

LETTER TO EDITOR

PHYSICAL FITNESS AND MOTOR COORDINATION MONITORING DURING ENRICHED SPORT ACTIVITIES IN A SAMPLE OF CHILDREN LIVING IN EUROPE. THE ESA PROGRAM

ANTONINO BIANCO^{1,2}, FATMA NEŞE ŞAHİN², MELTEM KIZILYALLI², ROSARIO GENCHI³, MICHELE BASILE³, CARLOS SILVA⁴, NUNO LOUREIRO⁴, YOLANDA DEMETRIOU⁵, JÜRGEN BECKMANN⁵, SIMONA PAJAUJENĖ⁶, ILONA JUDITA ZUOZIENĖ⁶, MANUEL GÓMEZ-LÓPEZ⁷, GUILLERMO FELIPE LÓPEZ SÁNCHEZ⁷, ANTE RAĐA⁸, ANA RIBEIRO⁹, JORGE DE ALMEIDA CASTRO⁹, MARIANNA ALESI^{1,2}

¹Department of Psychological, Pedagogical and Educational Sciences, University of Palermo, Viale delle Scienze, Ed. 15, 90128; Palermo, Italy - ²Department of Sport and Health, Faculty of Sport Sciences, Ankara University, Gölbaşı Yerleşkesi Spor Bilimleri Fakültesi 06830 Gölbaşı - Ankara, Turkey - ³Palermo University Sport Center (CUS Palermo), Via Altofonte, 80, 90129; Palermo, Italy - ⁴Escola Superior de Desporto de Rio Maior (IPSantarém), Av. Dr. Mário Soares, 20413, RIO Maior, Portugal - ⁵School of Sport and Health Sciences, Technical University of Munich, Uptown Munich Campus D, Georg-Brauchle-Ring 60/62, 80992 Munich, Germany - ⁶Department of Coaching Science, Lithuanian Sports University, Sporto 6, Kaunas, LT-44221, Lithuania - ⁷Department of Physical Activity and Sport, Faculty of Sports Sciences, University of Murcia, Spain. Calle Argentina, 19, 30720 San Javier, Murcia, Spain - ⁸Faculty of Kinesiology, University of Split, Teslina 6, 21000; Split, Croatia - ⁹Escola Profissional de Aveiro, Rua Dr. Francisco Ferreira Neves. Apartado 567 - Barrocas. 3800-510 Aveiro, Portugal

Keywords: *ESA Program, Physical Activity, Cognitive Functions, Executive Functions.*

Received November 30, 2017; **Accepted** October 24, 2017

Enriched Sport Activities Program (ESA) is an Evidence-based Practice Exercise Program cofounded by the Erasmus+ Programme of the European Union (Key action: Sport - 579661-EPP-1-2016-2-IT-SPO-SCP). It aims to enhance social inclusion, equal opportunities and psycho-physical well being in school-age children with typical development and special needs through sport activities enriched by cognitive tasks. A multidisciplinary approach has been employed; in detail, health - and skills-related physical fitness components, as well as developmental psychology and neuroscience research are the theoretical basis to implement an evidence-based program suitable to increase sport compliance in 7 different countries. A growing body of studies has identified sport and physical activities (PA) as key factors to contribute to well-being and health in children and youths with typical and atypical development⁽¹⁾.

It is becoming increasingly clear that a sedentary lifestyle shows a risk for enlarged rates of psy-

chosocial impairments, onset or aggravation of medical diseases, welfare assistance, use of medical services, all resulting in extremely high economic health costs. However, data derived from the Special Eurobarometer 412 (March 2014) on the issue “Sport and Physical Activity” sum up following issues: 59% of Europeans play sport never or seldom; European Women engage in sport less than men; European living in Southern countries engage less in sport.

The “lack of motivation” is stated by 20% of European Citizen as the main barrier preventing from practice of PA⁽²⁾. The findings also show significant results as regards the percentages of inactivity for the countries: Portugal 64%, Italy 60%, Spain 44%, Lithuania 46%, Germany 29%. Nevertheless, these data were collected on sample aged more than 15 year-olds⁽²⁾. Lacking are epidemiological data on children and pre-adolescents in European countries. If a linear developmental trend is employed, similar lack of motivation in

childhood with major rates in girls and those coming from low socioeconomic status (SES) can be hypothesized. Higher levels of inactivity and lower sport motivation are conjectured in population with special needs with the consequent risk to intensify actual clinical diseases and develop health-related complications such as motor functional deteriorations.

Moreover, low levels of muscular strength and power in children and adolescents can generate consequent functional limitations not caused by neurologic or muscular disease, but just because of the lack of movement^(3,4). Physical fitness, motor skills or basic motor competencies play a central role in the process of the development of physically active lifestyle. Children and adolescents must have basic motor competencies and adequate physical fitness in order to take part in sport and exercise. Consequently, it is important to have a reliable instrument to measure these skills and physical fitness⁽¹⁾.

According to the ESA Program aims the TEG (Technical Expert Group) in charge with the Thematic Area 1 (TA1- Sport practice, children, inactivity, children's physical fitness and development) will focus on a systematic literature review in order to define the most appropriate field based physical fitness tests able to predict and monitor physical fitness and motor coordination in a population target of children (6-14 years) living across Europe. Starting from previous successful experiences, the TEG will try to confirm and/or update the ASSO-FTB⁽⁵⁾, a fitness test battery designed to evaluate physical fitness in adolescents within the school context.

The questions still unanswered are:

- Does ASSO-FTB fit also on a different target population?
- Is the focus on children's motor abilities enough for physical fitness monitoring?
- Can maximal aerobic fitness tests be implemented in a reliable and valid way in this age group?

Recently, many authors tried to investigate about field-based physical fitness tests for children and adolescents in general and with intellectual disabilities⁽⁶⁻¹⁰⁾. The ESA program aims to endorse best practices in the pediatric environment with the wish to help educators and healthcare professionals to promote healthy lifestyles among children and adolescents.

References

- 1) Faigenbaum AD, Lloyd RS, MacDonald J, Myer GD: Citius, Altius, Fortius: beneficial effects of resistance training for young athletes: Narrative review. *Br J Sports Med* 2016, 50(1): 3-7.
- 2) EU Commission: Special Eurobarometer 412. "Sport and physical activity". In. Edited by Social SEWETO. Brussels; 2014.
- 3) Faigenbaum AD, MacDonald JP: Dynapenia: It's Not Just for Grown-ups Anymore. *Acta paediatrica* 2017.
- 4) Stracciolini A, Myer GD, Faigenbaum AD: Exercise-deficit disorder in children: are we ready to make this diagnosis? *The Physician and sportsmedicine* 2013, 41(1): 94-101.
- 5) Bianco A, Jemni M, Thomas E, Patti A, Paoli A, Ramos Roque J, Palma A, Mammina C, Tabacchi G: A systematic review to determine reliability and usefulness of the field-based test batteries for the assessment of physical fitness in adolescents - The ASSO Project. *Int J Occup Med Environ Health* 2015, 28(3): 445-478.
- 6) Wouters M, Evenhuis HM, Hilgenkamp TI: Systematic review of field-based physical fitness tests for children and adolescents with intellectual disabilities. *Research in developmental disabilities* 2017, 61: 77-94.
- 7) Cadenas-Sanchez C, Martinez-Tellez B, Sanchez-Delgado G, Mora-Gonzalez J, Castro-Pinero J, Lof M, Ruiz JR, Ortega FB: Assessing physical fitness in preschool children: Feasibility, reliability and practical recommendations for the PREFIT battery. *Journal of science and medicine in sport / Sports Medicine Australia* 2016, 19(11): 910-915.
- 8) Kao SC, Westfall DR, Parks AC, Pontifex MB, Hillman CH: Muscular and Aerobic Fitness, Working Memory, and Academic Achievement in Children. *Medicine and science in sports and exercise* 2017, 49(3): 500-508.
- 9) Catley MJ, Tomkinson GR: Normative health-related fitness values for children: analysis of 85347 test results on 9-17-year-old Australians since 1985. *British journal of sports medicine* 2013, 47(2): 98-108.
- 10) Ortega FB, Cadenas-Sanchez C, Sanchez-Delgado G, Mora-Gonzalez J, Martinez-Tellez B, Artero EG, Castro-Pinero J, Labayen I, Chillón P, Lof M et al: Systematic review and proposal of a field-based physical fitness-test battery in preschool children: the PREFIT battery. *Sports medicine* 2015, 45(4): 533-555.

Corresponding author

ANTONINO BIANCO

Department of Psychological, Pedagogical and Educational Sciences, University of Palermo, Viale delle Scienze, Ed. 15, 90128 Palermo

(Italy)