Vol. 6, Supplement 1,
May 2013

Obesity Facts
The European Journal of Obesity

20th European Congress on Obesity (ECO2013)

Liverpool, UK, May 12–15, 2013

ABSTRACTS

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Basel · Freiburg · Paris · London · New York · New Delhi · Bangkok · Beijing · Tokyo · Kuala Lumpur · Singapore · Sydney

Methods: 772 adults (mean body mass index:31·4±2·6kg/m^2) were recruited by primary care practices in Australia, Germany and the UK and randomly assigned to 12 months SC, or the CP, and were followed up at 24 months. Change in physical activity levels were assessed by pedometer recordings and the International Physical Activity Questionnaire (IPAQ)-short form.
Results: There was a significant difference in weight loss between groups at 12 months (last observation carried forward analysis -5.06 kg for CP versus -2.25 kg for SC; p<0.0001) and 24 months (-4.14 kg for CP versus -1.99 kg for SC; p<0.001). Both groups reported increases in physical activity using the IPAQ from baseline to 12 months to 24 months (within groups p<0.0001) and in pedometer steps from baseline to month 12 only (within groups p<0.0001). However differences between groups with both methods of assessment were not significant.
Conclusion: Despite similar increases in reported activity there were significant differences in weight loss and regain between groups. This implies that these methods may lack the accuracy or precision to measure changes in physical activity during weight loss interventions.

1. Conflict of Interest: None
2. Funding: This study was investigator initiated but was funded by Weight Watchers International through a grant to the Medical Research Council (UK).

T2:P.079

Design and validation of a questionnaire focusing on sedentary occupations and active transports – reproducibility and validity study (ACTI-Cités project)

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Introduction: Measuring the different dimensions of physical activity (PA) is important to define strategies for PA promotion and obesity prevention. In this field, there is increasing interest for better assessment of sedentary occupations (SO) (time spent sitting) and active transport (AT) (walking, cycling) but few existing instruments appear relevant for this purpose. We assessed the properties of an adapted version of a validated PA questionnaire focusing on these domains.
Methods: An adapted version of the Recent Physical Activity Questionnaire (RPAQ, Besson *et al.*, Am J Clin Nutr 2010) included additional questions on various types of SO (television, computer, etc.) and AT (frequency and duration of trips). Cognitive testing was performed, and reproducibility (1-month test-retest) was assessed in 34 adult volunteers. In addition, for 60 subjects, questionnaire data were compared with data collected from both activity logbooks and movement counters (accelerometer Actigraph GT3X and GPS QStarz GQ1000eX) worn during 15 days. Intra-class correlation coefficients, linear regressions, and Bland-Altman graphs were used for data analysis.
Results: Cognitive testing showed a good level of understandability (score of 26.4/28 for variables of interest). Reproducibility was comparable to that of other PA questionnaires from the literature. Comparisons between answers to the questionnaire and objective measurements show promising results for both SO and AT (no significant difference, with p>0.26 for all variables of interest).
Conclusion: The development of this adapted questionnaire will help in assessing specific dimensions of transport-related PA and SO that appear of major interest in public health policies toward tackling obesity.

1. Conflict of Interest: None
2. Funding: This work is part of the ACTI-Cités project funded by the French Institut National du Cancer (INCa, project n°2011-113).

T2:P.080

Effect of long-term different physical activity training on human LHCM-M2 myoblast differentiation

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Introduction: Contracting skeletal muscle releases different myokines that exert both local and endocrine positive metabolic effects (1). Besides, physical exercise seems to modulate skeletal muscle plasticity. The aim of this study was to evaluate whether different-type, long-term training might modulate myogenic differentiation using in vitro system.
Methods: Human LHCN-M2 myoblasts (2) were exposed for 4 days to culture medium supplemented with low concentration of serum from n. 5 aerobic (Swimmers) or n. 5 anaerobic (Body Builders) male subjects trained for long-term (mean 5 years). Myogenic differentiation was assessed by calculating the fusion index (FI) number and by evaluating expression levels of MyoD and Myogenin using phase contrast microscopy and western blotting, respectively.
Results: LHCN-M2 myoblasts treatment with aerobic sera induced about 1.2-fold increase in myotube formation (FI mean 72% vs 59%) to respect to anaerobic sera as well as increased ratio of myogenin/MyoD expression resulting of about 2-fold greater in cells treated with Swimmers to respect to Body Builders sera.
Conclusion: Long-term aerobic training seems to enhance skeletal muscle differentiation at greater extent to respect to anaerobic exercise.

References

1. Pedersen BK., 2011 Brain Behav. Immun.; 25:811;
2. Zhu CH. et al, 2007 Aging Cell. 6:515

Acknowledgements: We thanks Dr Mouly V. for the gift of LHCN-M2 cells (Institut de Myologie-CNRS UMR 7000 Faculte´ de Medecine, Paris 6, France).
Funding: Grants for this research were purchased from IRCCS SDN, Naples-Italy.

T2:P.081

Similar improvements in exercise capacity and cardio-metabolic risk following high intensity interval training (HIT) in individuals with a low and high BMI

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Introduction: HIT is a novel time-efficient exercise approach, but suggestions have been made that it may not be suitable for obese individuals with a limited exercise capacity. Here we compare improvements in exercise capacity and cardio-metabolic risk following 10 weeks of instructor-led group-based HIT in sedentary individuals with a high and low BMI.
Methods: 30 sedentary volunteers (11M, 19F, 40±2 y), separated into low (LO) and high (HI) BMI groups (24.4±0.5, 32.0±0.7 kg.m^{-2}, respectively; P<0.05), undertook HIT (≤25 min per session, 3x.wk^{-1}) exercise classes. Improvements in exercise capacity (VO_{2max}), body composition (bioimpedance), insulin sensitivity (oral glucose tolerance test) and blood lipid profiles were measured as the relative change from baseline.
Results: Adherence to the HIT intervention was not different between the two groups (LO 87±2%, HI 82±4%; P>0.05). Training induced small decreases in weight (LO 1±1%, HI 1±1%; P<0.05) and relative fat mass (LO 3±2%, HI 2±2%; P<0.05), while increasing VO_{2max} (LO 11±2%, HI 9±2%; P<0.05). Fasting insulin concentrations were reduced (LO 18±7%, HI 10±7%; P<0.05) concomitant with improved insulin sensitivity (Matsuda) (LO 26±9%, HI 25±7%; P<0.05) post training. Fasting serum concentrations of triglyceride (LO 16±10%, HI