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Impact of 12-Week Aerobic Dance and Weight Training on Body Composition and Fitness of Sedentary Women

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Abstract

Background and Study Aim. Weight training and aerobic dancing have positive effects on women who are sedentary. Nonetheless, less emphasis has been placed on the combined effects of using two distinct training modalities in one session. The need to look into these training techniques is indicated by this research gap. The purpose of this research aims to establish whether combining aerobic dance with weight training provides an effective fitness enhancement method that leads to better lifestyle health for sedentary women.

Material and methods. Thirty inactive women were randomized to be in one of two groups either an exercise training group (TG) or control group (CG), and their ranged from 35 to 45 years. For 12 weeks, the training group underwent their corresponding training three times a week for an hour each session. Both before and after the investigation, waist and hip ratio, leg strength and endurance, and abdominal muscular strength and endurance were evaluated using standardized tests. Data before and after the intervention were analyzed using the t test.

Results. Following the intervention in sedentary women, significant improvements were observed compared with the control group. WHR decreased from 0.87% to 0.85% in the experimental group, whereas there were no changes in the control group. Similarly, LSE increased from 13.13 and 16.53 counts in 12-week training group, while in CG, it decreased from 13.20 to 13.13 counts. MSE also showed improvement in LIADWTG 11.26 to 13.33 counts, whereas in the CG, there was a slight decrease from 11.13 to 11.06.

Conclusions. This study highlights the potential of 12-week low impact aerobic dance combined with weight training as a noninvasive intervention for maintaining physical fitness in sedentary women. More research is needed to validate these findings and investigate the mechanisms that strengthen the observed effects of aerobic dance combined with weight training.

Key words: Low impact aerobic dance, Weight training, Waist-hip ratio, Leg strength and endurance and abdominal muscular strength and endurance.

Анотація

Вплив 12-тижневих занять аеробікою силових тренувань на склад тіла та фізичну форму жінок, які ведуть малорухливий спосіб життя

Передумови та мета дослідження. Силові тренування та аеробні танці мають позитивний вплив на жінок, які ведуть малорухливий спосіб життя. Тим не менш, менше уваги приділялося комбінованим ефектам використання двох різних методів навчання в одному занятті. Необхідність вивчення цих методів тренувань свідчить про цю прогалину у дослідженнях. Мета цього дослідження полягає в тому, щоб з'ясувати, чи поєднання аеробіки з силовими тренуваннями є ефективним методом покращення фізичної форми, який веде до покращення способу життя для жінок, які ведуть малорухливий спосіб життя.

Матеріал і методи. Тридцять неактивних жінок були рандомізовані в одну з двох груп: групу тренувань

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(ГТ) або контрольну групу (КГ), та їх вік варіювався від 35 до 45 років. Протягом 12 тижнів тренувальна група проходила відповідні тренування тричі на тиждень тривалістю 1 година. Як до, так і після дослідження співвідношення талії та стегон, сила та витривалість ніг, а також сила та витривалість м'язів живота оцінювалися за допомогою стандартизованих тестів. Дані до та після втручання аналізувалися за допомогою t-критерію Ст'юдента.

Результати. Після експерименту у жінок, які ведуть малорухливий спосіб життя, спостерігалися значні покращення порівняно з контрольною групою. В експериментальній групі показник співвідношення талії та стегон (WHR) знизився з 0,87% до 0,85%, тоді як у контрольній групі змін не відбулося. Аналогічно, LSE збільшився з 13,13 та 16,53 одиниць у 12-тижневій групі тренувань, у той час як у контрольній групі він знизився з 13,20 до 13,13 одиниць. Сила і витривалість м'язів живота (MSE) також показав поліпшення у групи низькоінтенсивних аеробних танцювальних та силових тренувань (LIADWTG) з 11,26 до 13,33 одиниць, тоді як у КГ спостерігалося невелике зниження з 11,13 до 11,06.

Висновки. Це дослідження підкреслює потенціал 12-тижневих низькоінтенсивних аеробних танців у поєднанні з силовими тренуваннями як неінвазивне втручання для підтримки фізичної форми у жінок, які ведуть малорухливий спосіб життя. Необхідні додаткові дослідження для підтвердження цих результатів та вивчення механізмів, які посилюють спостережувані ефекти аеробних танців у поєднанні із силовими тренуваннями.

Ключові слова: аеробні танці з низьким ударним навантаженням, силові тренування, співвідношення талії і стегон, сила і витривалість ніг, сила і витривалість м'язів живота.

Introduction

People's general health is greatly influenced by their sedentary lifestyles around the world. Everyone knows that physical inactivity, or being less physically active, is bad for your health. Physical inactivity is the 4th most important risk factor for mortality and is responsible for 6% of all deaths. Sedentary behavior is any awake behavior (such as leaning or sitting) that requires more than 1.5 metabolic equivalent tasks (METs) [1].

Physical activity must be included in an all-encompassing program for weight loss and weight control. Regular exercise reduces the risk of obesity, cardiovascular disease, and other illnesses [2]. The most popular exercises types for people is walking, cycling, swimming, and jogging. At the beginning of the 1970s, Jackie Sorenson developed what was believed to be a brand-new way to encourage aerobic dancing as a way to work out at the same time as dancing. In fact, people would actually rather dance with and work out with them than actually date them, resulting in a large, successful population today[3]. Ever since, this dancing exercise has been characterized as aerobic dance, wherein it is a combination of a group of steps and dances alongside whole body motion, such as simultaneous running, walking, and skipping [4]. Additionally, it utilizes the same basic training principle as an aerobic training regimen in frequency, intensity, and duration [5]. Aerobic dancing has benefits for the body and mind [6]. In addition, aerobic dance choreography is gentle enough to allow novices to perform many different types of dance moves in relaxed and noncompetitive settings. However, dancing is the second most common physical activity among women of all ages, after walking [7]. In addition, the most recent WHO Global Action Plan on Physical Activity 2018–2030 recommends physical activity as an activity [8].

One of the most popular types of exercise in the world is aerobic dancing [9]. Similar to any other type of aerobic exercise, aerobic dancing has positive effects on the heart and metabolism. The benefits of this treatment include increased maximal oxygen consumption, improved capacity for aerobic endurance, and increased energy production through the mitochondrial respiration system. The target heart rate for aerobic dancing is between 60% -70% of the maximal heart rate [10]. The preservation of functional independence is maintained through the maintenance of muscle function. Muscle mass and force increase until the mid-to-early 30s and decline thereafter in our growing older population [11]. Clinically, loss of muscle mass during aging is important because, it is related to reduced strength and thus exercise capacity, both of which are needed to perform normal daily living tasks. Additionally, loss of muscle mass is a strong predictor of long-term mortality [12].

In older people, exercise improves their physiological status and quality of life. Resistance training with moderate-intensity loads was confirmed to be helpful for older individuals with increasing muscle size and strength. In aerobic exercise, these larger muscles work in a rhythmic manner over a long period of time; and resistance exercise involves those muscles working hard against an applied force or weight, as in weight lifting.

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Aerobic and resistance-type exercise training has been shown to improve the rate of decline in muscle mass and strength with age [13]. Long known to increase cardiovascular fitness and endurance capacity, aerobic activity (swimming, running, walking), among others, is an important component of physical conditioning. Although aerobic exercise is less likely to increase muscle hypertrophy; however, aerobic exercise will increase the cross-sectional area (CSA) of muscle fibers [14].

Hypothesis

According to the above-mentioned study findings, we hypothesized that for sedentary women, performing low impact aerobic dance along with weight training will produce larger improvements in the following variables (i.e. waist to hip ratio, leg strength and endurance and abdominal muscular strength and endurance). Specifically, women who are sedentary are also important to the waist-to-hip ratio, leg and abdominal muscular strength and endurance as it relates to daily living and injury prevention.

Materials and Methods

Electronic searches were carried out by the investigators (EB and ES). Search engines used to locate published articles included MEDLINE, EMBASE, Scopus, Science Direct Databases Directory of Open Access Journals (DOAJ), PubMed, and Google Scholar. The terms "Aerobic dance training", "Resistance training", "Body Composition", "leg strength and endurance", and the conjunctions "OR/AND" were used as essential terms. Searches could only be conducted in English. The studies detailing how body composition and fitness abilities is affected by aerobic dance and resistance training are considered for literature review.

Study Participants

In the design of this study, the international guidelines for quality-based randomized controlled trials were followed [15]. Thirty sedentary women aged 35-40 years were randomly assigned to two groups (i.e. LIADWTG and CG) of involvement i.e by using the method of Randomly Permute Blocks, a program available on a freely accessible official website (www.randomizer.org). During the trial, participants were told not to change their daily routines in any way possible.

As shown in Figure 2, both groups were well-matched at baseline, which improved the comparability of their outcomes during the study period.

Group I performed low impact aerobic dance training in addition to weight training, (LIADWT), while Group II served as the control group. The primary objective of the study and any associated protocols were explained to the participants. A licensed medical professional evaluated all subjects and deemed all fit to participate in this study. Before the study, the participants provided informed consent. However, if training programs gave them any hassle whatsoever, participants were allowed to withdraw their consent. No dropout was observed in this study. Consistent with the Declaration of Helsinki's guidelines, this study adhered closely to these guidelines.

Inclusion and exclusion criteria

In order to be included in the study, the women had to fulfill certain requirements. To partici-

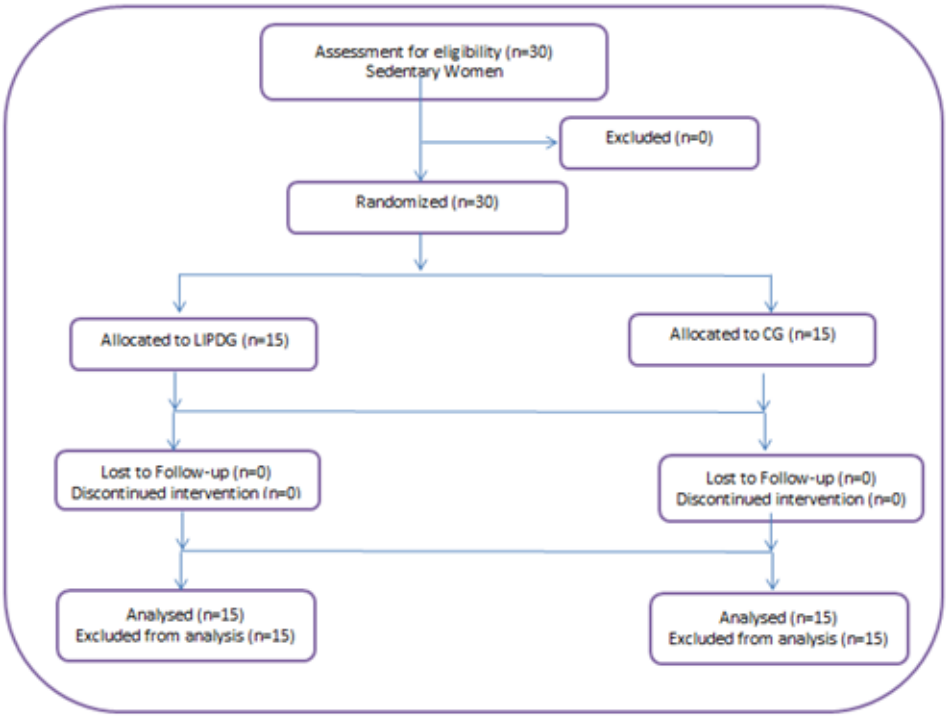

Figure 1. **Figure showing the study's development through different stages**

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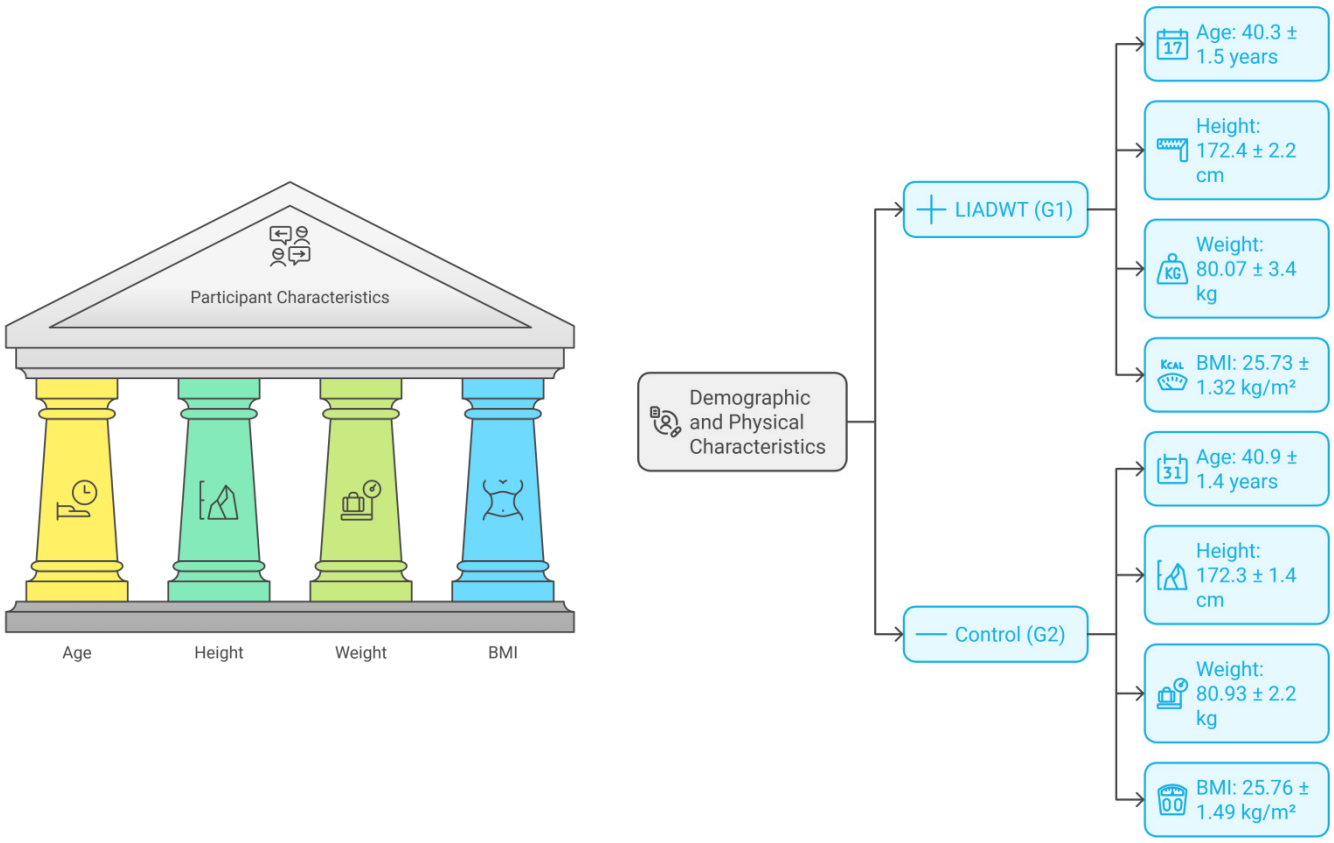

Figure 2. **Baseline demographic and participant characteristics ($\bar{x} \pm \sigma$)**

pate in the study, participants had to be sedentary for six months prior to the start of the study, not smoke, not be pregnant, and only missing one session of the 12-week aerobic dance and weight training classes of which they participated; they also had no injuries; they appeared at both assessments; they had participated regularly in any sports or other serious physical activity, and they agreed to participate in the study.

The exclusion criteria were a history of infectious diseases, musculoskeletal, cardiopulmonary, neurological, or orthopedic disorders; disability for performing aerobic dance steps and weight training exercises; more than two missed exercise sessions; and subject or parent unwillingness to participate.

Our hypothesis was tested by evaluating adaptations after practicing low-impact aerobic dance and weight training through a controlled, randomized design that comprised pre- and post-testing. The 12-week training period was designed to cause training-related changes in the waist-to-hip ratio measurements, leg strength and endurance, and abdominal muscular strength and endurance were assessed using standardized tests such as Tape measurement Test [16], Chair stand test [17,18], and One minute half situp test [19].

Procedure

The participants had a 5-minute low-intensity aerobic run and a 10-min dynamic and static upper and lower extremity muscle stretching session as a general warm-up before the examination.

Anthropometric measurements

A portable digital scale with a precision of 0.1 kg was used to weigh participants who were minimal and did not wear shoes. Using a tape measure and a standard procedure, height was measured. The body mass index (BMI) was computed as follows: weight (kg) divided by height (m^2) squared.

Outcome assessment

Circumference measurement (Waist-hip ratio)

A standard tape measure was used to measure the circumference. The waist and hip regions are measured to compute the waist-to-hip ratio. To ensure an accurate measurement, subjects were required to stand and dress modestly. Measurements of circumference were made three times at each point, and the mean of the three measurements was noted. The same tester performed each measurement to reduce the observer error. The waist was measured while breathing normally, parallel to the ground at its narrowest point. The muscle that extended the furthest from the buttocks, the gluteus maximus, was measured parallel to the hip. Waist circumference divided by hip circumference yields the WHR value.

Chair stand test

The leg strength and endurance tests were

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performed using a chair stand [17,18]. The participants sat in the middle of the chair, with their feet flat on the floor, and their hands on the opposite shoulder, crossed at the wrists. The participants were instructed to stand up from the chair and assume a full standing position as soon as the instructor said, "Go," and then to sit down again as quickly as they could for a duration of 30 seconds. A standard chair (with a seat height of 40 cm) without a backrest but with armrests was used. The participants were instructed to maintain a straight back and to keep their arms pressed against their chests. All trials were performed using the same chair and under similar ambient conditions. The best performance was noted after twice counting the total number of stand-ups in 30 s [16].

1 min half sit-up test

To assess the strength and endurance of the abdominal muscles, a 1-min half-sit-up test was performed. With their knees bent, feet flat on the ground, and hands crossed over their chests, the test subjects were required to lie on the floor. This was the position they had to stay in throughout the test. They were told to exhale as they rose and do as many sit-ups as possible within a minute. To evaluate trunk muscular strength and endurance, repetitions were performed for 30 and 60 s, respectively [19].

Training intervention

Training volume varied between 60% and 80% of low impact aerobic dance and weight workouts for the training groups versus 3 days per week. In the same session, the participants performed low-impact aerobic dance and, then weight training. Aerobic dance exercise intensity difficulty refers to the difficulty in performing and weight training exercise intensity starts with 65% in 1-4 weeks, 70% in 5-8 weeks and 75% in 9-12 weeks. The anatomical adaptation phase was needed to induce the first neural adaptations, and we needed an intensity of 65% during the first 2 weeks to reach up. Intensity was increased progressively every four weeks thereafter. The training was imparted on 45 minutes to 60 minutes of every session and included 5 minutes warming up, low impact aerobic dance, weight training exercises, 5 minutes warming down, and 45 seconds rest between exercises and resting for 45 seconds between sets. Recovery between aerobic dance and weight training was two minutes. The Dumbbell shoulder press, Triceps Extension, Squat, Push-ups, Dumbbell chest press, lunges and plank are the weight training exercises of the subjects. Training sessions were held on Monday, Wednesday, and Friday from 6.30 to 7.30 a.m. Tables 1 and 2 provide details of the exercise prescription. This finding was used to determine the duration of the training intervention for this study based on the 12-week minimum required for observable changes in selected parameters [20].

Control Group Engagement

The Subjects in the control group followed

Table 1. Low-impact aerobic dance training program

Exercises	1-4 weeks	5-8 weeks	9-12 weeks
Warm up and stretching	Ten min jog, static stretching	Ten min jog, static stretching	Ten min jog, static stretching
On spot marching	2 x 3 rounds*	3 x 3 rounds	3 x 4 rounds
Box step	2 x 3 rounds	3 x 3 rounds	3 x 4 rounds
Walking and Kicking	2 x 2 rounds	3 x 2 rounds	3 x 3 rounds
Step cross	2 x 3 rounds	3 x 3 rounds	3 x 4 rounds
Power walk	2 x 3 rounds	3 x 3 rounds	3 x 4 rounds
Grapevine	2 x 2 rounds	3 x 2 rounds	3 x 3 rounds
T step	2 x 3 rounds	3 x 3 rounds	3 x 4 rounds
Diamond	2 x 2 rounds	3 x 2 rounds	3 x 3 rounds
Knee up	2 x 2 rounds	3 x 2 rounds	3 x 3 rounds
A step	2 x 3 rounds	3 x 3 rounds	3 x 4 rounds

**1 round=8 counts (in steps)*

Table 2. Weight training program

Exercises	1-4 weeks	5-8 weeks	9-12 weeks
Dumbbell shoulder press	2 x 8*	2 x15	2 x20
Triceps extensions	2 x 8	2 x15	2 x20
Squat	2 x 8	2 x15	2 x20
Dumbbell chest press	2 x 8	2 x15	2 x20
Lunges	2 x 10	2 x15	2 x20
Plank	2 x 10 secs	2 x15 secs	2 x20 secs

**Sets x Reps*

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their normal activities including walking along with their household duties and responsibilities. They were observed regularly to confirm compliance and were guided not to involve in any added fitness programmes.

Statistical Analysis

The data were analyzed using the statistical software SPSS (SPSS, Inc. Chicago, IL, USA for Windows). The experiment pre- and post-random group design was conducted using 30 women that were split into two groups. The effects of 12 weeks of LIADWT were examined by calculating the mean and standard deviation. Significant improvement was determined using the 't' test. The level of confidence was fixed at 0.05.

Results

Table 4 compares the selected LIADWTG and CG parameters before and after the intervention. The training group exhibited a significant reduction in WHR and improvement in LSE and MSE. In contrast, the CG showed no improvement.

A 't' ratio between the mean of the pretest and posttest for the control and experimental groups for the waist-hip ratio, leg strength and endurance and, muscular strength and endurance of sedentary women is calculated, as in Table 4. pre- and posttest mean values of WHR, LSE, and MSE for the control group were 0.87 and 0.87, 13.20 and 13.13, 11.13 and 11.06, respectively. At the 0.05 level of confidence the obtained ratios of 0.56, 0.36, and 0.32 were not statistically significant for degrees of freedom 1, 14 because these ratios were less than the table value of 2.14.

The experimental group's pre- and posttest mean scores for WHR, LSE, and MSE were, 0.87 and 0.85, 13.13 and 15.63, and 11.26 and 13.33 respectively. At the 0.05 level of confidence, the obtained "t" ratios of 6.88, 13.36, and 31 were found to be statistically significant for the degrees of freedom 1 and 14, as they exceeded the required table value of 2.14.

The results explicitly showed that 12 weeks of low-impact aerobic dancing combined with weight training improved the experimental group's waist-hip ratio, leg strength and endurance, and muscular strength and endurance.

Table 3. Descriptive statistics of circumference measurements (WHR)

WHR Variables	EG (n=15)				't' ratio	p-value
	Pretest		Posttest			
	$\bar{x}$	σ	$\bar{x}$	σ		
Waist (cm)	99.7	0.70	94.33	0.61	33.07*	0.00
Hip (cm)	114.2	0.86	109.73	0.70	16.32*	0.00
WHR (%)	0.87	0.01	0.85	0.01	6.87*	0.00
CG (n=15)						
Waist (cm)	99.8	0.94	100.06	0.79	1.74	0.10
Hip (cm)	114.13	0.63	114.4	0.83	2.09	0.06
WHR (%)	0.87	0.01	0.87	0.01	0.25	0.80

($\bar{x}$ - sample mean; σ – standard deviation)
**Significant at 0.05 level for the degrees of freedom 1 and14, 2.14*

Table 4. The mean and "t" test summary for the control and experimental groups' pre- and post-tests on WHR, LSE, and MSE

Variables	Group	Test	Mean ± SD	't' ratio	p-value
WHR	CON	Pre	0.87±0.01	0.56	0.58
		Post	0.87±0.008		
	EXP	Pre	0.87±0.01	6.88*	0.00
		Post	0.85±0.01		
LSE	CON	Pre	13.20±0.77	0.36	0.72
		Post	13.13±0.63		
	EXP	Pre	13.13±0.91	13.36*	0.00
		Post	16.53±0.92		
MSE	CON	Pre	11.13±0.63	0.32	0.75
		Post	11.06±0.79		
	EXP	Pre	11.26±0.79	31*	0.00
		Post	13.33±0.97		

Data are represented in the mean ± SD (standard deviation).
**Significant at 0.05 level for the degrees of freedom 1 and14, 2.14*

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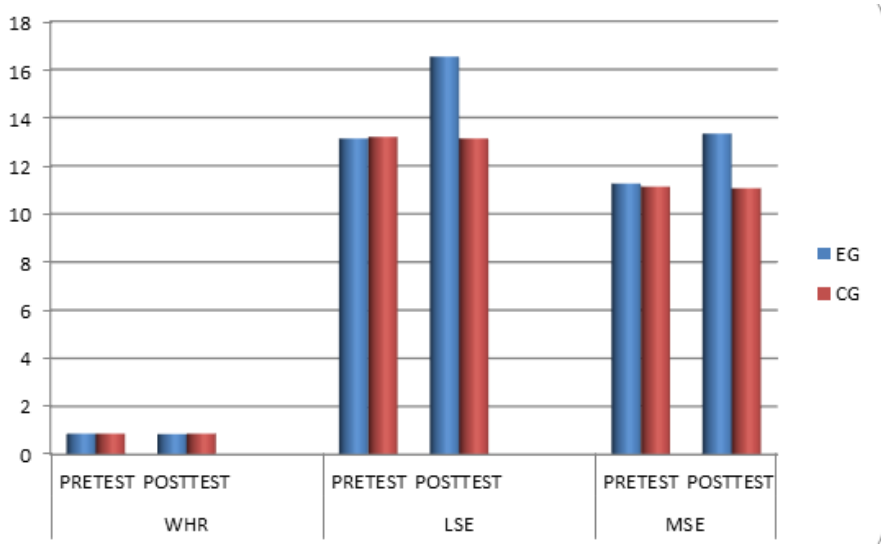

Figure 3. **Graphical comparison between the training and control groups before and after the test.**

Discussion

Together, low-impact aerobic dance and weight training are somewhat complementary. Aerobic dance can improve cardiovascular health and help to lose fat, whereas weight training can help to improve body composition. Combining aerobic dance with weight training may be appealing because it offers the variety that comes from performing both the rhythmic and social aspects of dance as well as the progressive and strength-building aspects of weight training.

Aerobic dance is a choreographed movement that incorporates other rhythmic movements, and varies in terms of dance styles [21]. Aerobic dancing is an exercise program designed to reduce the risk of coronary artery disease and improve overall fitness [22]. The percentage of body fat and body weight increases were not statistically significant in most training studies [23]. In response to these findings, both the duration and intensity of aerobic dance training programs and training programs, as well as the intensity of training, have been questioned.

One of the advantages of this research is that, aerobic dancing is, of course, an art form that allows elders to exercise and live while exercising, and it also increases the interest of and participation in exercise of older adults, which are very important factors to participants.

The low-impact form of spinning is perhaps less taxing on the lower extremities, but it can easily reach the target heart rate. It is because it usually requires less of such large muscle activity (legs), which means much less energy expenditure than the high impact one. A moderate WHR is defined 0.9 for men and 0.85 for women according to the WHO guidelines. WHR 1 for both men and women may increase the risk of heart disease or other conditions related to being overweight.

Based on these findings, the WHR of the experimental group was significantly reduced from 0.87 to 0.85. It is speculated that 12 weeks of low-impact aerobic dance training has provided better results in women of 35 -45 years. Exercise training is linked to improvements in triglycerides, high -density lipoprotein-cholesterol ratio and the total cholesterol in addition to aerobic fitness [24], a lower resting systolic and diastolic hypertension, normal heart rate, decrease in body weight and fat [25], and increases in muscular endurance and flexibility. These results suggest that the integration of low-impact aerobic dance with resistance training is a convenient and practical method for improving health and physical fitness in this population.

Conclusions

Combining low impact aerobic dance and weight training in a 12-week program is an excellent method for increasing body composition, leg strength, and core endurance in sedentary women. On the one hand, it is a sustainable and enjoyable intervention to promote long-term health and fitness, and on the other hand, it offers both physical and psychological benefits.

To sum up, this study provides a foundation for upcoming research and innovation. Research should focus on strategies for promoting the current and future dissemination of knowledge in India, in addition to the advantages of physical and physiological aspects. Although there are still some differences and more research needs to be done, the use of exercise therapy to treat high levels of stress and overweight in working women is well underway. All of these research projects aim to enhance the field of preventative medicine in the future and improve the lifestyle and gen-

eral health of sedentary women who experience high levels of stress to enhance their professional performance and productivity. In summary, a low-impact aerobic dance with weight training regimen is easy and affordable. It is an enjoyable and secure form of exercise for people of all lifestyles. In the end, a low-impact aerobic dance exercise with weight training program enhances the physical, physiological, and psychological well-being of the population while also enhancing their quality of life.

References

1. SBRN Terminology Consensus Project | The Sedentary Behaviour Research Network (SBRN) [Internet]. The Sedentary Behaviour Research Network (SBRN). 2017. Available from: https://www.sedentarybehaviour.org/sbrn-terminology-consensus-project.
2. Pollock ML, Gaesser GA, Butcher JD, Despres JP, Dishman RK, Franklin BA, et al. ACSM Position Stand: The Recommended Quantity and Quality of Exercise for Developing and Maintaining Cardiorespiratory and Muscular Fitness, and Flexibility in Healthy Adults. Medicine & Science in Sports & Exercise. 1998 Jun;30(6):975–91. https://doi.org/10.1097/00005768-199806000-00032
3. Schuster K. Aerobic Dance: A Step to Fitness. The Physician and Sportsmedicine. 1979 Aug;7(8):98–103. https://doi.org/10.1080/00913847.1979.11948473
4. Radmila K, Ratomir Đ, Đurđica M, Milena M. CHANGES IN THE CARDIOVASCULAR FITNESS AND BODY COMPOSITION OF WOMEN UNDER THE INFLUENCE OF THE AEROBIC DANCE. Physical Education and Sport [Internet]. 2006;4(1):59–71. Available from: http://facta.junis.ni.ac.rs/pe/pe2006/pe2006-07.pdf
5. ACSM. ACSMs Guidelines for Exercise Testing and Prescription [Internet]. ACSM_CMS. 2018. Available from: https://www.acsm.org/education-resources/books/guidelines-exercise-testing-prescription
6. Dowdy DB, Cureton KJ, Duval HP, Ouzts HG. Effects of Aerobic Dance on Physical Work Capacity, Cardiovascular Function and Body Composition of Middle-Aged Women. Research Quarterly for Exercise and Sport. 1985 Sep;56(3):227–33. https://doi.org/10.1080/02701367.1985.10605367
7. Fan JX, Kowaleski-Jones L, Wen M. Walking or Dancing. Journal of Aging and Health. 2013 Jul 17;25(7):1182–203. https://doi.org/10.1177/0898264313495561
8. World Health Organisation. Global Action Plan on Physical Activity 2018–2030: More Active People for a Healthier World [Internet]. www.who.int. 2018. Available from: https://www.who.int/publications/i/item/9789241514187
9. Kattenstroth JC, Kalisch T, Holt S, Tegenthoff M, Dinse HR. Six months of dance intervention enhances postural, sensorimotor, and cognitive performance in elderly without affecting cardio-respiratory functions. Frontiers in Aging Neuroscience. 2013;5 p. https://doi.org/10.3389/fnagi.2013.00005
10. Bánfi B, Tirone F, Durussel I, Knisz J, Moskwa P, Molnár GZ, et al. Mechanism of Ca2+ Activation of the NADPH Oxidase 5 (NOX5)*. Journal of Biological Chemistry [Internet]. 2004 Apr 30 [cited 2022 Jun 20];279(18):18583–91. https://doi.org/10.1074/jbc.M310268200
11. Sayer AA, Syddall H, Martin H, Patel H, Baylis D, Cooper C. The developmental origins of sarcopenia. The Journal of Nutrition Health and Aging [Internet]. 2008 Sep;12(7):427–32. https://doi.org/10.1007/bf02982703
12. Szulc P, Munoz F, Marchand F, Chapurlat R, Delmas PD. Rapid loss of appendicular skeletal muscle mass is associated with higher all-cause mortality in older men: the prospective MINOS study. The American Journal of Clinical Nutrition. 2010 Mar 17;91(5):1227–36. https://doi.org/10.3945/ajcn.2009.28256
13. Frankel JE, Bean JF, Frontera WR. Exercise in the Elderly: Research and Clinical Practice. Clinics in Geriatric Medicine. 2006 May;22(2):239–56. https://doi.org/10.1016/j.cger.2005.12.002
14. Coggan AR, Spina RJ, King DS, Rogers MA, Brown M, Nemeth PM, et al. Skeletal muscle adaptations to endurance training in 60- to 70-yr-old men and women. Journal of Applied Physiology. 1992 May 1;72(5):1780–6. https://doi.org/10.1152/jappl.1992.72.5.1780
15. Smart NA, Waldron M, Ismail H, Giallauria F, Vigorito C, Cornelissen V, et al. Validation of a new tool for the assessment of study quality and reporting in exercise training studies. International Journal of Evidence-Based Healthcare. 2015 Mar;13(1):9–18. https://doi.org/10.1097/xeb.0000000000000020
16. ACSM. ACSM's Fitness Assessment Manual [Internet]. ACSM_CMS. 2013. Available from: https://www.acsm.org/education-resources/books/ACSMs-Fitness-Assessment-Manual
17. Sherwood JJ, Inouye C, Webb SL, O J. Reliability and Validity of the Sit-to-Stand as a Muscular Power Measure in Older Adults. Journal of Aging and Physical Activity. 2019;1–12. https://doi.org/10.1123/japa.2019-0133
18. Rikli RE, Jones CJ. Development and Validation of Criterion-Referenced Clinically Relevant Fitness Standards for Maintaining Physical Independence in Later Years. The Gerontologist. 2012 May 20;53(2):255–67. https://doi.org/10.1093/geront/gns071
19. Diener MH, Golding LA. THE VALIDITY AND RELIABILITY OF A1-MINUTE HALF SIT-UPS TEST. Medicine & Science in Sports & Exercise. 1992 May;24(Supplement):S76. https://doi.org/10.1249/00005768-199205001-00453

20. Rice B, Janssen I, Hudson R, Ross R. Effects of aerobic or resistance exercise and/or diet on glucose tolerance and plasma insulin levels in obese men. Diabetes care [Internet]. 1999 [cited 2019 Sep 27];22(5):684–91. https://doi.org/10.2337/diacare.22.5.684
21. Haastrup EA and Adeogun JO (2005). Personal Health and Physical Fitness. Goldnetwork Communications (GNC), Lagos. Pp: 35-44
22. Cearly ML, Moffatt RJ, Knutzen KM. The Effects of Two- and Three-Day-Per-Week Aerobic Dance Programs on Maximal Oxygen Uptake. Research Quarterly for Exercise and Sport. 1984 Jun;55(2):172–4. https://doi.org/10.1080/02701367.1984.10608395
23. Guzman J, Aguiñaga S, Balbim GM, Lamar M, Marques IG, Marquez DX. The effects of the BAILAMOS Dance Program on hippocampal volume in older Latinos: a randomized controlled pilot study. Translational behavioral medicine. 2021 Oct 23;11(10):1857–62. https://doi.org/10.1093/tbm/ibab009
24. Costill D, Miller J. Nutrition for Endurance Sport: Carbohydrate and Fluid Balance. International Journal of Sports Medicine. 1980 Feb;01(01):2–14. https://doi.org/10.1055/s-2008-1034623
25. Thompson JK, Jarvie GJ, Lahey BB, Cureton KJ. Exercise and obesity: Etiology, physiology, and intervention. Psychological Bulletin [Internet]. 1982 [cited 2024 Aug 18];91(1). https://doi.org/10.1037/0033-2909.91.1.55

Supplementary Information

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