

# The differences in gait pattern between dancers and non-dancers

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## Abstract

Students in dancing department routinely perform hours of dancing every day. Extreme ankle posture can subject the ankle of the dancers to high stress and can significantly increase the mobility of the ankle. This causes ankle sprain which occurs frequently during daily walking. Measurements of the ground reaction force (GRF) and the center of pressure (CoP) provide useful variables to analyze the walking patterns of dancers, which might help understand the causes of ankle sprain. The aims of this work were (1) to investigate the differences in gait patterns between dancers and non-dancers and (2) to explore the gait characteristics in dancers. Thirteen students in dancing department and twenty age-matched normal healthy subjects were recruited. AU subjects were requested to walk along a 10-meter walkway. Results showed that the dancers have greater medial shear force of the GRF, and decreased the CoP velocity during the pre-swing phase, delayed peak-CoP velocity occurrence during the mid-stance, and straighter CoP trajectory through the forefoot at push off. The intense and demanding dancing activities change the walking pattern of dancers, which may lead to higher chance of getting ankle sprain.