

Computation of spatio-temporal parameters in level walking using a single inertial system in lean and obese adolescents.

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In recent years, the availability of low-cost equipment capable of recording kinematic data during walking has facilitated the outdoor assessment of gait parameters, thus overcoming the limitations of three-dimensional instrumented gait analysis (3D-GA). The aim of this study is twofold: firstly, to investigate whether a single sensor on the lower trunk could provide valid spatio-temporal parameters in level walking in normal-weight and obese adolescents compared to instrumented gait analysis (GA); secondly, to investigate whether the inertial sensor is capable of capturing the spatio-temporal features of obese adolescent gait. These were assessed in 10 obese and 8 non-obese adolescents using both a single inertial sensor on the lower trunk and an optoelectronic system. The parameters obtained were not statistically different in either normal-weight or obese participants between the two methods. Obese adolescents walked with longer stance and double support phase compared to normal-weight participants. The results showed that the inertial system is a valid means of evaluating spatio-temporal parameters in obese individuals.

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