<table>
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<td>Title</td>
<td>Postural sway in dancers and non-dancers</td>
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Abstract

This study examines the differences in postural control between dancers and non-dancers. Both linear and nonlinear approaches in the quantification of postural control were adopted in line with current understanding of two differing paradigms in motor control and learning, namely motor programme approach and dynamical systems approach. A total of 65 male participants took part in the study, comprising of 31 male dancers (M_{age}=23.6 years ± 3.1, dance experience M_{years} = 4.4 ± 2.3) from various dance schools and 34 non-dancers (M_{age}= 22.9 years ± 2.6) from various tertiary schools in Singapore. They performed a 4-step dance routine, after which they hopped forward onto a force plate with their dominant leg and balance for a period of 30 seconds. Maximum sway and approximate entropy on the medial-lateral (M-L) direction and the anterior-posterior (A-P) direction were measured. Independent t-tests found significant differences displayed by dancers in maximum sway than non-dancers in both the M-L (M= 0.026 mm ± 0.003 mm vs. M = 0.03 mm ± 0.007mm) and the A-P (M = 0.03 mm ± 0.005 mm vs. M = 0.07 mm ± 0.02 mm) directions, (all p< .05). Independent t-tests also found significantly lower approximate entropy in dancers than non-dancers in both the M-L (M = 0.27 ± 0.05 vs. M = 0.33 ± 0.06) and the A-P (M = 0.16 ± 0.07 vs. M = 0.20 ± 0.07) directions, (all p< .05). The findings in this study, explained via the two different theoretical approaches suggest that dancers adopts a different strategy in assuming postural control in terms of maintaining stability.

Keywords: dance, entropy, maximum sway, linear, nonlinear