2017

Lower leg and foot contributions to turnout in university-level female ballet dancers: A preliminary investigation

Sarah Carter  
*Edith Cowan University, University of Western Australia*

Alan R. Bryant  
*University of Western Australia*

Luke Hopper  
*Edith Cowan University*

Follow this and additional works at: [https://ro.ecu.edu.au/ecuposters](https://ro.ecu.edu.au/ecuposters)

Part of the Dance Commons, and the Podiatry Commons


**Recommended Citation**


This Book is posted at Research Online.  
Functional turnout in ballet involves maximal external rotation through the lower limb kinetic chain.

Dancers will tend to increase their functional turnout angle through additional tibiofemoral external rotation and pronation of the foot/ankle complex.¹ ¹¹ (Figure 1 - 3)

Hip external rotation measures in functional turnout has received extensive examination in dance science.² - ⁵

The relationship between the ‘below the hip’ assessments with functional turnout is poorly understood.

Nineteen female university-level classical ballet and modern dance students (mean age 17.9 ± 0.9 years) volunteered in this descriptive correlational study.

Navicular drop, FPI, pTFR (Figure 4) and functional turnout were measured for the participants’ right and left lower limbs. Measures of pronation were conducted with the dancer standing in parallel and turnout.

A multiple linear regression model was used to estimate the amount of variance in functional turnout which can be explained by the measured variables.

Stepwise multiple linear regression model analyses revealed a weak relationship between pTFR and functional turnout, with the latter accounting for approximately 19.0 % variance of functional turnout.

Spearman’s rho correlation analysis revealed a moderate negative relationship between pTFR and FPI in functional turnout (ρ = -0.47, P = 0.043).

Results suggest dancers with limited tibiofemoral rotation recruited pronation about the foot/ankle complex to further increase their functional turnout angle.

Our findings suggest dancers used variable amounts of motion at the anatomical locations depending on their functional and anatomical capability.

Ongoing research would benefit from in situ measures of dancers’ lower leg contributions to functional turnout such as that provided by modern three-dimensional biomechanical evaluations.

The dancers from the Advanced Diploma of Dance program at the WAAPA at ECU who participated in this study. The second and third year UWA Podiatric Medicine Students for their assistance during data collection. Rebekha Duncan for the video file. The financial support the Australian Postgraduate Award scholarship.