

Are dance-based interventions effective in fall prevention: a systematic review and meta-analysis

Michèle Mattle, Zürich, CH

Background:

Dancing is a form of rhythmic human movement, involving the coordination of different body parts. This requires motor as well as cognitive functions. It is often performed to music and in social interaction with others (Richter J et al., 2016). There is evidence that seniors with a dancing history outperform non-dancers in balance, leg reaction time, functional capacity, and that their quality of life is better (Serra MM et al., 2016; Shanahan J et al., 2016; Zhang J-G et al. 2008). A person's risk of falling is associated with these physiological and mental capabilities (Rubenstein LZ et al., 2006). Hence, we hypothesize that dance-based activities are effective in reducing the risk of falls.

Aim:

We performed a systematic literature review and a meta-analysis, comparing the impact of different dance-based interventions on the risk of falls and on fall-related physiological outcomes in seniors aged 65 and older. In this presentation, we will discuss preliminary results of the meta-analysis and illustrate the challenges of proving evidence for the impact of dance-based interventions to prevent falls. Specifically, we will discuss the challenges summarizing this evidence given the small number of available studies and examine whether interventions such as Tai Chi should be considered a mind-motor method that is similar to and comparable with other dance-based interventions.

Methods:

Scientific reports published until October 2015 were included. From 2895 screened publications, 32 were identified to be relevant for further analyses. The following outcome parameters were pooled: number of fallers, fall risk ratio as well as physiological parameters that have a direct impact on the risk of falls, such as balance, strength, and mobility.

Relevance:

Systematic and quantitative evaluation of the effect of dance-based interventions on healthy aging is highly relevant for future research and clinical application:

1. The reporting of outcomes in dance-based interventions needs to be standardized to enable direct inter-study comparisons and provide evidence for their impact.
2. The strongest factors to reduce the risk of falls need to be identified, given that dance-based interventions exist in a variety of forms and the impact on healthy aging is not related to a single aspect.

In this combined approach, we provide evidence for the benefits of dance-interventions which serves as justification for dance-based fall prevention programs.

References:

Richter J et al., 2016
 Serra MM et al., 2016; Shanahan J et al., 2016; Zhang J-G et al. 2008
 Rubenstein LZ et al., 2006

Kurzbiografie der Referentin:

2017: Master in Public Health Practice (MPH), University of Arizona, Phoenix, USA
 Since 2016: Doctoral Student Clinical Sciences, University of Zurich
 Since 2015: Research Assistant; Centre on Aging and Mobility, University of Zurich
 2010-2015: Study Coordinator; Horten Centre, University of Zurich
 2010: MSc ETH Zurich in Human Movement Sciences, specialization in biomechanics
 Since 2007: Training leader for dance at ASVZ (Akademischer Sportverband), Zurich