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I declare that the work in this research project was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledge as referenced work. This research project has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study any research.

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## ABSTRACT

Delayed-Onset Muscle Soreness (DOMS) is a condition that will occur to an individual who exercise beyond their normal workout intensity. Cold and heat has been used widely post-exercise to minimize DOMS. However, there were no conclusive evidence on the effectiveness of cold and heat modalities in treating DOMS. The aims of this study was to compare the effectiveness of cold and heat therapy in treating DOMS. Nine elite sailing athletes age ( $20.7 \text{ y/o} \pm 2.1$ ) were volunteered to participate in this study. This study was a pre-post study design. Participants were given health screening and informed consent before involve in this study. Participants also were taken their weight, height and BMI. The next day, participants performed pre-exercise measurement: perceived muscle soreness (1), 20m sprint ability (2) and vertical jump performance (3). Participant then performed fatigue induced exercise followed by post-exercise measurement with the same variable as the pre-exercise. Next, participants were divided into three groups which were cold therapy groups (COLD), heat therapy group (HEAT) and a control group (CONT) in which they received the intervention using cold pack, hot pack and control group does not receive any modalities. Participants were tested again 24, 48 and 72-hours post-intervention. The results revealed that there was a significant effect of time for perceived muscle soreness ( $p = 0.001$ ). However, there was no interaction between perceived muscle soreness and the interventions ( $p = 0.229$ ). Result for 20m sprint ability revealed that there was a significant effect of time for 20m sprint ability ( $p = 0.000$ ) but the there was no significant interaction between 20m sprint ability and intervention ( $p = 0.13$ ). Results for vertical jump performance revealed that there was no significant effect of time for vertical jump performance ( $p = 0.14$ ). Furthermore, result stated that there was no significant interaction between vertical jump performance and intervention ( $p = 0.536$ ). In conclusion, there was inconclusive evidence on the effectiveness of cold and heat therapy in treating DOMS.

**Keyword:** *heat therapy, DOMS, exercise performance, cold therapy, sailing*

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