

The Effects of a Two-Week Cold Exposure Program on Body Composition and Resting Metabolic Rate in College-Aged Males

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I. Abstract

Obesity is the most common metabolic disorder in humans and occurs when an imbalance of caloric intake and caloric expenditure is present. Within the human organism, there are two types of adipose tissue: white adipose tissue (WAT) and brown adipose tissue (BAT) (2). WAT participates in energy storage, organ protection, and functions as an insulating layer, while BAT's primary role is thermogenesis. The purpose of this study is to determine if a less time-intensive cold acclimation protocol (30 minutes at 10 °C [50 °F], 3 times per week for 2 weeks) could increase resting metabolic rate (RMR) as well as reduce body fat percentage. For ten moderately active, college-aged males between the ages of 19-23 years, a total of 8 sessions (2 data collection sessions and 6 acclimation sessions) over the span of 2.5 weeks. Resting metabolic rate in both the thermoneutral (TN) and cold conditions as well as body composition were both measured before and after acclimation. A trend was observed that