

C-48 Exercise is Medicine®/Poster - EIM - Cancer, Diabetes, Metabolic Syndrome, Obesity

Thursday, May 30, 2019, 7:30 AM - 12:30 PM
Room: CC-Hall WA2

1538 Board #300 May 30 10:30 AM - 12:00 PM

Resistance-training Induced Regional Body Composition Changes In Females With Obesity Vs. Normal Weight Obesity

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(No relationships reported)

Title: Resistance-training induced regional body composition changes in females with obesity vs. normal weight obesity
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PURPOSE: The aim of this study was to compare the effects of resistance training on regional body composition and fat loss, including upper and lower limbs and trunk, in females with obesity and normal weight obesity (NWO).

METHODS: A total of 12 young females with obesity (BMI: 34.1±3.3; percentage body fat [%BF]: 49.2±2.9) and 15 with NWO (BMI: 22.2±1.8; %BF: 35.1±4.5) were randomized into control (obesity n=6, NWO n=8) and resistance training (obesity n=6, NWO n=7). Dual-energy X-ray absorptiometry (DXA) and a maximal strength test were performed before and after a 3-week intervention. Percent change (%Δ) of left and right trunk, arms, legs (LTfat, RTfat, LAfat, RAfat, LLfat and RLfat, respectively) and body fat were recorded. Training consisted of 3 sessions/week for 3 weeks, and 3 sets of 10 repetitions including 7 exercises that targeted major muscle groups. Participants were trained at 80% of their 1-repetition maximum.

RESULTS: Non-parametric tests showed a statistically significant difference in %ΔLTfat (-1.05±3.99%, p=0.032) and a trend in %ΔBF (-1.73±1.93%, P=0.056) in the resistance training obesity group when compared to control. No statistically significant changes were found in NWO group.

CONCLUSION: Resistance training has shown to induce significant changes in the obesity group by reducing LTfat content. However, no changes were detected in the NWO group. Future research should include larger sample size to facilitate the detection of regional body composition changes and to help understand the differential impact of resistance training in women with obesity and NWO.

1539 Board #301 May 30 10:30 AM - 12:00 PM

Selective Effectiveness Of 10wk-exercise Protocols On Mets Reduction

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MetS is recognized as a pervasive condition whose abnormalities result from a mismatch between contemporary environment and our ancient tailored genome. Hence, diet and physical exercise are considered the pillars in the implementation of effective strategies against MetS.

PURPOSE: The responses of MetS subjects to different types of physical exercises was investigated in a dynamic cohort study ("Move for Health" program) based on spontaneous demand for healthy lifestyle with supervised exercises and dietary counseling.

METHODS: Demographic, socio-economic and physical activity was recorded from IPAQ (version 8) and, dietary quality (HEI) and food intake, from a 24h questionnaire recall. Anthropometry and fast-blood analysis were used for MetS diagnosis (NCEP-ATP III). After clinical selection and baseline assessments they were spontaneously assigned to structured protocols involving supervised exercises of strength (PAC, n=43) isolated or combined with endurance (walking) exercises (PMi, n=146), hydro-gymnastics (PHy, n=50) and treadmill high-intensity exercises (PHit, n=63), applied during 10 weeks. Nutritional counseling was conducted weekly. Protocols were compared statistically using SAS vs 9.3 for p=0.05.

RESULTS: Sample of 55.5 ± 108 yrs old (n=302), predominantly female (88%), presented adequate physical activity (91%), cardio-respiratory fitness (63%) and strength (78%), referring themselves as in good health (67.8%). At baseline, groups were similar in anthropometry, fitness and MetS (averaging 48.7%). Altered components of MetS ranked from waist circumference (72.9%) to triglycerides (37.9%). After 10-wk of exercises, increased aerobic capacity was found in all groups and, strength only in Pac and PMi. MetS reduction averaged 16.9%, mainly and significantly in Phy (25.4%) and PMi (12.7%). Among the MetS components, a major decreasing to exercise protocols was found in hyperglycemia (20.6%) and hypertension (15.9%).

CONCLUSIONS: The reduction of MetS occurred in different types of physical exercises with higher responsiveness in PHy and PMi having hyperglycemia and hypertension as its most responsive components.

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1540 Board #302 May 30 10:30 AM - 12:00 PM

Reason To Exercise In Diabetic Populations: Use Of Rapid-acting Insulin Predicts Falls In At-risk Patients

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Diabetes is present in 9.4% of American adults. Insulin is used in Type 1 and Type 2 cases, but without lifestyle change, it can hasten the progression of the disease. Limited data supports an association between diabetes and fall risk in older adults, with greater risk found among insulin-treated patients. Little is known about different insulin classes.

PURPOSE: To evaluate the effect of insulin classes on incidence of falls in older adults.

METHODS: We conducted retrospective and prospective analyses of 615 hospital patients age ≥65 years who sustained a fall in 2015. Data was extracted from their first fall-related admission that year, including demographic reports, health history, injury characteristics, relevant diagnoses, and home medications. We exported the number of previous falls since 2010 and used logistic and Poisson regressions to test the effect of insulin on the odds of experiencing falls and the total number experienced. We then tracked patients forward until August 2016 and tested the effect of insulin on return visits for new fall-related admissions.

RESULTS: Patients were 80.0±9.1 years old, 6.2% used long-acting insulin, 0.5% used intermediate insulin, and 4.2% used rapid-acting insulin. They were admitted 1.9±1.3 times previously and had 0.5±0.9 return visits. There was no relationship with intermediate insulin and the number of previous (P=0.223) or future (P=0.383) falls. Long-acting insulin associated with modest increases in the number of previous (P=0.053) and return (P=0.050) falls. Rapid-acting insulin significantly predicted both. Controlling for weather, age, balance, and cognitive condition, patients using rapid-acting insulin had a 4.2-fold increase in the odds of sustaining multiple previous falls (P=0.002; 95% CI of odds ratio=1.68-10.54), a 37.2% increase in the number of previous visits (P=0.012; 95% CI of IRR: 1.07-1.76), a 2.4-fold increase in the odds of readmission (P=0.033; 95% CI of odds ratio: 1.07-5.50), and a 64.3% increase in the number of return visits (P=0.026; 95% CI of IRR: 1.06-2.54).

CONCLUSIONS: Diabetics taking rapid-acting insulin express an elevated risk of falls. Exercise may serve two functions in this population: it can mitigate the acute and chronic effects of diabetes via non-insulin dependent glucose uptake, and it can protect against fall risk.