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2117 Board #130 June 1 3:30 PM - 5:00 PM  
Fish-oil Supplement and Eccentric Exercise on Lipid Profiles during Different Phases of Menstrual Cycle  
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(No relationships reported)

Fish oil supplement has been widely recognized as a wholesome regimen, which may positively affect blood lipid and lipoprotein profiles and muscle damage caused by eccentric exercise.

**PURPOSE:** To examine the effects of dietary fish oil supplement and acute eccentric exercise on blood lipids and lipoproteins including (TC, HDL-C, Lp(a), LDL-C, and VLDL-C) during two different phases of menstrual cycle (mid-follicular vs. mid-luteal phase).

**METHODS:** As a randomized, double-blind design, 22 college-aged women (fish oil = 11, placebo = 11, age = 20.86 ± 1.39 years) participated in the study. Participants in the fish oil group ingested 6 capsules of fish oil per day (total 6g: containing 2.4g eicosapentaenoic acid and 1.8g docosahexaenoic acid), while the placebo group took 6 capsules of safflower oil per day for 3 weeks. All participants performed an acute eccentric leg exercise (10 sets of 10 repetitions with 3-min rest between sets at an isokinetic speed of 30°/sec) during both mid-follicular (MF) and mid-luteal (ML) phases. The leg exercised for the MF phase was randomly selected and the opposing leg exercised during the ML phase. Blood samples were collected at baseline, 6-hr post-exercise, and 24-hr post-exercise for each phase. Data were analyzed by a 2 x 2 x 3 analysis of variance with repeated measures along with the Sidak's multiple comparisons for any significant interactions to compare means differences ( $p < .05$ ).

**RESULTS:** There were no significant differences in blood lipids and lipoproteins between fish oil and placebo groups or baseline, mid-, and post-exercise. However, HDL-C was significantly higher ( $p = 0.041$ ) during the ML (61.66 ± 2.44 mg/dL) phase than that of the MF (54.53 ± 2.44 mg/dL) phase.

**CONCLUSION:** Although overall lipid and lipoprotein profiles tended to improve with a short-term fish oil supplement, it didn't reach a statistical significance. In addition, acute eccentric exercise did not negatively affect blood lipids and lipoproteins. However, HDL-C was significantly influenced by the different phases of menstrual cycle, where HDL-C increased during the mid-luteal phase possibly due to elevated estradiol levels. It is recommended that an extended period of fish oil supplement be implemented in different sample groups including both pre- and post-menopausal women for the future studies.

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2118 Board #131 June 1 3:30 PM - 5:00 PM  
Six Grams Of Fish Oil Supplementation Improves Vertical Jump Performance Following Acute Eccentric Resistance Training  
Kelly E. Johnson<sup>1</sup>, Trisha A. VanDusseldorp<sup>2</sup>, Kurt A. Escobar<sup>1</sup>, Matt Stratton<sup>1</sup>, Terence A. Moriarty<sup>1</sup>, James J. McCormick<sup>1</sup>, Gerald T. Mangine<sup>2</sup>, Tony P. Nuñez<sup>1</sup>, Nicholas M. Beltz<sup>1</sup>, Nathan Cole<sup>1</sup>, Marvin Endito<sup>1</sup>, Chad M. Kerksick, FACSM<sup>3</sup>, Christine M. Mermier<sup>1</sup>. <sup>1</sup>The University of New Mexico, Albuquerque, NM. <sup>2</sup>Kennesaw State University, Kennesaw, GA. <sup>3</sup>Lindenwood University, St. Charles, MO.  
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(No relationships reported)

A damaging bout of eccentric resistance exercise is known to hinder athletic performance. Fish oils are rich in omega-3-polyunsaturated fatty acids and have been purported to modulate the inflammatory response to exercise. It is possible that regular fish oil supplementation may assist in maintaining athletic performance following eccentric resistance exercise, but little is known regarding the optimal dose for stimulating benefits.

**PURPOSE:** To examine the effect of fish oil (FO) supplementation dosing on athletic performance recovery following a muscle-damaging bout of eccentric exercise.

**METHODS:** Thirty-two college-aged, resistance-trained males ( $n = 16$ ; 23.8 ± 2.7 years, 81.5 ± 9.9 kg, 175.7 ± 4.5 cm) and females ( $n = 16$ ; 23.4 ± 3.1 years, 61.7 ± 7.2 kg, 170.4 ± 6.2 cm) supplemented with 2.0, 4.0, 6.0 g·d<sup>-1</sup>, FO or placebo (PL) for 7 weeks. Following 7 weeks of supplementation, participants completed pre-exercise (PRE) assessments of vertical jump (VJ) height, maximal voluntary contraction of the knee extensors, 40-yard sprint time, and T-test agility followed by a muscle damaging resistance exercise protocol (10 sets of 8 four-second eccentric squats at 70% one-repetition maximum, 5 sets of 20 split-squat jumps). All PRE-assessments were repeated immediately post (IP), 1, 2, 4, 24, 48, and 72 hours (h) post-exercise.

**RESULTS:** Repeated measures analysis of variance indicated a treatment x time interaction ( $p < 0.001$ ) for VJ. Although VJ was decreased from PRE (53.8 ± 8.7 cm) at IP (47.4 ± 9.3 cm) for all groups, VJ returned to PRE-values at 1h for the 6 g·d<sup>-1</sup> supplementation group (51.8 ± 6.5 cm,  $p = 0.112$ ), while no other groups returned to baseline until 48h. No other differences were observed.

**CONCLUSIONS:** These data indicate that supplementation with 6 g·d<sup>-1</sup> of FO is effective for enhancing recovery in jump performance following a damaging bout of exercise. Supported by the International Society of Sports Nutrition and MusclePharm Grant

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## D-65 Exercise is Medicine®/Poster - EIM - Chronic Health Conditions

Thursday, June 1, 2017, 1:00 PM - 6:00 PM  
Room: Hall F

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2119 Board #132 June 1 2:00 PM - 3:30 PM  
Mobility Outcomes From Resistance Training Delivered via Flash Drive to Overweight/obese Patients In A Clinical Setting  
Mary E. Sanders, FACSM<sup>1</sup>, Karmella Thomas<sup>1</sup>, Tayler Reynolds<sup>1</sup>, Veronica J. Brady<sup>1</sup>, Michael E. Rogers, FACSM<sup>2</sup>. <sup>1</sup>University of Nevada, Reno, Reno, NV. <sup>2</sup>Wichita State University, Wichita, KS.  
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(No relationships reported)

Elastic and isotonic resistance training can improve health and fitness. Little is known about the impact of a home-based, structured program delivered via flash drive videos to weight management patients in a clinical setting.

**PURPOSE:** To measure functional fitness/mobility after 12 weeks of a home-based, video led resistance-training program (Mini BIRST) designed as short interval workouts using dumbbells or Theraband CLX elastic resistance bands.

**METHOD:** Overweight/obese participants ( $n=21$ , 51.5 yrs, BMI 33.2 kg·m<sup>-2</sup>) enrolled in the Health Management Resources (HMR) weight management program, self-selected to join the study and were assessed for baseline health and mobility. They were randomized into 2 groups: 3 weeks of isotonic resistance followed by 3 weeks of elastic resistance (10-20 min/day, 2-3 days/wk, 6 wks) using a cross-over design. Participants then performed full body CLX-only circuit exercises (20 min/day, 2-3 days/wk, 6 wks). Both home-based programs were delivered via written handouts and flash drive videos. Functional fitness/mobility was assessed using standardized tests. Repeated measures ANOVA were conducted and a p-value of <0.05 was used to indicate significant changes. An opinion survey was conducted to determine attitudes about the program and delivery.

**RESULTS:** Participants exercised 3 days/wk for 12 weeks with 83% compliance. Mobility improved for chair stand (26%), arm curl (35%), aerobic endurance (25%), and flexibility in both legs (4% right, 2% left). Participants showed no changes for weight or BMI, but successfully maintained "weight neutral" during the 12-week. Participants trended toward an increase in physical activity (9%), over baseline. " Participant opinions revealed they "Liked" the program overall" (75%), said they "Felt good" (70%), was "Convenient to do" (85%), "Liked the flash drive delivery" (85%) and would "Continue the program" (85%).

**CONCLUSIONS:** Participants complied to and enjoyed the home-based, dumbbell and CLX resistance band short-burst workouts delivered via flash drive videos and illustrated handouts, resulting in improved mobility and aerobic endurance. Further study is needed to determine long- term impact on adherence, weight and health.

**Support for this study provided by Performance Health, Akron, OH.**

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2120 Board #133 June 1 2:00 PM - 3:30 PM

A Two-minute, Energy-surge Exercise For Weight Loss: A Randomized, Controlled Trial

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(No relationships reported)

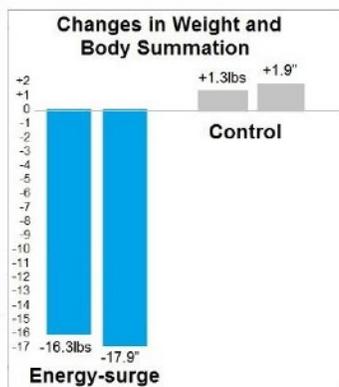
The Center for Disease Control has reported that 70% of the US population are overweight and almost 40% are categorically obese, based on Body Mass Index (BMI). There are numerous programs, diets, and exercise regimes, but these are inadequate because of the continuous rise in obesity. A unique 2-minute Energy-surge exercise routine was developed for metabolism acceleration.

**PURPOSE:** of this study was to determine if the Energy-surge protocol (performed four times/day) reduces subjects' weight and girth sizes.

**METHODS:** Fifty-four subjects (mean age 39 ± 8) with BMI of >30, and were recruited for this 60-day study. Subjects were randomly assigned to either the Experimental group which performed the 2-minute, Energy-surge exercises, four times a day or the Control group who were instructed to "exercise more." No dietary changes were required for either group. The Experimental group were shown how to make many movements such as climbing stairs or curling dumbbells into an Energy-surge exercise in subjects' aerobic threshold for two minutes. Experimental subjects recorded their exercises and send daily to a research assistant via text or email. The dependent variables were weight (pounds) and Body Summation of 10 girth measurements. A 2x2 ANOVA was used to calculate differences.

**RESULTS:** There was a significant difference between groups (P<0.0001). The change of the groups were as follows: Experimental (N=24) mean reductions = -15.2lbs and -16.0" vs. Control (N=23) mean changes = +2.2lbs and +2.5."

**CONCLUSION:** The 2-minute Energy-surge exercise protocol performed four times a day was effective in reducing subjects' weight and body circumferences. Isolated tests of body composition showed that experimental subjects change were primarily in fat reductions. Future studies should measure this protocol for longer durations, including other variables such as diet changes (portion size and frequency) with body composition testing as the dependent variable.



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2121 Board #134 June 1 2:00 PM - 3:30 PM

Insulin Resistance Response to a Treadmill's High Intensity Interval Training in Postmenopausal Women

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**PURPOSE:** Considering that high-intensity interval training (HIIT) might offer faster and/or more efficient results in improving insulin sensitivity and glycemic control than low-intensity exercise, we conducted a study to analyze the response of insulin resistance to a HIIT.

**METHODS:** 24 post-menopausal individuals were selected among those enrolled in our existing Lifestyle Modification Program (Move for Health). Physical activity level, socio-demographic characteristics, and health status were identified through the International Physical Activity Questionnaire (version 8 - long form). Fitness performance was determined by trunk flexibility, handgrip test, cardiorespiratory fitness on treadmill. After an overnight fast (8-12 hours), plasma or serum was used for glucose and insulin assays. For the intervention protocol the patients were subjected to 43 minutes of supervised exercise twice weekly for 10 weeks. The HIIT included 10 minutes of warm-up at 70% of HR max, followed by 4 series of 4 minutes each on 90% HRmax with 3-min intervals between series for active recovery at 70 % of FCmax, ended with 5 minutes backing to calm. Results were expressed as mean, standard deviation, frequency and percentage. Chi-square test (c<sup>2</sup>), ANOVA repeated measure and the range model repeated measures were used with a 5% significance level.

**RESULTS:** The sample consisted of low-income post-menopausal women with intermediate education referring self-perception of good health, although overweight and with good weekly physical activity and grip strength fitness but poor trunk flexibility. After 10 weeks of HIIT, the values changed for cardiorespiratory fitness markers by increasing 23.8% (time on treadmill test). The 37.5% unfit flexibility (<P25) were reassigned either to P25-P75 (33.3%) or >P75 (11.1%). Regarding the insulin-resistance status, the HIIT resulted in normalization of 50% of the former hyperglycemics (25% at baseline) and also in 16.7% of the hyperinsulinemics with altered HOMA-IR. Nevertheless, there was no reclassification for body or abdominal obesity.

**CONCLUSIONS:** The protocol was shown to be effective in improving aerobic fitness and flexibility, additionally to discrete effects on insulin sensitivity although ineffective in reducing abdominal adiposity and overweight.