CONCLUSIONS: The observed changes in plasma concentration, WBP, and clearance of BCAAs suggest modified metabolic pathways of LEU, VAL, and ILE in HA mice, compared to LA mice.

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3604 Board #292  June 1 9:30 AM - 11:00 AM

Ghrelin and PYY are Differentially Altered Following an Acute Bout of Aerobic vs Resistance Exercise

Tanya M. Halliday1, Mollie H. White2, Davis M. Bitton1, Allison K. Hild3, Jonathan R. Miller2, Edward L. Melanson, FACSM1, Marc-Andre Cornier3.

1University of Utah, Salt Lake City, UT. 2University of Colorado Anschutz Medical Campus, Aurora, CO.

Email: tanya.halliday@utah.edu

(No relationships reported)

PURPOSE: The purpose of our ongoing trial is to determine if aerobic exercise (AEx) and resistance exercise (REx) differentially influence acute energy intake and appetite regulation.

METHODS: Physically inactive adults with overweight/obesity (n=19, 35±1.7 yrs, BMI: 28.7±1.1 kg/m2) completed 2 conditions; 1) AEx (treadmill walking at 65-70% of age-predicted maximum heart rate for 45 minutes) and 2) REx (1-set to failure of 12 resistance exercises). Each condition was initiated in the post-prandial state (35 minutes post breakfast). Appetite (visual analog scale [VAS] for hunger and satiety) and hormones (ghrelin and PYY) were measured every 30 minutes for 3 hours following consumption of the standardized breakfast meal. Post exercise food cravings (following 90 min VAS and blood draw via Food Cravings Inventory [FCI] questionnaire) and ad libitum energy intake at the lunch meal were also measured.

RESULTS: There was no difference in post-exercise ad libitum energy intake between conditions (AEx: 932±75 kcal vs. REx: 910±81 kcal). There were also no differences in post exercise food cravings, nor area under the curve (AUC) for hunger, satiety, ghrelin, and PYY. However immediately following exercise (90 minutes post breakfast), ghrelin (AEx: 784±66 pg/mL vs. REx: 642±41 pg/mL, p=0.08) and PYY (AEx: 168±12 pg/mL vs. REx: 124±11 pg/mL, p=0.05) were both higher in the AEx condition. Across conditions, higher scores on the FCI (r=0.49, p=0.01), increased hunger AUC (r=0.62, p<0.001), and decreased satiety AUC (r= -0.43, p=0.013) were associated with increased ad libitum energy intake.

CONCLUSIONS: The data suggest that an acute bout of aerobic exercise appears to transiently increase both ghrelin and PYY, which are orexigenic and anorectic gut peptides, respectively, compared to resistance exercise. However, ad libitum energy intake was not different between conditions. Future work is needed to confirm these findings and uncover mechanisms by which exercise influences appetite indices and energy intake.

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3605 Board #293  June 1 9:30 AM - 11:00 AM

Can A Polyphenol Supplement Improve Sports Vision And Reaction Time? A Pilot Investigational Study

Neil E. Wolkodoff1, Gerald M. Haase2, Bethany Braunstein1. 1Colorado Center for Health & Sport Science, Denver, CO. 2University of Colorado, Aurora, CO. 3Boulder Community Hospital, Boulder, CO.

Email: neil@cochss.com

(No relationships reported)

PURPOSE: Polyphenol supplements have emerged as positive influencers in lipid and metabolic regulation related to cardiovascular disease risk. Limited research has assessed their value in neurological function and sports reaction measures. A highly concentrated extract of citrus bergamot polyphenols was tested because of extensive publications demonstrating benefits in oxidative stress and dyslipidemias, and therefore might improve visual components.

METHODS: Nineteen (19) volunteers, aged 50-74 years old, were studied. Fourteen (14) subjects consumed BergMet Sport, a high concentration polyphenol compound, and five (5) controls consumed a placebo. Subjects were randomly assigned to either the placebo or intervention groups. Weight, body composition, visual and balance measures were measured at time 0 and 30 and 60 days.

RESULTS: The mean age for the control group was 58, ± 9 - 42 yrs for the and for the intervention group, 57.1 ± 6.2 yrs, 52% were female and 48% were male. The subjects who received the intervention improved to statistically significant levels in all sports vision and balance measures compared to the placebo group. The key measures of time to balance task (5.76 second increase Placebo (PL) vs. 15.51 second decrease/improvement Intervention (INT)), reaction time test (73.6 point improvement PL vs. 492.5 point improvement INT) and the sports vision ranking composite of seven measures as a percentile to normative (654 point improvement in percentile ranking for PL vs. 6.33 point improvement for INT), were all significant (p=0.05) using paired student’s t-tests.

CONCLUSIONS: In this pilot study, consumption of a high concentration polyphenol supplement produced significant improvements in neurological function specifically related to visual components, balance and reaction time in this older age group in a relatively short time period. Further investigation in other age groups attempting to regain and maintain function in domains related to vision and reaction time is warranted in respect to polyphenol compounds.

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3606 Board #294  June 1 9:30 AM - 11:00 AM

Metabolic Flexibility is Impaired in Response to Acute Exercise in the Young Offspring of Mothers with Type 2 Diabetes

Cullen Vincellette, Timothy Allerton, Brian Irving, FACSM, Guillaume Spielmann, Neil Johannsen. Louisiana State University, Baton Rouge, LA.

Email: cvinel19@lsu.edu

(No relationships reported)

Metabolic Flexibility is Impaired in Response to Acute Exercise in the Young Offspring of Mothers with Type 2 Diabetes.

Cullen Vincellette1, Timothy Allerton1, Brian Irving1, Guillaume Spielmann1, and Neil Johannsen1

1Louisiana State University, Baton Rouge, LA. 2Pennington Biomedical Research Center, Baton Rouge, LA.

Healthy adults with a family history (first degree relative) of T2D demonstrate impairments in metabolic flexibility (MF), which is considered to be a factor in the development of T2D. Insulin sensitivity has been shown to improve in the first 48 hours in response to exercise. Whether, a single bout of high intensity interval exercise (HIIE) improves MF in men and women with a family history of T2D remains to be resolved.

PURPOSE: The purpose of this study was to assess MF in a group of young, seemingly healthy adults with a positive family history of maternal T2D (FH+) and those without a family history of T2D (FH-) in response to a single bout of HIIE and 1 hour (1H) and 48 hours (48H) after exercise.

METHODS: Seventeen participants (n=9 FH+ 2M/6F) consumed a liquid mixed meal with 3-hour post-prandial resting metabolic assessments (RMR) taken at baseline (BL, no prior exercise), and at 1H and 48H after a bout of HIIE (10 x 60s @90% watt max).

RESULTS: AER AUC for FH+ vs. FH+ groups differed at BL, but not significantly (p=0.08); however, at the 1H visit the AER AUC for the FH+ group (4.3 ± 1.6) was lower when compared to FH- group (6.5 ± 1.9; p=0.02). The suppression of FatOx (reduction at 60 minutes post meal) was attenuated during the 1H visit in the FH+ participants (-0.018 ± 0.01 g/min), but not in FH- participants (0.007 ± 0.01 g/min; p=0.03). AER AUC was increased at 48H in FH+ participants.

DISCUSSION: Our results suggest that young adults with a maternal family history of T2D demonstrate impaired MF in response to a mixed meal tolerance test 1H post-HIIE. However, MF was improved to the level of FH- participants at 48H.