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EFFECT OF DANCE INTERVENTIONS ON THE PHYSICAL CAPACITY OF ELDERLY WOMEN: A SYSTEMATIC REVIEW

EFEITO DE INTERVENÇÕES DE DANÇA NA CAPACIDADE FÍSICA DE IDOSAS: UMA REVISÃO SISTEMÁTICA

EFECTO DE LAS INTERVENCIONES DE DANZA SOBRE LA CAPACIDAD FÍSICA DE MUJERES MAYORES: UNA REVISIÓN SISTEMÁTICA

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ABSTRACT

Aim: The aim of this study was to examine the effects of dance on the physical fitness of older women.

Methods: This is an integrative literature review covering the period from 2013 to 2023. The selection was based on combinations of the following descriptors: dance, elderly, women, physical fitness, physical capacity, flexibility, balance, muscular strength, speed, and cardiorespiratory fitness. Searches were conducted in the PubMed, LILACS, Scopus, Web of Science, and Cochrane Library databases. Studies were included if they investigated women aged 60 years or older who participated in dance programmes lasting at least eight weeks. Methodological quality and risk of bias were assessed according to the criteria established by the Cochrane Collaboration.

Results: The search identified 331 articles, of which 10 met the inclusion criteria. The findings revealed statistically significant improvements in cardiorespiratory fitness, muscular strength, balance, flexibility, agility, and gait speed among participants. However, no significant changes were observed in body mass index.

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Conclusions: The results support the viability of dance as an effective intervention for improving physical fitness in older women.

Keywords: Physical Fitness. Dancing. Aging. Exercise.

RESUMO
Objetivo: O objetivo deste estudo foi examinar os efeitos da dança na aptidão física de mulheres idosas.

Métodos: Trata-se de uma revisão integrativa da literatura, abrangendo o período de 2013 a 2023. A seleção foi baseada em combinações dos seguintes descritores: dança, idosos, mulheres, aptidão física, capacidade física, flexibilidade, equilíbrio, força muscular, velocidade e aptidão cardiorrespiratória. As buscas foram realizadas nas bases de dados PubMed, LILACS, Scopus, Web of Science e Biblioteca Cochrane. Os estudos foram incluídos se investigassem mulheres com 60 anos ou mais que participassem de programas de dança com duração mínima de oito semanas. A qualidade metodológica e o risco de viés foram avaliados de acordo com os critérios estabelecidos pela Colaboração Cochrane.

Resultados: A busca identificou 331 artigos, dos quais 10 preencheram os critérios de inclusão. Os achados revelaram melhorias estatisticamente significativas na aptidão cardiorrespiratória, força muscular, equilíbrio, flexibilidade, agilidade e velocidade da marcha entre as participantes. No entanto, não foram observadas alterações significativas no índice de massa corporal.

Conclusões: Os resultados corroboram a viabilidade da dança como uma intervenção eficaz para melhorar a aptidão física em mulheres idosas.

Palavras-chave: Aptidão Física. Dança. Envelhecimento. Exercício.

RESUMEN
Objetivo: El objetivo de este estudio fue examinar los efectos de la danza en la condición física de mujeres mayores.

Métodos: Se realizó una revisión bibliográfica integradora del período 2013-2023. La selección se basó en combinaciones de los siguientes descriptores: danza, personas mayores, mujeres, condición física, capacidad física, flexibilidad, equilibrio, fuerza muscular, velocidad y capacidad cardiorrespiratoria. Se realizaron búsquedas en las bases de datos PubMed, LILACS, Scopus, Web of Science y la Biblioteca Cochrane. Se incluyeron los estudios que investigaban a mujeres de 60 años o más que participaban en programas de danza de al menos ocho semanas de duración. La calidad metodológica y el riesgo de sesgo se evaluaron según los criterios establecidos por la Colaboración Cochrane.

Resultados: La búsqueda identificó 331 artículos, de los cuales 10 cumplieron los criterios de inclusión. Los hallazgos revelaron mejoras estadísticamente significativas en la condición cardiorrespiratoria, la fuerza muscular, el equilibrio, la flexibilidad, la agilidad y la velocidad de la marcha de las participantes. Sin embargo, no se observaron cambios significativos en el índice de masa corporal.

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Conclusiones: Los resultados respaldan la viabilidad de la danza como una intervención eficaz para mejorar la condición física en mujeres mayores.

Palabras clave: Aptitud Física. Baile. Envejecimiento. Ejercicio.

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1 INTRODUCTION

The world's population is aging rapidly. According to the United Nations Population Fund report, by 2050, the population over 60 will account for 22% of the world's population[1,2]. Although this trend is more pronounced in developed countries, it is a global phenomenon that affects developing countries[3]. In most countries, however, life expectancy is improving slowly, and the last decade of life has resulted in poor health[4].

Is a natural, multifaceted event associated with a decline in functional capacity. This decline leads to reduced muscle strength and muscle mass, accelerates frailty, and exacerbates chronic health problems[5], which may be aggravated by a sedentary lifestyle[6]. Functional capacity (i.e., aerobic capacity, walking speed, and muscle strength) has been proposed as a biomarker of healthy aging, as it predicts adverse health events, such as disability and mortality[7].

The American College Sports Medicine currently endorses physical activity as a critical intervention to promote healthy aging, including maintaining muscle mass and physical function[8]. Promoting the maintenance of muscle mass in older individuals is particularly important for older women, who typically have lower muscle mass than men do and are more likely to develop sarcopenia and related morbidities[9]. Dance has been identified as one of the most preferred forms of physical activity for sedentary older adults[10], and interest in providing a combination of physical, cognitive, and social activities that may be useful in mitigating age-related diseases has recently increased in the scientific community[11].

Although the benefits of dance for older people have been previously documented[12, 13], more studies on the effects of dance exercise on physical fitness in older women are needed. Most previous studies have focused on dance and other exercises, such as walking, yoga, stretching, and resistance[14]. In addition, robust experimental studies focused on assessing the physical capacity of women over 60 years of age who participate in regular dance sessions must be appliedconducted. Therefore, this systematic review aimed to assess the effects of dance interventions on the physical capacity fitness of older women.

2 METHODS

This systematic review was conducted in July 2023. The review protocol was registered with PROSPERO (Centre for Reviews and Dissemination) under the registration number CRD42023443148. The PRISMA 2020 guidelines[15] were followed for the reporting checklist, and studies were selected and reported based on the PICOS framework.

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2.1 SEARCH

Keyword searches were conducted across all major scientific databases, including PubMed, Web of Science, Scopus, LILACS, and the Cochrane Library. The search strategy employed Medical Subject Headings (MeSH) and related entry terms as follows: (dance OR dance therapy OR dancing OR salsa dancing OR salsa) AND ((elderly AND women) OR (older women)) AND (physical fitness OR human physical conditioning OR flexibility OR balance OR muscle strength OR coordination OR motor coordination OR reaction time OR cardiorespiratory fitness). A filter for human studies was applied across all databases, with no restrictions regarding language.

2.2 ELIGIBILITY CRITERIA

The eligibility search strategy was guided by the following research question: "What is the impact of dance sessions on the physical capacity of older women?", which is based on the PICOS framework. PICOS: **Population (P):** older women (aged ≥60 years), with no restrictions regarding ethnicity or nationality. Studies involving professional dancers were excluded from this review. **(I) Intervention:** dance interventions with a minimum frequency of ≥ eight weeks, with no restrictions on type or duration. Dance interventions combined with other forms of exercise were excluded from this review. **(C) Comparator:** any control group (e.g., a group). **(O) Outcomes** included cardiorespiratory endurance, functional fitness, upper and lower limb strength and endurance, upper and lower limb flexibility, agility and dynamic balance, functional mobility, and body composition (secondary outcome). **(S) Study design:** The eligible study designs consisted of randomized controlled trials, prospective cohort studies, and experimental research published within the past ten years.

2.3 STUDY SELECTION

Study selection was conducted independently by two reviewers (M.F.C. and T.S.M.) using the Rayyan platform, developed by the Qatar Computing Research Institute (QCRI). The selection process followed the PRISMA 2020 flow diagram[15]. Initially, duplicate records were removed, followed by a screening of titles and abstracts based on predefined eligibility criteria. Studies deemed potentially relevant were then retrieved for full-text assessment to verify compliance with the inclusion criteria. Any discrepancies between reviewers were resolved through consensus, with the involvement of a third reviewer when necessary (T. R. P. O.).

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2.4 STUDY RISK OF BIAS ASSESSMENT

The risk of bias was independently evaluated by two reviewers (M.F.C. and T.S.M.) using the tools recommended by the Cochrane Collaboration: RoB 1 (Risk of Bias in Non-randomised Studies of Interventions) for non-randomised intervention studies (NRIS) and RoB 2 for randomised controlled trials (RCTs)[16,17].

For NRIS, the RoB 1 tool assesses eight domains of bias, encompassing the following phases: 1) bias due to confounding and 2) bias in the selection of participants; 3) bias in the classification of interventions (at the time of intervention); 4) and postintervention domains, including 5) bias due to deviations from intended interventions, 6) missing data, outcome measurement, 7) selective reporting and 8) other potential sources of bias.

For RCTs, the RoB 2 tool evaluates the following nine domains: 1) random sequence generation; 2) allocation concealment; 3) blinding of participants and staff; 4) performance bias and detection bias; 5) blinding of outcome assessment; 6 blinding of outcome assessment objective measure; 7) incomplete outcome data; 8) selective reporting; 9) other sources of bias.

Any discrepancies between reviewers were resolved through consensus or, when necessary, through adjudication by a third reviewer (T.R.P.O.). To ensure methodological rigour, an adapted inclusion criterion was applied regarding risk of bias: studies were required to demonstrate a low risk of bias in at least five out of the eight RoB 1 domains or six out of the nine RoB 2 domains—equivalent to a minimum threshold of 60% of domains rated as low risk. In cases where disagreement persisted, the third reviewer conducted a final evaluation to determine study eligibility.

Inter-rater reliability was assessed using the Kappa coefficient to evaluate agreement between the two primary reviewers and to validate the protocol criteria. A Kappa value of 0.80 was achieved during the pilot screening of the first 100 abstracts. Subsequently, during both the abstract screening and full-text review phases, a Kappa value of 0.88 was recorded, indicating a high degree of concordance.

3 RESULTS

The initial search yielded 331 studies. After removing 68 duplicates, 262 articles remained for screening of titles and abstracts. Of those, 247 were excluded because they did not meet the inclusion criteria. The main reasons for exclusion were that the objectives were not aligned with the research question; the interventions were inappropriate; the exercise

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modalities were combined; the intervention duration was less than eight weeks; male participants were included; the study populations were under 60 years of age; the control groups were unsuitable; and the articles were reviews. A total of 34 articles were selected for full-text analysis. Following a detailed evaluation, 24 articles were excluded for the aforementioned reasons. Consequently, ten studies met all the eligibility criteria and were included in the final systematic review (Figure 1).

3.1 STUDY CHARACTERISTICS

In this systematic review, five selected studies were randomized controlled trials, and five were nonrandomized (Table 1). In studies conducted in Portugal, Spain and Brazil, the sample size ranged from 34 to 57 participants[18-22]. In one study conducted in Colombia, the sample size was 27 participants[23]. In three studies conducted in Poland, the sample size ranged from 24 to 73 participants[24-26]. Only one study, conducted in Australia, had a much larger sample size of 424 participants[27]. All of the studies were published between 2015 and 2022. The sample sizes of the studies ranged from 24 to 424, with an average age of 70.14 ± 2.92 years. The duration of each dance session varied between studies from 40--60 minutes. The dance sessions in the studies ranged from 8--48 weeks. Most studies conducted the dance sessions three times a week, whereas other studies[19, 25, 26] had a frequency of twice a week. The tests used to assess physical capacity are detailed below.

3.2 RISK OF BIAS ASSESSMENT

The majority of the studies assessed using the RoB 1 (Figure 2) and RoB 2 (Figure 3) tools were classified as presenting either a low risk of bias[18, 20–22, 25–27] or an unclear risk of bias[19, 23, 24]. These classifications indicate that at least 60% of the evaluated domains in these studies met the criterion for low risk of bias, in accordance with the methodological threshold established for inclusion in this review.

3.3 DANCE STYLES

The dance styles of the studies included in this review were mixed (Table 2), with creative dance[18]; dance therapy, sevillanas, flamenco and ballet[20]; dance therapy[24]; Caribbean Colombian rhythms porro, cumbia, fandango and bullerengue[23]; ballroom dances, rock and roll, foxtrot, waltz, salsa, and rumba[27]; ballroom dances, waltz, bolero, forró[19;] virtual

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dance Funkytown, Galang' 05, Down, Brick House, Jungle Boogie[21, 22]; and improvisational dance[25, 26].

3.4 EFFECT OF DANCE ON PHYSICAL CAPACITY

Table 3 shows that dance intervention has an impact on the following aspects of physical capacity: aerobic endurance; flexibility; and lower body strength, agility, balance, and speed.

Three studies that assessed cardiorespiratory capacity reported an increase when comparing dance and no intervention[18-20]. Flexibility was evaluated in four studies in this review[18, 20, 22, 23]. The dance promoted increases in general flexibility[20, 22], lower body flexibility[18, 23], and upper limbs[23].

Three of the four studies that assessed strength reported an increase in lower body strength in the dance group intervention[18], [19, 23]. The dance promoted an increase in agility in five of the six studies that assessed this capacity[18-20, 23, 24]. In terms of balance, six of the seven studies that evaluated this parameter reported improvement[18-20, 23-26].

Among the four studies that assessed differences in speed before and after dance intervention[20, 21, 26, 27], three reported improvements in speed compared with the control group[20, 26, 27]. Only one study[21] reported no difference between groups.

3.5 SECONDARY OUTCOME - BODY COMPOSITION/BMI

This section presents a secondary outcome introducing a new comparative parameter, analysing the effects of dance on body weight and body mass index (BMI)[18, 20-22]. Among the ten studies included, only four assessed BMI. Three of these studies did not identify statistically significant differences between the groups[20-22], whereas one study reported an increase in weight gain in the dance group compared with the control group[18].

5 DISCUSSION

To our knowledge, this is the first study to systematically review the literature on how different dance styles impact the physical fitness of older women. The review analyzed ten articles investigating various dance styles and their effects.

The interventions examined varied significantly in several key aspects, including dance style, session frequency and duration, exercise intensity, and outcome assessment methods.

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Dance styles: The studies encompassed a wide range of genres, including ballroom, folk, dance therapy, and creative dance. Each genre is characterized by distinct movements, rhythms, and cultural contexts. This diversity complicates direct comparisons between studies because different styles may affect the desired outcomes differently.

Session Frequency and Duration: Considerable variability was noted in session frequency (ranging from once to four times per week) and duration (40 to 60 minutes). These differences directly influence the intensity and potential effects of the interventions, thereby posing challenges to meaningful data aggregation.

Assessment Methods: The studies used different instruments and metrics to evaluate physical abilities, such as balance, strength, and agility. The lack of standardization in these methods compromises the comparability of the results, as well as the validity of a meta-analytic synthesis.

Therefore, a qualitative approach was adopted for this systematic review. This approach allows for a more nuanced, context-sensitive analysis of the available evidence while respecting the specific methodologies of each study.

The study compared the physical fitness of a group of women who participated in dance sessions with that of another group who did not receive any intervention or care. The research assessed various aspects of physical fitness, including cardiorespiratory endurance, functional fitness, upper and lower limb strength and endurance, flexibility, agility, balance, and overall body composition. All studies, except one[21], demonstrated significant improvements in physical fitness in categories such as cardiorespiratory endurance, flexibility, strength, balance, agility, and speed.

Not surprisingly, there was no improvement in body composition/BMI. During aging, moderate exercise or recreational activity promotes an average increase in body fat mass of 7.5% and a decrease in lean body mass of 2% per decade[28]. However, as no significant adverse changes were observed, it is possible to consider dance as a means of maintaining or improving the body composition of practitioners. We suggest that the only study[18] that reported an increase in weight gain in the dance group compared with the control group may have been due to dance movements (such as isometric movements in ballet pliés or fast movements in ballrooms), which improve functional fitness in older people by strengthening their bodies[29]. On the other hand, body mass index has significant limitations, as it does not provide information on fat distribution and cannot distinguish between different body

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masses[30]. Therefore, methods that can more accurately assess body composition, such as electrical bioimpedance, should be considered[31].

The functional capacity measures analysed in this review are essential for identifying the physiological parameters that support physical mobility and independence in older people[32]. They are also commonly used in baseline functional capacity testing in older people[33]. In addition, in a previous study with older adults, three sessions per week and 60 min/12 weeks of aerobic dance (styles from Soul Sexy Jazz) promoted beneficial effects on flexibility, grip strength and balance, allowing them to perform daily tasks[34] independently.

Three clinical trials[18-20] reported improved cardiovascular endurance after dance intervention, as measured by the 6-minute walk test (6MWT), a valid measure of functional exercise capacity and endurance. The 6MWT is a widely available, easy-to-use, and well-tolerated test for assessing functional capacity in older individuals. The six-minute walk test (6MWT) can provide reliable information regarding older individuals daily activities and short-term prognosis[35]. Interestingly, previous studies using the 6MWT reported similar results, indicating that traditional dances may be a viable exercise intervention for improving cardiorespiratory fitness[11, 34, 36, 37].

Four studies reported improved flexibility after dance participation, mainly in the lower body[18, 20, 22, 23], as assessed by the sit-and-reach test. The sit-and-reach test measures the flexibility of the lower back and hamstrings. This is crucial because tightness in this area is associated with lumbar lordosis, lower back pain, and forward pelvic tilt in older people. Studies with older people of both sexes using the sit-and-reach test have shown a significant improvement in flexibility after intervention with Greek traditional dances (2 times a week, 75 min, 32 weeks)[38].

Three studies reported significant improvements in the standing chair test[18, 19, 23], which measures lower limb strength and power, indicating fitness for daily activities such as climbing stairs and reducing the risk of falls[38]. Similarly, another study of older people reported that traditional Greek dance (2 times a week, 60 minutes, ten weeks) effectively improved static and dynamic balance over a 10-week intervention[39]. Most trials have assessed balance in older women, mainly using the Timed Up and Go[18] and 8-foot Up and Go Tests. According to the American College of Sports Medicine, the Timed Up-and-Go Test is the most widely used functional assessment of general physical function in older adults in research settings because of the variety of task demands involved[33].

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The leg movements developed during dancing can significantly strengthen the lower limbs and improve balance in older adults, offering a promising avenue for enhancing their physical health. According to five studies, dancing can lead to a substantial increase in agility in elderly women[11]. In a similar study, Duncan and Earhart[40] reported that after a 24-month period of dance intervention with the Argentine tango, participants significantly reduced their time on this test, indicating a remarkable improvement in agility over time.

The dance sessions of the studies included in this review occurred two or three times per week, with sessions of 45 and 60 minutes and durations between 8 and 12 weeks in most studies. Only the study by Dafna Merom et al.[27] had the most prolonged intervention duration of 48 weeks. Although the dance styles differed, the studies mostly reported improvements in physical capacity. The dance style did not appear to be a determining factor in the results, indicating that other factors may be involved. Additionally, the studies rarely mentioned the intensity of the sessions, which could be a significant parameter.

Furthermore, studies should consider the overload of dance classes. The acceleration of movements induced by faster music or new steps that develop the physical abilities noted in this study can potentiate overload. However, studies still need to be performed to consider training overload in dance.

However, only one study reported no significant difference in physical capacity measures, including balance, strength, agility, and speed, following sessions of dance in virtual exergames (Funkytown, Galang' 05, Down, Brick House, and Jungle Boogie) for 40 minutes/three times per week for 12 weeks. Exergames are active video games controlled by bodily movements in safe surroundings with the advantages of physical activity engagement and interactions[21]. Although the exercise program included a variety of dance movements with a wide range of joint movements, it may have needed to be longer to improve balance, strength, and agility in older women.

The exercise or dance professional should be proficient in multiple assessment protocols that evaluate various physical capacities linked with healthy aging, such as muscle strength, cardiorespiratory endurance, balance, agility, and speed[33]. Older adults who perform poorly in one or more assessments can be detected and trained suitably to mitigate the chances of frailty and enhance their physical function to the optimum level[33]. Therefore, it is crucial to thoroughly evaluate every older adult as the first stage in the training process[41].

In our analysis, this assessment should go beyond a simple fitness assessment and instead collect meaningful data in several areas, such as preparticipation health and safety

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screening, goal setting, and assessment of physiological functioning and functional capacity. Thompson[33] suggested that following these steps can assist exercise professionals in creating a dance program that is appropriate for older adults.

Furthermore, more research is needed to fully comprehend the effectiveness and safety of the virtual dance protocol involving exergames in older participants. This study presents several limitations that should be considered when interpreting the findings. Firstly, detailed information regarding the intensity of physical exertion during each dance session was not collected, nor was the participants' baseline level of physical activity assessed prior to the intervention. The absence of validated measurement tools, such as heart rate monitors or accelerometers, limits the accuracy of exercise load estimation, potentially reducing the robustness of the outcome analysis. Moreover, the lack of systematic control over session attendance constitutes an additional methodological limitation. Monitoring adherence through precise records of attendance and absence would have provided a valuable parameter for interpreting results and informing future research. These limitations underscore the importance of implementing standardised protocols and incorporating objective assessment tools in subsequent studies.

6 CONCLUSIONS

The findings of this review indicate that dance is an effective intervention for enhancing the physical fitness of older women, leading to significant improvements in aerobic endurance, balance, muscular strength, agility, and walking speed. In addition to being a safe and adaptable practice for group-based interventions, dance has the potential to contribute substantially to health and quality of life during aging. The results also suggest that the enjoyable nature of dance promotes participant adherence, whereas dance-based exergaming interventions may not be suitable for this population. However, secondary outcomes indicate that dance may not directly impact body composition, highlighting the need for further research to clarify this relationship.

Future studies should further investigate the effects of dance, considering different styles, intensities, and session durations, as well as explore the physiological and biochemical mechanisms underlying the observed benefits. Moreover, the adoption of standardized protocols for measuring effort load and monitoring participation frequency represents a methodological gap that should be addressed to achieve a more precise

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understanding of the effects of dance on physical fitness and body composition in older women.

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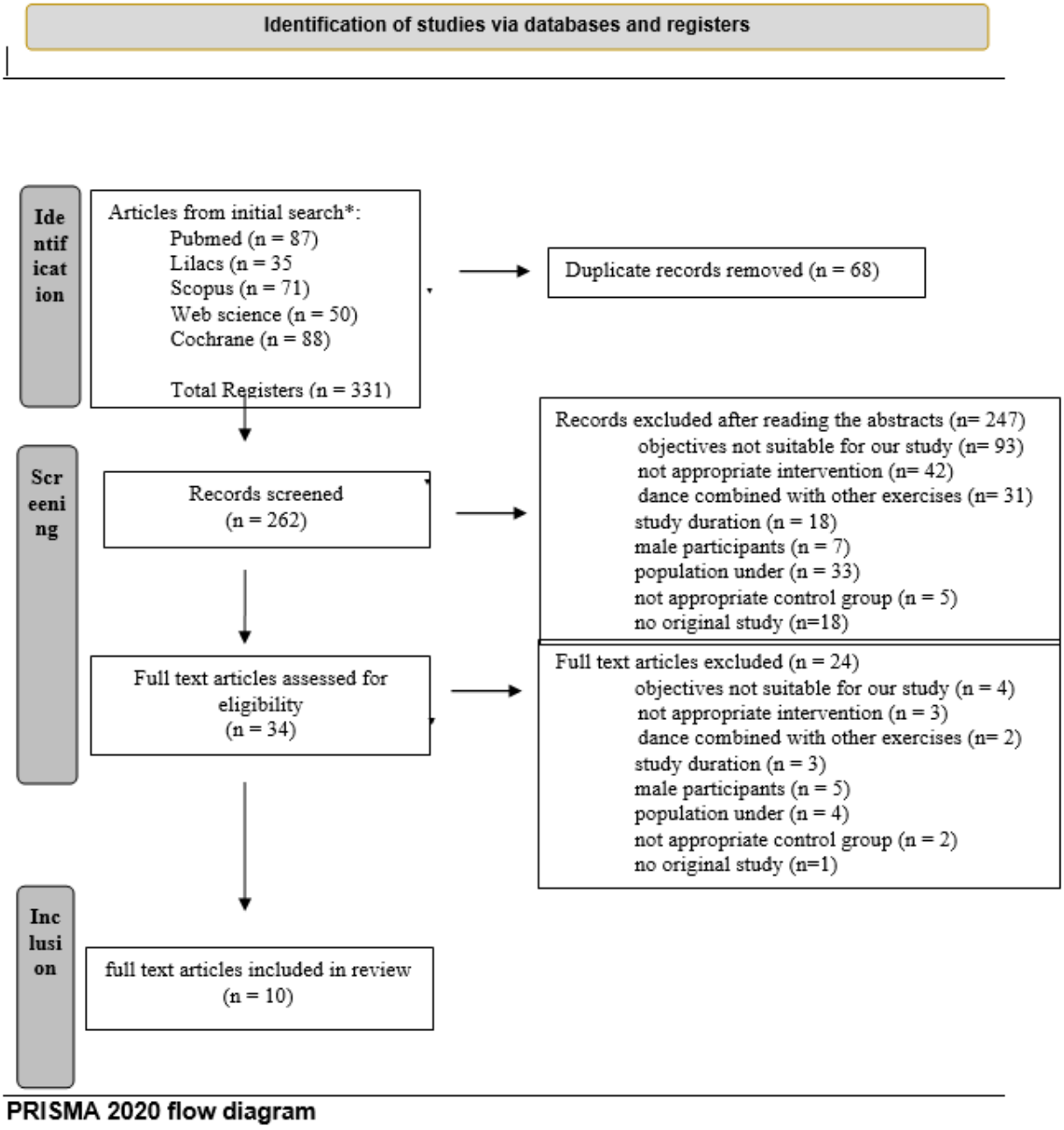
ANNEX - FIGURES

Figure 1

Flowchart of study selection



PRISMA 2020 flow diagram

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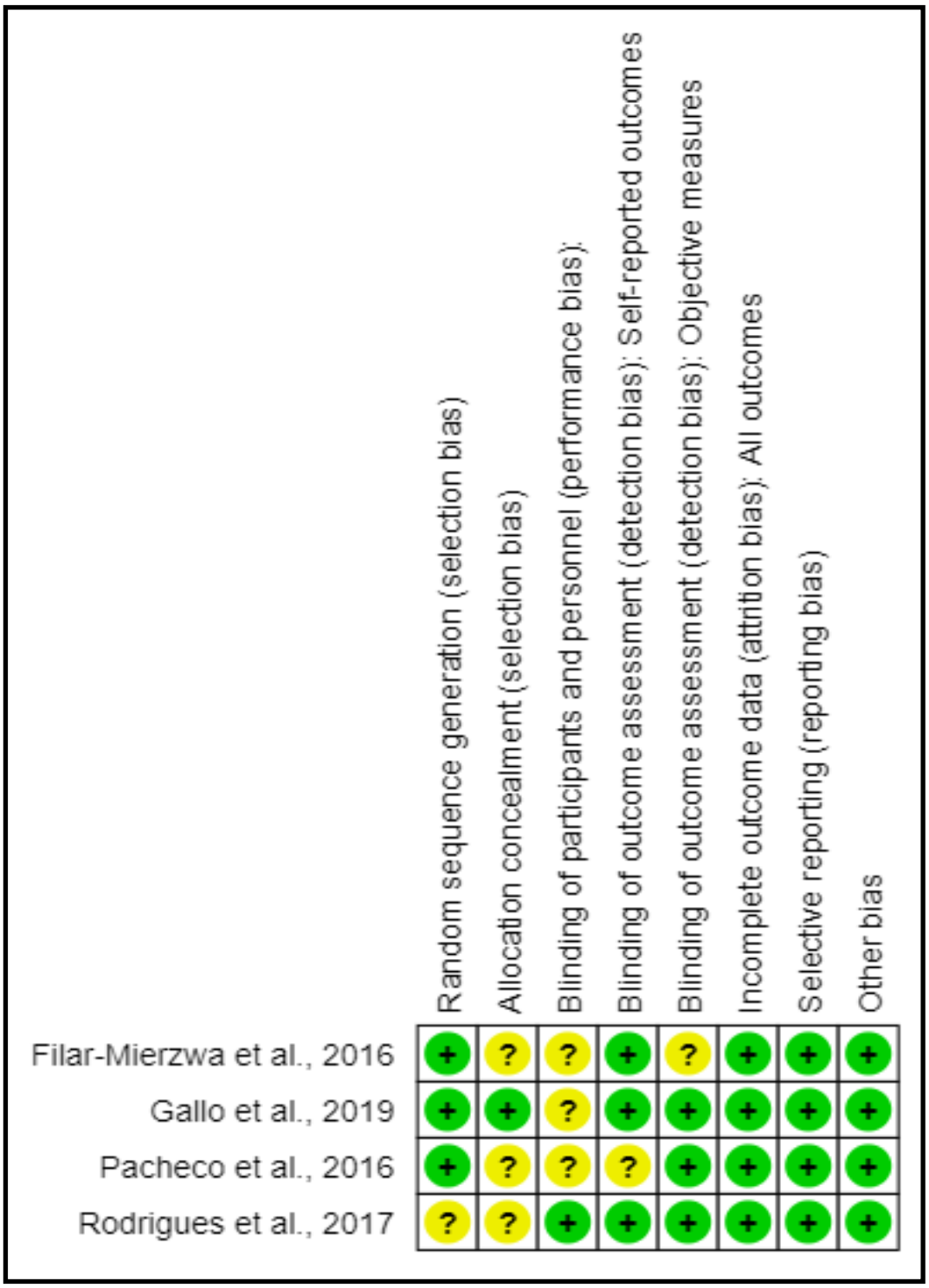
Figure 2

Risk of bias for non-randomized trials included in this systematic review



Source: Cochrane (2023).

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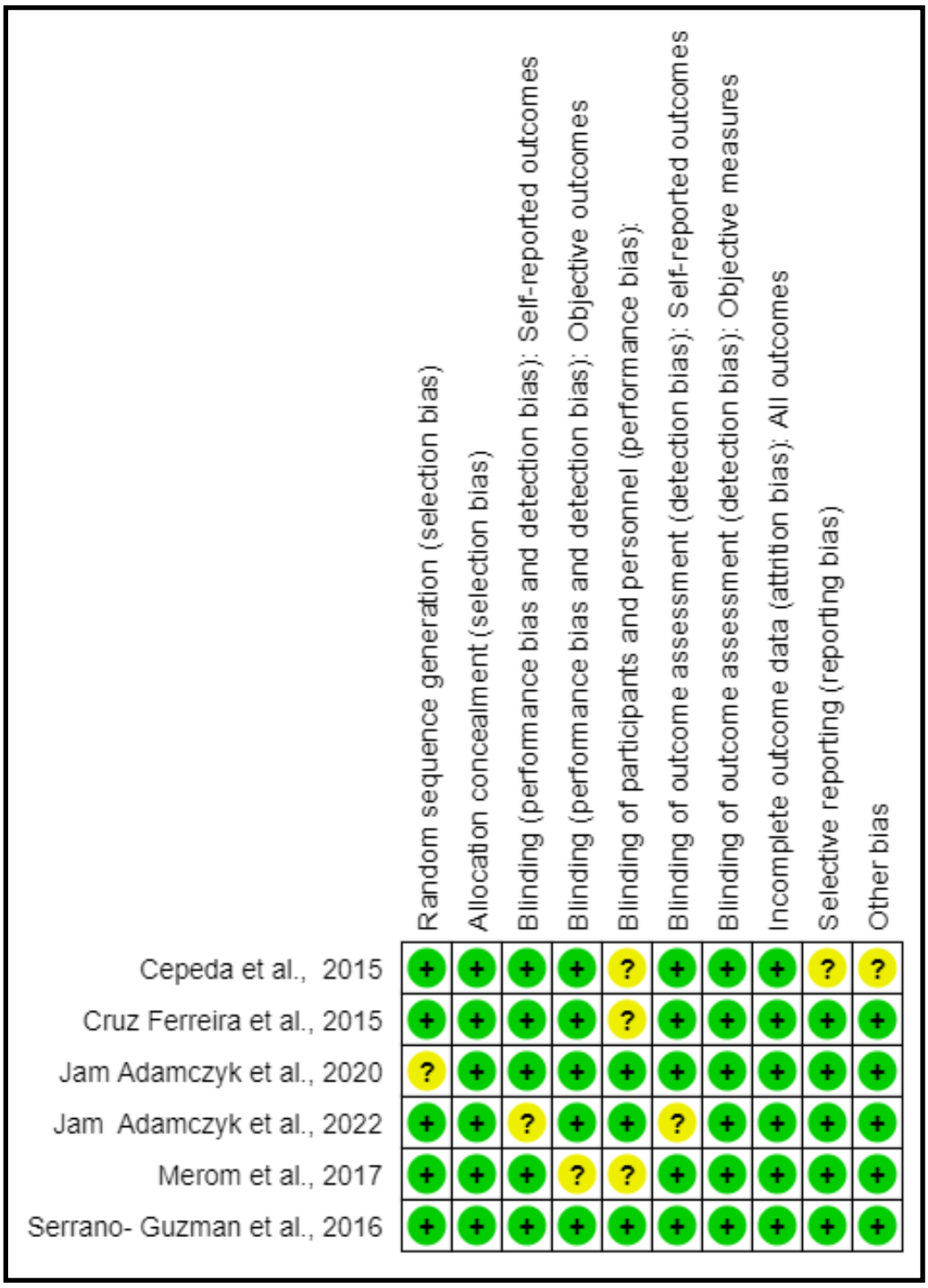
Figure 3

Risk of bias for randomized controlled trials included in this systematic review



Source: Cochrane (2023).

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Table 1

Authors, sample, and type of intervention

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Author/Year	Sample	Age*	Type of Study
Cruz-Ferreira et al.[18]	57 participants EG = 32 CG = 25	65–80 y	randomized clinical trial
Cepeda et al.[19]	34 participants, EG = 19 CG = 15	69.1 ± 6.5 y	randomized controlled trial
Serrano-Guzmán et al.[20]	52 participants EG= 27 CG = 25	69.27 ± 3.85 y	randomized clinical trial
Merom et al.[27]	424 participants EG = 217 CG = 207	mean age 78 y	randomized controlled trial
Rodrigues et al.[21]	47 participants, EG = 22 CG = 25	69.8 ± 4.3 y	nonrandomized trial
Gallo et al.[22]	42 participants EG = 22 CG = 20	65-84 y	nonrandomized trial
Pacheco et al.[23]	27 participants EG = 15 CG = 12	60–76 y	nonrandomized trial
Filar-Mierzwa et al.[24]	24 participants, EG= 12 CG = 12	66.4 ± 3.5 y	nonrandomized trial
Adamczyk et al.[25]	73 participants, EG = 34 CG = 39	69.9 ± 3.2 y	randomized controlled trial
Adamczyk et al.[26]	59 participants, EG = 26 CG = 33	69.85 ± 3.29 y	randomized controlled trial

EG: Exercised group; CG. Control group. *Age expressed as the mean ± SD or age range.

Sourse: Authors.

Source: The authors.

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Table 2

Dance protocol, physical capacity, and test

Author/Year	Dance session protocol	Physical capacity and test
Cruz-Ferreira et al.[18]	Creative dance 50 min, 3 times per week, for 24 weeks.	Lower body Strength: 30 s Sit-to-Stand test; Cardiorespiratory capacity: 6-min walk test Lower body flexibility: chair sit-and-reach test Agility/balance: The 8-ft up-and-go test
Cepeda et al.[19]	Ballroom dances: Waltz, Bolero, Forró 50 min, 2 times per week, for 8 weeks	Cardiorespiratory capacity: 6-minute walk test Balance/Lower body Strength: Tinetti test Agility/Balance: Timed Up and Go single-task and in dual-task
Serrano-Guzmán et al. [20]	Flamenco, sevillanas e ballet 50 min, 3 times per week, for 8 weeks.	Dynamic balance and agility: Timed Up and Go test; 1- Leg Standing test.
Merom et al.[27]	Ballroom dances: Rock, Foxtrot, Waltz, Salsa, Rumba 60 min, 2 times per week, for 48 weeks.	Speed: Short Physical Performance Battery.
Rodrigues et al. [21]	Virtual dance: Funkytown, Galang, Down, Brick House, Jungle Boogie 40 min, 3 times per week, for 12 weeks	Lower body strength: Dynamometer, 30 s Sit-to-Stand test agility/balance: Timed Up and Go Speed: Gait Speed
Gallo et al.[22]	Virtual dance: Funkytown, Galang, Down, Brick House, Jungle Boogie 40 min, 3 times per week, for 12 weeks.	Lower body flexibility: fleximeter.
Pacheco et al.[23]	Caribbean Colombian rhythms: porro, cumbia, fandango, bullerengue 60 min, 3 times per week, for 12 weeks.	Lower body Strength: 30 s Sit-to-Stand test; Cardiorespiratory capacity: 6-minute walk test, Lower body flexibility: Sit and reach test Upper body flexibility: Reach back test Agility and dynamic balance: 8-ft up-and-go test
Filar-Mierzwa et al.[24]	Therapy dance 45 minutes, 3 times per week, For 12 weeks	Balance: Postural Stability Test, The Limits of Stability, Modified Clinical Test of Sensory Integration and Balance
Jam Adamczyk et al.[25]	Improvisation dance 45 min, 2 times per week, for 12 weeks	Agility: Timed Up and Go (TUG) single-task and in dual-task
Adamczyk et al.[26]	Improvisation dance 45 min, 2 times per week, for 12 weeks	Speed: Balance platform test

Source: The authors.

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Table 3

Main physical capacity outcome findings

	Aerobic endurance and Cardiorespiratory capacity	Flexibility	Strength	Agility	Balance	Speed
Cruz-Ferreira et al.[18]	↑ 10% Aerobic endurance	↑13% flexibility Lower limbs	↑ 21% strength of Lower limbs	↑ 13% agility	↑ 13% balance	-
Cepeda et al.[19]	↑ 30% Cardiorespiratory capacity	-	↑ 29.6% strength of Lower limbs	↑ 46.3% agility	↑ 24.6% balance	-
Serrano-Guzmán et al.[20]	↑ cardiorespiratory capacity	↑ flexibility	-	↑ agility	↑ balance	↑ Speed
Merom et al. [17]	-	-	-	-	-	↑ Speed
odrigues et al.[21]	-	-	no difference	no difference	no difference	no difference
llo et al. [22]	-	↑ 16.29% flexibility	-	-	-	-
Pacheco et al.[23]	-	↑ upper limbs flexibility ↑ lower limbs flexibility	↑ strength of lower limbs	↑ agility	↑ dynamic balance	-
Filar-Mierzwa et al.[24]	-	-	-	-	↑ 17.5% balance	-
Jam Adamczyk et al.[25]	-	-	-	↑ agility	-	-
Jam Adamczyk et al.[26]	-	-	-	-	-	↑ Speed

Source: The authors.