

Effect of Seated and Standing Cold Water Immersion on Recovery from Exercise-induced Muscle Damage

Ayaman Qazi

Khyber Medical University, Pakistan

The aim of this study was to elucidate the effectiveness of two different hydrostatic pressures (seated and standing) during cold water immersion protocols at attenuating the detrimental effects of fatiguing exercise on indices of damage and recovery. Thirty recreationally active participants (21 male, 9 females, age 21 ± 2 years, height 180.3 ± 5.3 cm, body mass 73.7 ± 7.3 kg) completed 100 drop jumps and repeated sprints (20 x 20 m) to induce muscle damage. To allow for equal distribution, subjects were matched to one of three intervention groups (standing cold water immersion (14°C for 14 min), seated cold water immersion (14°C for 14 min) or control) based on their weight and gender (7 male subjects and 3 female subjects were allocated to each group). Counter-movement jump, 30 m sprint time, maximal voluntary isometric contraction, delayed onset muscle soreness and serum creatine kinase were measured before and up to 48 h following the muscle-damaging protocol. There was a strong indication of muscle damage and physiological stress following the muscle damaging protocol as all dependent variables showed main effects for time ($p < 0.05$) post exercise. There were no significant group differences between either of the cold water immersion groups and control. Sitting cold water immersion was associated with lower serum creatine kinase activity than control (effect size = 1.17, $p = 0.044$). This investigation suggests that an increase in hydrostatic pressure during cold water immersion does not provide any additional benefits for recovery, and that neither sitting nor standing cold water immersion provide any benefit in stimulating recovery following exercise-induced muscle damage.

Biography

Dr. Ayaman Qazi PT studied Physical Therapy at Riphah International University in Pakistan, graduating in 2019. After completing her DPT, she pursued a Masters in Sports and Exercise Physiology from St. Mary's University in London. The drive to help her own people brought her back to her motherland where she was appointed as Demonstrator at Khyber Medical University in 2021. She strives to spread the importance of physical therapy in Pakistan, where it is underdeveloped. Dr Qazi has organized and participated in several free medical camps and she has also started her own clinic, where she provides physical therapy services free of cost.