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A Comparative Analysis of Shoes Designed for Subjects with Obesity Using a Single Inertial Sensor: Preliminary Results

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Abstract:

Walking remains a highly recommended form of exercise for the management of obesity. Thus, comfortable and adequate shoes represent, together with the prescription of a safe adapted physical activity, an important means to achieve the recommended physical activity target volume. However, the literature on shoes specific for obese individuals is inadequate. The aim of the present study was to compare the performance of shoes specifically designed for subjects with obesity with everyday sneakers during instrumented 6-min walking test and outdoor 30-min ambulation in a group of subjects with obesity using a single wearable device. Twenty-three obese individuals (mean age 58.96 years) were recruited and classified into two groups: deconditioned (n = 13) and non-deconditioned patients (n = 10). Each participant was evaluated with his/her daily sneakers and the day after with shoes specifically designed for people with obesity by means of a questionnaire related to the comfort related to each model of shoes and instrumentally during the i6MWT and an outdoor walking test. The results showed that the specifically designed shoes displayed the higher score as for comfort, in particular in the deconditioned group. During the i6MWT, the distance walked, and step length significantly increased in the deconditioned group when specifically designed shoes were worn; no significant changes were observed in the non-deconditioned individuals. The deconditioned group displayed longer step length during the outdoor 30-min ambulation test. In the non-deconditioned group, the use of specific shoes correlated to better performance in terms of gait speed and cadence. These data, although preliminary, seem to support the hypothesis that shoes specifically conceived and designed for counteracting some of the known functional limitations in subjects with obesity allow for a smoother, more stable and possibly less fatiguing gait schema over time.

Biography:

Dr. Camillo Buratto, graduated in orthoprosthetics in 1986 and 1989, has experience in the field of biomechanics of at-risk patients (diabetic and rheumatics). He participated as speaker in numerous conferences in Europe (Milan, Madrid, Paris) and outside Europe (Sydney, Tokyo, Dubai).

About University/College

PODARTIS
clinically tested footwear

Podartis SRL, Italy

Podartis is an italian company specialising in the production of footwear, insoles, socks, braces and materials for the prevention and treatment of the main pathologies of the gait.

The distinctive point is the research: all products are clinically and biomechanically tested thanks to the collaboration with some of the major experts and some of the world's leading research centers. In evidence there are several studies on diabetes, most notably the world's first diabetic footwear study in 1995; several studies with University of Bologna on the post-surgery and biomeccanics of the gait; recent ones on rheumatic foot and walking studies of patients with stroke outcomes. The patented Podartis products are direct evidence of the company's mission: to help people walk well in order to live better. The continuous innovation of the product has its source in a constant commitment to research. Last but not least Podartis has begun a collaboration with the Auxological institute and University Politecnico of Milan for study and developed a new product line in order to solve the main orthotic problems of obese patients.

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