

UNIVERSITI TEKNOLOGI MARA

**THE EFFECT OF HOT WATER
IMMERSION AND CONTRAST
WATER THERAPY ON MARKERS
OF EXERCISE INDUCED MUSCLE
SORENESS AMONG UITM NEGERI
SEMBILAN FOOTBALL PLAYERS**

**MUHAMAD SHAFIQ IZ'AAN BIN
AZMAN**

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ABSTRACT

Delayed-onset muscular soreness (DOMS), the sensation of pain and stiffness in the muscles that occurs 1 to 5 days after unaccustomed exercise, can have a negative effect on muscular performance. One study suggested that HWI may help with faster strength recovery, but more research is needed for confirmation. Similarly, CWI and CWT have potential for improving performance recovery, but further investigation is necessary. This purpose of this study is to investigate the effects of HWI and CWT on muscle soreness in UiTM football players after a match. There were 12 participants were assigned to undergo HWI group and CWT group. This study was a quasi-experimental design. The participants immersed their lower body for 20 minutes in hot water immersion (40-42°C) while for contrast water therapy, the participants were immersing their lower body in hot water (40-42°C) for 1 minute, followed by cold water (14-16°C) for 1 minute with total of 3 cycles. The participant's pain scale (PS) and knee range of motion (ROM) were recorded at four time periods which were immediately after match, 24 hours, 48 hours and 72 hours after match. The effects in muscle soreness scores between the two groups were analyzed using repeated measure ANOVA. The results indicated that both contrast water therapy (CWT) and hot water immersion (HWI) had a significant effect on pain scale (PS) and range of motion (ROM) between the four-time period ($p < 0.05$). However, there is no significant difference in effect between HWI and CWT. HWI reduced pain while CWT increase range of motion because both treatments will cause alternate vasodilation and vasoconstriction, which can help to reduce pain symptoms and improve blood flow. In conclusion, hot water immersion and contrast water therapy give the significant effect to induce muscle soreness among football players.

Keyword: *hot water immersion (HWI), contrast water therapy (CWT), delay-onset muscle soreness (DOMS), range of motion (ROM), pain scale (PS)*

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