sensitivity measures between EIPM categories were investigated.

No significant within- or between-group differences in PPT following the 12MWT were detected ($p > 0.05$). Individual responses showed that up to 30% of the community and 44% of the tertiary cohort demonstrated >20% change in PPT (in either direction – hyper- or hypo-algesic). Significant differences were shown in pain distribution ($p = 0.002$) and baseline WPS ($p = 0.001$) between people with hyperalgesic, no change, hypoalgesic

responses. People with 4-5 pain regions were more likely hyperalgesic ($\chi 2 = 9.0$, $p = 0.003$). Those with low baseline WPS were more likely to demonstrate no change ($p = 0.002$).

Low or self-selected intensity exercise was insufficient to induce exercise-induced pain modulation at group level. Individual responses were variable with pain distribution and baseline WPS differing between responses.