Cold water immersions do not influence balance or function of the ankle


Context: Cryotherapy is often applied for analgesia before therapeutic exercise or physical activity. Some clinicians fear that numbness from cryotherapy may negatively impact balance and function during rehabilitation or sports. Objective: To determine if cold water immersions (CWI) affects balance as measured by the posterior medial component of the Star Excursion Balance Test (SEBT) and function as measured by one-legged hopping distance (HOP). Design: Repeated measures. Setting: Research Laboratory. Patients or other Participants: A volunteer sample of 16 uninjured college students (3 females: 20.2±2.6 years, and thirteen males: 21.4±2.1 years). Interventions: Subjects were randomly divided into two groups. Group one received a 10 minute ice immersion at 35º F and group two received a 55º F ice bath immersion. The other limb served as a control and was exposed to thermoneutral water immersion at 72 º F. Main Outcome Measure(s): 1) SEBT in the posterior medial direction and 2) hop for distance were measured before and after ice immersion and 10 minutes after the conclusion of the intervention for treated and control limbs. The independent variable was cold water immersion with 2 levels (35 ºF and 55ºF). Data were analyzed by a repeated measure ANOVA, alpha level was set at 0.05. Results: Results indicate that CWI did not significantly influence SEBT (F(2,60) = 0.255, \( p = 0.776 \) or hopping distance (F(2,60) = 2.266, \( p = 0.113 \), as compared to the control limbs. Conclusions: CWI as applied in this study did not inhibit lower leg function as measured by SEBT or one-legged hopping. Reduction in function did occur following CWI but they were not statistically significant. Both dependent measures returned to pre immersion levels with 10 minutes after the conclusion of treatment. Clinicians should not withhold CWI prior to exercise or sports activity because of the fear it inhibits function.