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Characteristics of balance control in obese older adults

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Abstract

Obesity is one of the most significant epidemiological trends of the last decades. Obesity is associated with medical conditions such as hypertension, diabetes mellitus, heart disease, cardiovascular morbidity and mortality. A growing body of evidence suggests that excessive body weight is inseparably connected with postural instability , as well as an increased risk of falling. The Objectives of this study was to investigate the effect of obesity on balance control mechanisms in older adults. Both stabilogram-diffusion analysis (SDA) and traditional measures of foot center-of-pressure (CoP) displacements in eyes open condition were used to characterize the postural control in 59 older adults. Of 59 older adults, 19 of the subjects were obese (30-<35 kg/m^2), 22 overweight (25-<30 kg/ m^2) and 18 normal weight (18.5-<25 kg/ m^2) older persons. Obese group subjects demonstrated significantly greater transition displacement, transition time interval and short term-term scaling exponent in the Medio-Lateral-direction compared with overweight and normal weight groups. In the AnterioepPosterior–direction however, only the short term-term scaling exponent was significantly different in obese group subjects compare with overweight and normal weight groups. The traditional measures of postural stability both the average AP-CoP and the ML-CoP ranges of obese group subjects were higher compare with overweight and normal weight groups. This work suggests a deterioration of medio-lateral as well as anterior-posterior postural control is obese older adults, thus they may be at higher risk of fall events.

Biography

Itshak Melzer obtained his BPT in physical therapy in 1985. In 2001 he obtained a PhD in Health Sciences from the Ben-Gurion University Beer-Sheva, Israel, and from 2001 to 2003 he was Post-doctoral research fellow at the NeuroMuscular Research Center, Boston University, Boston, USA. Since 2003 he is the Director of the Schwartz Movement analysis & Rehabilitation Laboratory in the Physical Therapy Department, Recanati School for Community Health Professions, Faculty of Health Sciences at Ben-Gurion University of the Negev, Israel. His research interests include mechanisms of postural control and development of interventions to reduce falls in older adults.

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