



Correlation between Center of Pressure and Joints Velocity during Sit-to-Walk Task
in the Elderly

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Abstract

Introduction: The elderly could fall due to loss of balance during movement such as sit-to-walk task. The purpose of this study was to evaluate the correlation between the center of pressure and joints velocity of the lower extremities during the sit-to-walk task in the elderly.

Methods: There were forty-five participants, five males, and forty females. All of the participants were assessed the center of pressure (COP) during sit-to-walk task by force platform and the Kinect camera with MFU gait analysis software was used to collect the joints velocity of hip, knee, and ankle. The Spearman Rank Correlation Coefficient was used to analyze the correlation of all variables. The statistical significance was p-value less than or equal to 0.05.

Results: This study found that the COP path length during sit-to-walk task correlated with joints velocity of the hip joint (**p-value 0.021**), knee joint (**p-value 0.041**) and ankle joint (**p-value 0.029**). Nevertheless, the COP velocity not correlated with joint velocity during sit-to-walk task

(**p-value>0.05**).

Conclusions: COP path length was correlated with the center of pressure during sit-to-walk in elderly humans.

Keywords: Sit-to-walk, Elderly, Center of pressure, Joint velocity