

CONCLUSIONS: There is no evidence that cold and contrast water immersions appear to promote better physiological responses. However the observed positive effect on perceived leg fatigue and temperature suggest that cold and contrast water therapy may be effective for players performing in the heat

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Effectiveness of Cross Taping as a Therapy for Delayed Muscle Soreness

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Decrease muscle soreness by medical tape is supported by the literature. Subjects: Twenty normal subjects ranging in age from 18 to 55 with no history of previous skin allergy and do not have any upper body injuries participated.

PURPOSE: To assess the efficacy of the cross tapes in muscle soreness.

METHODS: Subjects will perform the lowering phase of a bicep curl exercise using a dumbbell consisting of 3 sets 25 repetition, followed 90 seconds rest between each set. A grid shaped adhesive, a little larger than a stamp, called a cross tapes will be applied in the bicep of the dominant hand and the other hand as control for one week. The range of motion and pain for both arms will be measured before and after applied the tape.

RESULTS: The study findings show that there were statically significant difference between the ROM and the pain (pre, post) when the procedure is carried out over a period of two consecutive weeks (1 day per week) with large effect size (0.2) and strong power (0.96). However; there were no significant differences between the two groups (right, left arms) with medium effect size (0.1) and weak power (0.33).

CONCLUSIONS: Therefore, this study suggest that cross tapes may reduce delayed onset muscle soreness, however more research is needed. Future studies should include a larger number of subjects, more diverse cohort, an exercise that applies a greater intensity, and expands the time of research. CT is an advisable method to decrease DOMS and improved functional performance.

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Combined Effects of Cold Water Immersion and Compression Garment after Exercise on Muscle Damage Markers

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Cold water immersion (CWI) and compression garment (CG) are popular post-exercise treatments for reducing exercise-induced muscle damage. Although efficacy of CWI and CG has been already reported, combined effect of these post-exercise treatments remains unclear.

PURPOSE: To investigate the effect of combined treatment of CWI and wearing CG after maximal eccentric exercise on recovery of muscular strength and indirect muscle damage markers.

METHODS: Six males performed two trials (TRE, CON) in random order. In the TRE trial, the subjects performed 15min of cold water immersion (15°C) followed by wearing a lower body CG for 24 h after the exercise, whereas no post-exercise treatment was conducted in the CON trial. The exercise consisted of 10x6 maximal isokinetic (60°/s) eccentric knee extension using unilateral leg, and exercised leg was randomly selected in each trial to avoid repeated bout effect for the same muscle groups. Time course changes in maximal voluntary contraction (MVC) and isokinetic (60°/s) strength for knee extension, score of muscle soreness, muscle thickness of quadriceps femoris were evaluated before exercise and post-exercise period. Blood sample was drawn to investigate blood glucose and lactate, serum creatine kinase (CK) and myoglobin (Mb) concentrations before exercise, 3 h and 24 h after exercise.

RESULTS: Total work volume during eccentric exercise did not significantly differ between the two trials ($P > 0.05$). MVC and maximal isokinetic strength were markedly decreased during post-exercise period in both trials ($P < 0.05$), and these responses were not significantly different between the trials. Serum CK and Mb concentrations were significantly elevated during post-exercise period in both trials ($P < 0.05$). However, area under the curve for Mb concentration during exercise and 3 h of post-exercise period significantly lowered in the TRE trial (196 ± 31 ng/ml) compared with the CON trial (260 ± 50 ng/ml) ($P = 0.04$). No significant difference was observed between trials for time-course changes in other variables.

CONCLUSION: CWI followed by wearing CG after maximal eccentric exercise did not facilitate recovery of muscular strength. However, exercise-induced increase in Mb was significantly attenuated when the combined treatment of CWI and CG was applied.

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Use Of Compression Garments For Recovery From Plyometric Exercise

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Compression garments are popular mechanical ergogenic aids that are hypothesized to shorten the time needed to recover from exercise.

PURPOSE: The purpose of this study was to evaluate the effects of full-length compression tights and knee-high stockings on recovery from plyometric exercise.

METHODS: This study used a randomized pretest-posttest design. Thirty healthy males aged 18-25 were recruited for participation (height 1.81 ± 0.078 m; body mass 79.28 ± 12.59 kg; age 21.40 ± 2.28 years). Subjects were randomized into three groups: full-length tights (n=11), knee-high stockings (n=10), and a control group (n=9) (no garment). Subjects completed perceived muscle soreness ratings using a visual analog scale (VAS), isokinetic strength of the knee extensors (KE), time to peak torque (TTPT), and vertical jump height (VJ) measures at baseline, and repeated these at 24, 48, and 72 hours post-plyometric exercise. Plyometric exercise took place on the second visit with subjects completing 10 sets of 10 plyometric box drop jumps. Compression garments were worn by the full-length and knee-high compression groups immediately following plyometric exercise and for the following 12 hours. All data were analyzed in SPSS (v23). Multiple repeated measures ANOVAs with Bonferroni adjustments were used to analyze the differences in KE, TTPT, VJ, and perceived muscle soreness.

RESULTS: There were no differences between groups for any dependent measures. The time effect showed statistical significance for the VAS of the calves and quadriceps VJ, KE, and TTPT ($p < 0.05$). Pairwise comparisons showed significant differences in VJ, KE, and TTPT ($p < 0.05$). Pairwise comparisons of the VAS revealed the plantar flexors and the knee extensors demonstrated significant differences in perceived muscle soreness ($p < 0.05$).

CONCLUSION: These results suggest that while muscle damage occurred, and differences in VJ, KE, and TTPT were seen, no significant differences were observed between groups relative to compression garments. With this finding, we can conclude that full-length or knee-high compression stockings do not aid in recovery from plyometric exercise