

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

---

Nutrition and Health Sciences -- Faculty  
Publications

Nutrition and Health Sciences, Department of

---

2008

## Pre-workout consumption of Celsius® enhances the benefits of chronic exercise on body composition and cardiorespiratory fitness

Jeffrey R. Stout  
*University of Oklahoma, jrstout@ou.edu*

Jordan R. Moon  
*University of Oklahoma*

Sarah E. Tobkin  
*University of Oklahoma*

Christopher M. Lockwood  
*University of Oklahoma*

Abbie E. Smith  
*University of Oklahoma*

Follow this and additional works at: <https://digitalcommons.unl.edu/nutritionfacpub>  
See next page for additional authors



Part of the [Human and Clinical Nutrition Commons](#), [Molecular, Genetic, and Biochemical Nutrition Commons](#), and the [Other Nutrition Commons](#)

---

Stout, Jeffrey R.; Moon, Jordan R.; Tobkin, Sarah E.; Lockwood, Christopher M.; Smith, Abbie E.; Graef, Jennifer L.; Kendall, Kristina L.; Beck, Travis W.; and Cramer, Joel T., "Pre-workout consumption of Celsius® enhances the benefits of chronic exercise on body composition and cardiorespiratory fitness" (2008). *Nutrition and Health Sciences -- Faculty Publications*. 190.  
<https://digitalcommons.unl.edu/nutritionfacpub/190>

This Article is brought to you for free and open access by the Nutrition and Health Sciences, Department of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nutrition and Health Sciences -- Faculty Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

---

**Authors**

Jeffrey R. Stout, Jordan R. Moon, Sarah E. Tobkin, Christopher M. Lockwood, Abbie E. Smith, Jennifer L. Graef, Kristina L. Kendall, Travis W. Beck, and Joel T. Cramer

Poster presentation

## Pre-workout consumption of Celsius® enhances the benefits of chronic exercise on body composition and cardiorespiratory fitness

Jeffrey R Stout\*, Jordan R Moon, Sarah E Tobkin, Christopher M Lockwood, Abbie E Smith, Jennifer L Graef, Kristina L Kendall, Travis W Beck and Joel T Cramer

Address: Department of Health & Exercise Science, University of Oklahoma, Norman, OK, USA

Email: Jeffrey R Stout\* - jrstout@ou.edu

\* Corresponding author

from 2008 International Society of Sports Nutrition Conference and Expo  
Las Vegas, NV, USA. 9–10 June 2008

Published: 17 September 2008

Journal of the International Society of Sports Nutrition 2008, 5(Suppl 1):P8 doi:10.1186/1550-2783-5-S1-P8

This abstract is available from: <http://www.jissn.com/content/5/S1/P8>

© 2008 Stout et al; licensee BioMed Central Ltd.

### Background

The functional beverage Celsius®, has recently been shown, after acute and chronic (28 days) consumption, to increase resting metabolism and serum blood markers of lipolysis in healthy, college-aged men and women. The purpose of this study was to examine the combined effects of a 10-week exercise program while consuming Celsius® on body composition and cardiorespiratory fitness changes in sedentary men and women.

### Methods

In a double-blind, placebo-controlled design, sedentary men ( $n = 20$ ) and women ( $n = 18$ ) were randomly assigned to identically-tasting treatment (Celsius®; age  $27 \pm 1.6$  yrs, men  $n = 10$ ; women  $n = 8$ ) or placebo (PL;  $24.7 \pm 1.4$  yrs, men  $n = 10$ ; women  $n = 10$ ) beverages. Both groups participated in a 10-week exercise program under the supervision of a certified trainer. The endurance and resistance training program was established using the American College of Sports Medicine guidelines for apparently healthy adults. Prior to each workout (15 min), participants consumed Celsius® or PL. Additionally, on non-training days, participants consumed the same beverage *ad libitum*. Changes in fat mass (FM), and fat-free mass (FFM) were assessed using a five-compartment model, which included body volume, bone mineral content, soft tissue mineral, and total body water measure-

ments. Changes in cardiorespiratory fitness ( $VO_{2peak}$ ), and time-to-exhaustion (TTE) were assessed using a metabolic cart during a graded exercise test on a calibrated, electronically-braked cycle ergometer.

### Results

A two-way ANOVA [group (Celsius® vs. PL)  $\times$  time (pre vs. post)] resulted in a significant interaction for FM ( $F = 5.452$ ,  $P < 0.05$ ),  $VO_{2peak}$  ( $F = 20.63$ ,  $P < 0.01$ ), and TTE ( $F = 10.453$ ,  $P < 0.01$ ). Post-Hoc analysis revealed significantly ( $P < 0.05$ ) greater changes in Celsius® versus PL for FM (-6.6% vs. -0.35%),  $VO_{2peak}$  (+13.8% vs. 5.4%), and TTE (+19.7% vs. 14.0%). In addition, there was a main effect for time for FFM ( $F = 12.57$ ,  $P < 0.01$ ). While no significant difference resulted between the treatment groups, only the Celsius® group experienced a significant increase in FFM from pre to post (+2.0%;  $P < 0.01$ ) versus PL group (+1.0%,  $P > 0.05$ ).

### Conclusion

Our data suggest that consuming a single serving of Celsius® prior to working out may enhance the positive adaptations of chronic exercise on body composition and cardiorespiratory fitness and endurance performance in sedentary men and women.

### Acknowledgements

This study was funded by Celsius®, Inc., Delray Beach, FL.