POSTER: CARDIORESPIRATORY AND MUSCLE WEAKNESS IN NORMAL WEIGHT OBESE MIDDLE AGE SCHOOL CHILDREN

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Objective: Although normal weight obesity, defined by excess total body fat but normal BMI values, is associated with deleterious health consequences, there is currently no information regarding the physical fitness (PF) of normal weight obese children, despite the well- recognized benefits of PF for health. Therefore, the aim of the current study was to investigate differences in physical fitness between 1) normal-weight obese (NWO), 2) normal-weight non-obese (NWNO) and 3) over-weight and obese (OWOB) middle age school children. Method: 355 middle-school-aged children, from 9.00 to 10.99 years old (10.2 ± 0.73) took part in this study (n = 47 NWO; n = 256 NWNO; n = 52 OWOB;). Height, weight, two skinfolds (triceps, subscapula) were measured and body-fatness, according to Slaughters equations, was estimated. Four physical fitness tests with national standards were used: 1) the 20m endurance shuttle run (Leger) test; 2) shuttle run 4x10 meters; 3) sit-ups for 60 sec.; 4) the broad jump. Welch's analysis of variance (ANOVA), with post-hoc testing where necessary, was performed. Results: NWO children had significantly (pp=0.01) lower cardio-respiratory and muscular fitness than NWNO peers. In addition, NWO and OWOB boys had large deficits in strength and explosiveness of lower limbs, speed, coordination and endurance compared to NWNO peers. Implications: Because normal-weight obese children seem to have severe deficits in PF, which is an important, long-term, health parameter. Therefore, surveillance and specific designing of health enhancing interventions for NWO individual is necessary. In addition, normal-weight obese children are indistinguishable from normal-weight non-obese counterparts when following standard surveillance protocols. Therefore, we strongly advocate the development of appropriate methods to identify NWO children.