

POSTER PRESENTATION

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The effects of acute CRAM supplementation on reaction time and subjective measures of focus and alertness in healthy college students

Jay R Hoffman^{1*}, Nicholas A Ratamess¹, Adam Gonzalez¹, Noah A Beller¹, Mattan W Hoffman¹, Martin Purpura², Ralf Jäger²

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Background

The purpose of this study was to examine the effect of an acute ingestion of a supplement designed to improve reaction time and subjective measures of alertness, energy, fatigue, and focus compared to placebo.

Methods

Nineteen physically-active subjects (17 males and 2 females) were randomly assigned to a group that either consumed a supplement (21.1 ± 0.6 years; height: 180.2 ± 6.1 cm; body mass: 80.6 ± 9.4 kg) or placebo (21.3 ± 0.8 years; height: 181.3 ± 10.2 cm; body mass: 83.4 ± 18.5 kg) in a double-blind format. Subjects reported to the Human Performance Laboratory and were provided with one serving (3 capsules) of either CRAM (MRM, Oceanside, CA), containing α -glycerophosphocholine (150mg), choline bitartrate (125mg), phosphatidylserine (50mg), niacin (vitamin B3; 30mg), pyridoxine HCl (vitamin B6; 30mg), methylcobalamin (vitamin B12; 0.06mg), folic acid (4mg), L-tyrosine (500mg), anhydrous caffeine (60mg), acetyl-L-carnitine (500mg), and naringin (20mg); or a placebo (rice flour, PL). Subjects ingested the capsules with 12 ounces of bottled water. Following consumption of CRAM or PL subjects rested quietly for 10-minutes prior to completing a 9-question survey and commencing exercise (PRE). The survey consisted of questions describing subjective feelings of energy, fatigue, alertness and focus at that moment. Following the

completion of the questionnaire subjects performed a 4-minute quickness and reaction test on the Makoto testing device (Makoto USA, Centennial CO). Subjects then performed a 10-min bout of exhaustive exercise that included a 30-second Wingate Anaerobic Power test, and the maximal number of push-ups and sit-ups performed in one minute. Subjects then repeated the questionnaire and reaction testing sequence (POST).

Results

Subjects consuming CRAM maintained reaction time performance between PRE and POST measures, while a significant decline between PRE and POST measures were observed in subjects consuming PL. Acute CRAM supplementation resulted in an ability to maintain focus and alertness following an acute bout of exhaustion. Subjects consuming PL realized significant declines in both focus and alertness, however there were no significant differences between the groups.

Conclusion

Ingestion of CRAM maintained reaction performance to both visual and auditory stimuli following a high-intensity bout of exhaustive exercise, while subjects consuming a placebo experienced significant reductions in performance. CRAM might be an effective supplement to improve brain functions in young healthy college students during times of increased stress.

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¹The College of New Jersey, Ewing, NJ 08628, USA
Full list of author information is available at the end of the article

Author details

¹The College of New Jersey, Ewing, NJ 08628, USA . ²Increnovo LLC, Milwaukee, WI 53202, USA.

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