Abstract

Background: Cryotherapy has been associated with a significant decrease in nerve conduction velocity and muscle contraction with possible effects on exercise and physical training. Objectives: To quantify the electromyographic response of the lateral gastrocnemius, tibialis anterior, fibularis longus, rectus femoris and gluteus medius to ankle inversion following cold water immersion. Method: The peak values of the root mean square (RMS) were obtained from 35 healthy and active university subjects after the use of a tilt platform to force the ankle into 30° of inversion before, immediately after, and 10, 20, and 30 minutes after water immersion at 4±2°C, for 20 minutes. The Shapiro-Wilk test, repeated measures analysis, Bonferroni’s post-hoc, and linear regression analysis provided the results. Results: Peak RMS was significantly lower at all times after cold water immersion, with residual effect of up to 30 minutes, when compared to pre-immersion for all muscles, except for immediate post-immersion for the gluteus medius. Conclusions: After cold water immersion of the ankle, special care should be taken in activities that require greater neuromuscular control.

Keywords

Cryotherapy, electromyography, inversion platform, ankle, physical therapy.