

Body composition and muscular fitness in overweight and obese adolescents: Evasyon Study

P. De Miguel-Etayo^{a,b,c,d,*}, J. Santabábara^{e,f}, L.A. Moreno^{a,b}, M. Martín-Matillas^{f,g}, A. Martí del Moral^{h,i}, C. Campoy^{j,k}, A. Marcos^l, J.M. Garagorri^{a,c}, en nombre de EVASYON Study Group

^a GENUD (Growth, Exercise, NUtrition and Development) Research Group. Universidad de Zaragoza. España

^b Departamento de Fisiatría y Enfermería. Facultad de Ciencias de la Salud. Universidad de Zaragoza. España

^c Departamento de Pediatría, Radiología y Medicina Física. Facultad de Medicina, Universidad de Zaragoza. España

^d Departamento de Medicina Preventiva y Salud Pública. Facultad de Ciencias de la Salud y del Deporte. Universidad de Zaragoza. España

^e Centro de Investigación Biomédica en Red de Salud Mental (CIBERSAM), Ministerio de Ciencia e Innovación. Madrid

^f Departamento de Educación física y Deportiva. Facultad de Ciencias del Deporte. Universidad de Granada. España

^g PROFITH (PROmoting FITness and Health through physical activity) Research Group

^h Unidad de Endocrinología pediátrica. Departamento de Pediatría. Clínica Universidad de Navarra

ⁱ Departamento de Ciencias de la Alimentación, Nutrición y Fisiología. Universidad de Navarra

^j Departamento de Pediatría. Facultad de Medicina, Universidad de Granada. España

^k EURISTIKOS Excellence Centre for Paediatric Research. Biomedical Research Centre. Parque Tecnológico de Ciencias de la Salud. Universidad de Granada. España

^l Immunonutrition Research Group, Departamento de Metabolismo y Nutrición, Instituto de Ciencia y Tecnología de Alimentos y Nutrición. Consejo Superior de Investigaciones Científicas. Madrid, España
Correo electrónico: pilardm@unizar.es (P. De Miguel-Etayo).

Body composition; Multi-intervention approach; Dual X-ray absorptiometry; Fat mass loss programme; Muscular fitness; Hand-grip strength

Aim. Physical fitness has been considered a powerful marker of health, in childhood and in adulthood, independent of physical activity. A low fitness status during childhood and adolescence is associated with important health-related outcomes, such as increased future risk for obesity and cardiovascular diseases, impaired skeletal health. Moreover, the main objectives of weight loss interventions in children and adolescents are to decrease fat mass while maintaining fat-free mass. The aim was to assess the relation between body-fat changes and strength performance in obese adolescents after 13 months in a multidisciplinary intervention.

Methods. Multi-intervention approach (diet, physical activity and psychological support in a family-group-based treatment) was implemented with a one-year intervention in 13-to-16-year-old overweight or obese Spanish adolescents. A total of 78 adolescents were recruited from Granada and Zaragoza, males (n=42) (31.98 kg/m²) and females (n=36) (32.24 kg/m²). We measured body composition with dual-energy X-ray absorptiometry and muscular fitness was assessed by standing broad jump and hand-grip strength. All measurements were made at baseline and 13 months. Non-parametric Spearman's rho partial correlation coefficients were applied to assess the associations between body-fat and strength performance based on anthropometric measurements at the end of the EVASYON treatment programme (13 months), controlling for potential confounders (age and Tanner stage).

Results. After controlling for age and Tanner stage, the body-fat during the EVASYON programme was significantly correlated with handgrip strength changes in females (rho = -0.438, p = 0.022).

Moreover, in males body-fat changes was correlated with standing broad jump changes (rho = -0.407, p = 0.058).

Conclusions. We found handgrip strength would be a good predictor of body-fat composition changes in females and standing broad jump in males. However, more researches are needed to find the best physical fitness predictor to body composition changes.

<http://dx.doi.org/10.1016/j.ramd.2014.10.021>

Effects of Pilates on the volume of iliopsoas muscles: a longitudinal MRI study

C. Dorado^{*}, A. López-Gordillo, J. Sanchis-Moysi

Physical Education Department, University of Las Palmas de Gran Canaria, Las Palmas de Gran Canaria, Spain

Correo electrónico: cecilia.dorado@ulpgc.es (C. Dorado).

Palabras clave: Pilates; Iliopsoas; Muscle hypertrophy; MRI

Aim. The purpose of the present study was to analyze the effects of Pilates on the volume of iliopsoas muscles.

Methods. Magnetic resonance imaging (MRI) was used to determine the volume of gluteal muscles in 9 non-active healthy women, before and after 36 wk of a standardized Pilates training program (50 min/session, 2 session/wk). The MRI images (L1-L2 intervertebral disc to pubic symphysis), were used to calculate the volume iliopsoas. Pre- and postraining comparisons were carried out using the paired Student's t-test. Significant differences were assumed when P < 0.05.

Results. Before Pilates, the volume of iliopsoas was similar in the dominant and in the non-dominant side (248.4 ± 43.4 vs. 251.8 ± 31.8 cm³, P = 0.4). Compared to pre-training, after Pilates the volume of iliopsoas was similar in the dominant (248.4 ± 43.4 vs 256.5 ± 31.8 cm³, respectively, P = 0.4) and in the non-dominant side (251.8 ± 31.8 vs 258.1 ± 34.0 cm³, respectively, P = 0.4). The degree of asymmetry in muscle volume between the dominant and the non-dominant side was also similar before and after Pilates (1.3 ± 4.4 vs. 0.6 ± 1.7%, respectively, p = 0.7).

Conclusion. This study shows that 36 wk of Pilates do not increase the volume of the iliopsoas muscle group in physically non-active healthy women. The iliopsoas muscles play a secondary role on lumbo-pelvic control during a standardized Pilates training program.

<http://dx.doi.org/10.1016/j.ramd.2014.10.022>

Self-Rated Perceptions of Health, Physical Activity and Fitness as predictors of All-Cause Mortality: a 23-year follow-up of the England National Fitness Survey

V. España-Romero^{a,b}, K. Wijndaele^a, W. Tuxworth^c, P.H. Fentem^d, N. Wareham^a, S. Brage^a

^a Medical Research Council Epidemiology Unit, University of Cambridge, UK

^b Department of Physical Education, University of Cadiz, Puerto Real, Cadiz, Spain

^c School of Education, University of Birmingham, Birmingham, UK

^d Department of Medicine, University of Nottingham, Nottingham, UK

Keywords: Health; Physical Activity; Fitness; Perceptions; All-cause mortality

Objectives. To study the independent and combined effects of self-rated health (SRH), self-rated physical activity (SRPA) and