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Effects of different types of dance intervention on body composition: A systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 January 2025 and was last updated on 23 January 2025.

INTRODUCTION

Review question / Objective The systematic review aimed to review the research on the effects of dance interventions, relative to normal lifestyles, on body composition.

Condition being studied In recent years, various forms of exercise have been substantiated to significantly ameliorate body composition. However, conventional exercise (such as running, cycling, and swimming) is excessively monotonous, posing challenges for adherence. Dance, as a form of exercise engaging multiple joints, not only proves to be efficacious in body composition but also boasts amusement value, rendering it more conducive for people to exercise habit formation. The benefits (no matter physical or mental) that dance brings to people have been widely proven.However, there is no consensus on the specific impact of dance on body composition.

METHODS

Search strategy In the search process, the following combination of keywords were used: (body mass" OR "BM" OR "body weight" OR "BW" OR "Body mass index" OR "BMI" OR "fat mass" OR "FM" OR "waist-circumference" OR "WC" OR "waist-to-hipratio" OR "WHR" OR "HIP" OR "body composition) AND ("Dance" OR "Ballet" OR "Square Dance" OR "Dance, Square" OR "Hip-Hop Dance" OR "Dance, Hip-Hop" OR "HipHop Dance" OR "Jazz Dance" OR "Dance, Jazz" OR "Tap Dance" OR "Dance, Tap" OR "Modern Dance" OR "Dance, Modern" OR "Salsa Dancing" OR "Dancing, Salsa" OR "Line Dancing" OR "Dancing, Line").

Participant or population Dancer.

Intervention Dance and other forms of dance.

Comparator Dance and other forms of dance.

Study designs to be included RCT.

Eligibility criteria All the researchers were screened following the criteria shown in Table 1. The following PICOS criteria were used on the screen:(1) There is no serious limitation on the subjects. People with serious diseases and animal-based subjects were left out; (2) Only studies that used dance as the main intervention were included in the analysis. No limitation was set on the intensity and form of dance. Participants were undergoing at least 4 weeks of dancing intervention. Any combined intervention(e.g., dancing combined with resistance training) was eliminated during the screening; (3) The included studies comprised a control group that undertook a normal lifestyle. The participants in the control group were asked to maintain their current lifestyle; (4) The primary data related to body composition(body mass(BM), BMI, waist circumference(WC), Fat(%), fat mass(Fat(kg)), and waist-to-hip ratio(WHR) were included. The outcomes were all directly reported in the studies, the recalculated values were excluded; (5) Research involving randomized controlled trials(RCT) written in English and Chinese. Books, Observational studies, reviews, and studies without adequate data were left out.

Information sources CNKI, Wanfang, CBM, Pubmed, Embase, Cochrane, Web of science.

Main outcome(s) body mass(BM), BMI, waist circumference(WC), fat mass percent(Fat(%)), and fat mass(Fat(kg)).

Quality assessment / Risk of bias analysis The appraisal was carried out by 2 researchers. Considering dance is a form of physiotherapy. a Physiotherapy Evidence Database (PEDro) scale[[[] Albanese E, Bütikofer L, Armijo-Olivo S, Ha C, Egger M. Construct validity of the Physiotherapy Evidence Database (PEDro) quality scale for randomized trials: Item response theory and factor analyses. Res Synth Methods. 2020;11(2):227-236. doi:10.1002/jrsm.1385]] was used to assess the quality. The encompassing external validity (1 item), internal validity (8 items), and statistical reporting (2 items) of the eligible studies were checked to assess the quality. All items are rated yes or no according to whether the criterion is satisfied in the study.

Strategy of data synthesis Revman 5.4 and Stata 15 were applied to perform the meta-analysis in this review. The mean ± standard deviation(SD), standard error(SE), or 95% confidence intervals(95%CI) of changes between pre and post-intervention(if not reported, the changes were calculated through the pre and post-intervention data) were extracted. The mean±SD of the changes was used to compare the between-group differences. Considering the differences between dance interventions this review included(forms, duration, and so on), the random effect model was adopted for all the outcomes. The mean difference(MD) was used to complete the effect size(ES).

Subgroup analysis To further test the sensitivity, we carried out several subgroup analyses. The analyses were performed to investigate whether the differences between the participants and the dance interventions can influence the final result. Age(<55 years and ≥55 years, as exercise capacity was observed to have most prominently declined after the sixth decade of life[[[] Blaha MJ, Hung RK, Dardari Z, et al. Age-dependent prognostic value of exercise capacity and derivation of fitness-associated biologic age. Heart. 2016;102(6):431-437. doi:10.1136/heartjnl-2015-308537]]), dance forms(traditional dance(has a fixed form and has been passed down for over 20 years) and creative dance(a dance form innovated by researchers)), and Duration(<3 months and ≥3 months) were assigned as subgroups.

Sensitivity analysis The heterogeneity among studies was quantified using Cochran's Q test and the inconsistency I2 test. The sensitivity analysis was conducted to explore the heterogeneity. The publication bias was assessed through the funnel plots and Egger's test.

Language restriction None.

Country(ies) involved Malaysia.

Keywords Dance; normal lifestyle; body composition; meta-analysis.

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