

Research Abstract

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Research Article: A comparison of Biofreeze and ice on blood flow, pain and muscle function (Abstract).

A comparison of Biofreeze and ice on blood flow, pain and muscle function

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The application of ice to sport related injuries has been well accepted in the athletic training setting. This practice has been found to decrease inflammation, decrease pain and reduced post exercise muscle damage. Menthol balms are also popular in treating sports related injuries. A variety of Menthol balms have been associated with reduced inflammation and a numbing or analgesic effect. Our previous study is one of the only studies to compare the effects of ice with a Menthol balm (Biofreeze) on blood flow to the forearm. In this previous study ice and Biofreeze demonstrated a similar significant decline in blood flow initially (1 min = 41-47%) and this was maintained at the final data collection point (10 min = 25-30%)(Olive, et al., in Press). Due to the relatively high level of analgesia caused by ice and Biofreeze the effects of these treatments on pain and muscle function will also be measured. The purpose of this study is to compare blood flow, pain and muscle function following the application of ice or Biofreeze.

Methodology: This ongoing study involves 20 health adults (mean age = 24 yrs, Mean body fat = 18%) completing a familiarization session and then three data collection sessions. All of the data collection sessions involve the same data collection protocol. At each data collection session one of three treatment conditions are applied to the right forearm; no therapy (control) or an application of 1kg or crushed ice or 2.5cc's of Biofreeze. At each data collection session blood flow of the right side radial artery is averaged over 5 consecutive heart beats prior treatment application and then at 5, 10, 15 and 20 minutes following treatment application. The average of the five highest trails of 30 trials of isokinetic wrist flexion and extension at 30 degrees per second was considered a measure of muscle function and are collected from the treatment side at 20 and 25 minutes following treatment application. The subject's pain rating is collected at all six of these data collection points using a standard 10 point scale.

Results & Conclusions: This study is currently in the data collection phase with less than 20 subjects completing all of the data collection protocols. Repeated measures ANOVA indicates that the ice treatment resulted in significant decline in blood flow from pretreatment, detectable only at the 20 min data collection session. An important trend in the data indicated that Biofreeze decreased blood flow only at the 5 minute data collection session. Reports of pain were similar between the ice and Biofreeze treatments at all data collection sessions. Both of these treatments result in significantly greater pain than the control condition during the blood flow data collection sessions. The Biofreeze treatment resulted in a significant gain in muscle function between the 20 and 25 minute data collection sessions similar to the control condition. The ice intervention did not result in any change in muscle function.

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