SWACSM Abstract

Impact of Latin Ballroom Dancing on Gait Biomechanics

GRACE HANKS, & TYLER STANDIFIRD

Department of Exercise Science and Outdoor Recreation; Utah Valley University; Orem, UT

Category: Undergraduate

Advisor/Mentor: Standifird, Tyler (tyler.standifird@uvu.edu)

ABSTRACT

Purpose: Past research has focused on biomechanical changes, kinematic differences, and injury rates among dancers compared to healthy non-dancers. This research has shown that there are differences biomechanically between dancers and healthy non-dancers which indicates that various forms of dance training has both potential short- and long-term effects on an individual (Yihong et al, 2018, Prochazkova et al, 2014, Tepla et al, 2014, Turner et al 2018). The purpose of this study is to analyze the effect of Latin ballroom dance training on gait. **Methods:** 24 participants, (12 Latin dancers, 12 recreationally active non-dancers; 12 males,12 females) between the ages of 18 and 25 walked on a GaitRite system (CIR Systems, Inc., Franklin, NJ) and Bertec force plates (Bertec, Inc, Colmbus, OH) and were videoed using the OnForm smartphone application (OnForm, Inc., 2022) to collect data. Next, the data was analyzed in Visual 3D software (5.0, C-Motion, Inc., Germantown, MD, USA) and in Excel (Microsoft Corporation, 2018). The results were compared using an independent t test to analyze differences between the dancers and non-dancers in the lower left limb's toe in/out angles, knee varus/valgus angles, peak medial/lateral ground reaction forces (GRF), peak anterior propulsion impulse, peak braking GRF, and peak loading vertical GRF. **Results:** The data showed that there were no statistically significant differences between dancers and non-dancers for the following: toe in/out angles (p=0.8785), knee varus/valgus angles (p=0.3139), peak medial GRF (p=0.3788), peak lateral GRF (p=0.1669), anterior propulsion impulse (p=0.2179), peak braking GRF (p=0.3516), and peak loading vertical GRF (p=0.0958). **Conclusion:** This data indicates that Latin ballroom dance training has no effect on gait biomechanics in toe in/out angles, knee varus/valgus angles, peak medial/lateral GRF, peak anterior propulsion impulse, peak braking GRF, and peak loading vertical GRF for the left lower limb. Further study is needed to determine any potential effect Latin ballroom dancing has on the right lower limb, and to also determine Latin ballroom dance's effects on lower limb imbalances between the right and the left side.