

Research Proposal

Title - Effects of Hot or Cold Hydrotherapy on Subsequent Power Output Following a Wingate Protocol

Program of Study - Exercise Science

Presentation Type - Powerpoint

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Previous research has highlighted the significance of hydrotherapy recovery methods in respect to increasing an athlete's ability to return to their normal pre-testing state, following maximal exertion exercise. However, the majority of implemented hydrotherapy recovery modalities occurred in a chronic manner. **PURPOSE:** To determine the optimal acute hydrotherapy recovery protocol, with the least amount of variance, between preliminary and subsequent jumps after subjects experienced anaerobic exhaustion. **METHODS:** Fifteen college-aged students between the ages of 18-21 (20.73 ± 1.65 years old) participated in this study. Every 6 days, the subjects' vertical jump was assessed using force plates to establish baseline numbers, following a pre-determined dynamic warm-up. After subjects completed a Wingate leg cycle ergometry test, they completed either one of the two (i.e. hot = thermotherapy, cold = cryotherapy) hydrotherapy recovery protocols, or a passive recovery (i.e. control) for 10 minutes. The control and hydrotherapy protocols were administered in a counter-balanced order. Identical warm-up procedures were completed preceding each subsequent set of jumps. **RESULTS:** No significant difference occurred between thermotherapy (Trial 1: 949.03 ± 190.3 N, Trial 2: 892.7 ± 187.8 N) and cryotherapy (Trial 1: 951.5 ± 194.6 N, Trial 2: 864.9 ± 189.04 N). Also, cryotherapy was not significantly different than the passive protocol (Trial 1: 962.11 ± 200.4 N, Trial 2: 906.15 ± 199.2 N). Finally, no significant differences occurred between thermotherapy and a passive recovery protocol. **CONCLUSIONS:** It can be suggested that none of the trial groups (i.e. thermotherapy, cryotherapy, and passive recovery) were more effective on acute recovery than the other. Also, neither of the hydrotherapy methods had a greater effect on acute recovery following an anaerobically fatiguing event as measured by the power output as determined from a vertical jump test. Future research should be conducted for use within a specific athletic population (e.g. high school, collegiate, professional). Other studies include administering contrasting water temperatures in addition to longer recovery times for impact on acute recovery.