Impact of a three-week in-hospital multidisciplinary body weight reduction program on body composition, muscle performance and fatigue in a pediatric obese population with or without metabolic syndrome.

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Metabolic syndrome is a combination of cardiometabolic risk factors, frequently detected in obese children and adolescents. To date, few clinical studies have evaluated the effectiveness of multidisciplinary body weight reduction programs on body mass index, body composition, muscle performance and fatigue in pediatric obese subjects suffering from metabolic syndrome, which might represent a sub-population that is more difficult to be treated and worthy of more intensive interventions than a population less metabolically complicated. The aim of the present study was to compare the impact of a three-week in-hospital multidisciplinary integrated body weight reduction program (BWRP) on body mass index (BMI), body composition (particularly, fat mass (FM) and fat free mass (FFM)), motor control (evaluated by one-leg standing balance (OLSB) test), muscle performance (evaluated by the stair climbing test (SCT)) and fatigue (evaluated by fatigue severity scale (FSS)) in a pediatric obese population with or without metabolic syndrome. A pediatric population of 548 obese subjects without metabolic syndrome (F/M = 312/236; age range: 8-18 years; BMI: 36.3 ± 6.7 kg/m^2) and 96 obese subjects with metabolic syndrome (F/M = 53/43; age range: 9-18 years; BMI: 38.3 ± 6.9 kg/m^2) was recruited. The BWRP significantly reduced BMI, FM (expressed as %), SCT time and FSS score, and increased OLSB time in all subgroups of obese subjects, independent of sex and metabolic syndrome, with preservation of FFM. No significant differences in |ΔBMI|, |ΔFM|, |ΔOLSB| or |ΔSCT| times and |ΔFSS| score were found when comparing subjects (males and females) with or without metabolic syndrome, apart from obese females without metabolic syndrome, who exhibited a lower weight loss and FM (expressed as %) reduction when compared to the corresponding male counterpart. In conclusion, the beneficial effects of a three week BWRP on BMI, body composition, muscle performance and fatigue in a pediatric obese population were not found to be different in patients with or without metabolic syndrome, thus indicating that the more metabolically compromised patient is as responsive to a short-term BWRP as the patient without metabolic syndrome. More prolonged follow-up studies are, however, necessary in order to verify whether the adherence to the multidisciplinary recommendations at home and the long-term maintenance of the positive effects in the two subgroups of patients will remain similar or not.

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