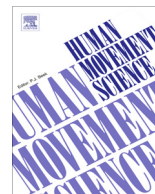




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Human Movement Science

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Physiological and perceptual responses to Latin partnered social dance

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ARTICLE INFO

Article history:

PsycINFO classification:

3365
2540
3740

Keywords:

Accelerometer
EBBS
IMI
Physical activity
Salsa

ABSTRACT

The purpose of this study was to investigate the physiological and perceptual responses to Latin partnered social dance to salsa music when performed as a self-selected activity within an ecologically valid setting. Eighteen non-professional adult Latin dancers undertook a laboratory-based graded exercise test for determination of maximal oxygen uptake and maximal heart rate. The dancers then attended two Latin partnered social dance sessions in established salsa venues in London, UK over a 2 wk period. Physiological data were collected using a wrist-worn ActiGraph wGT3X+ accelerometer with accompanying heart rate monitor. Perceived benefits of dance were assessed via the Exercise Benefits/Barriers Scale, and measurement of state intrinsic motivation during dance was undertaken using the Intrinsic Motivation Inventory. Total step count during 2 h of dance was not different ($t_{16} = -.39, p = .71$) between females and males (9643 ± 1735 step); however, women expended a significantly lower ($t_{16} = -2.57, p < .05$) total energy expenditure when compared to men (479 ± 125 versus 651 ± 159 kcal). Dancers of both genders considered interest-enjoyment to be the motivator of primary importance. The highest rated perceived benefit of dance was psychological outlook. Latin partnered social dance to salsa music demands moderate to vigorous physical activity intensity levels, and further, fosters interest, enjoyment, and a positive psychological outlook among novice to advanced adult Latin dancers taking part primarily for leisure purposes. These findings may be of use for those interested in the effi-

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cacy of Latin social dancing as an expressive medium for the promotion of community health.

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1. Introduction

Despite recognition that physical activity (PA) enhances health-related quality of life (Anokye, Trueman, Green, Pavey, & Taylor, 2012) and serves as a protective agent against the overall burden of disease (World Health Organization [WHO], 2010), almost half of all adults in high-income countries remain insufficiently physically active (WHO, 2011). The benefits of regular PA are firmly established in terms of a reduced risk for the major non-communicable diseases currently threatening global health (Lee et al., 2012). Additionally, and having also received extensive attention in the literature, PA is considered able to improve mental health and psychological well-being (Garber et al., 2011; WHO, 2005). Exercise has been shown to be therapeutically beneficial for both anxiety and depression (Carek, Laibstain, & Carek, 2011), and positive correlations exist between PA and self-esteem and physical self-perceptions (Opdenacker, Delecluse, & Boen, 2009).

Dance, a creative leisure pursuit when performed frequently enough to accrue a volume that meets the recommended health maintenance guidelines of at least 150 min of moderate intensity PA weekly (WHO, 2010), may prove to be an efficacious activity for community-wide recommendation (Burkhardt & Rhodes, 2012). Latin dance to salsa music has been investigated for its potential to positively affect both physical (Di Blasio, De Sanctis, Gallina, & Ripari, 2009; Emerenziani et al., 2013) and psychosocial health (Birks, 2007). Recently, we undertook an assessment of Latin dance using the objective measurement method of combined accelerometry and heart rate (HR) telemetry (Domene & Easton, 2014). Although the study was laboratory-based, a quantification of the characteristics of Afro-Cuban salsa was established. However, as this dance genre is generally performed in a social context (i.e., with partners and in established salsa venues), additional investigation is warranted as only one previous study (Emerenziani et al., 2013) has attempted to evaluate the physiological demand of Latin partnered social dance within an ecologically valid setting. The aforementioned research estimated energetic cost based on the relationship between HR and oxygen uptake (VO_2) established during a non-dance-specific task. HR recording and the use of non-dance-specific calibration procedures have now been shown to be techniques that are less accurate for the determination of energy expenditure (EE) in this particular dance genre when compared to the activity-specific method of motion sensing with HR recording (Domene & Easton, 2014).

The measurement of stepping cadence during Latin partnered social dance has not previously been attempted, despite step count (SC) being a frequently used metric in the study of PA engagement (Tudor-Locke et al., 2011). The strengths and limitations of objectively measuring SC during ambulatory bipedal locomotor activities, including dance, were recently reviewed by Tudor-Locke and Rowe (2012). A measure of SC during dance would serve not only as an adjunct indicator of PA volume and intensity, but may also be of utility for dance-oriented health promotion strategies. Although certain gait parameters of dance would not necessarily be expected to match those observed when walking or running (Tudor-Locke & Rowe, 2012), the SC metric in a dance context is still meaningful for a comprehensive evaluation of the activity. Furthermore, we have previously demonstrated under laboratory conditions the validity and reliability of the measurement of SC during performance of Latin dance (Domene & Easton, 2014).

From the self-determination perspective (Ryan, Williams, Patrick, & Deci, 2009), the fulfillment of competence, autonomy, and relatedness needs have been theorized to contribute to intrinsic motivation (IM) for PA and its adherence. It is known that PA adherence is increased under enjoyable and socially supportive environments (Wankel, 1993), and as such, it could be argued that Latin dance is likely a holistic activity that has the potential to foster both physical and mental health. At the present time, however, the IM of non-professional adult Latin dancers has not been investigated in a social

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