



Aerobic Dance for Reducing Body Fat Mass and Increasing Cardiovascular Endurance: Effectiveness Study.

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Abstract : The global rise in obesity and associated health complications necessitates effective interventions for promoting cardiovascular health and weight management. Aerobic dance has emerged as a popular exercise modality with the potential to address these concerns. This study aimed to evaluate the effectiveness of a six-week aerobic dance intervention on cardiovascular fitness and weight loss among women participants. Using a quasi-experimental design, data was collected from 14 women enrolled in the Seremban Fit Challenge program. Pre and post-tests were conducted to measure cardiovascular fitness through a 1-mile run test and weight loss. Statistical analysis included paired sample T-tests. Results revealed significant improvements in both cardiovascular fitness and weight loss following the intervention, indicating the efficacy of aerobic dance as an exercise modality. The findings contribute to the understanding of aerobic dance as a feasible and enjoyable option for enhancing cardiovascular health and facilitating weight management..

I. INTRODUCTION

Introduction: Obesity has become a major public health concern worldwide, with detrimental effects on cardiovascular health and overall well-being. In response to this growing epidemic, there is a need for effective strategies to promote physical activity and healthy weight management. Aerobic dance, characterized by rhythmic movements performed to music, has gained popularity as an enjoyable form of exercise that offers numerous health benefits. By engaging large muscle groups and increasing heart rate, aerobic dance can improve cardiovascular fitness and contribute to weight loss. This study aimed to assess the impact of a six-week aerobic dance program on cardiovascular fitness and weight loss among women participants.

Objectives of the Study:

1. To identify the effect of a 6-week aerobic dance class on cardiovascular fitness levels.
2. To evaluate the effect of a 6-week aerobic dance class on weight loss.

Statement of the Problem: The prevalence of obesity and sedentary lifestyles has contributed to the rise in cardiovascular diseases and related metabolic complications. Unhealthy dietary habits and lack of physical activity further exacerbate these issues, particularly among women. The Seremban Fit Challenge program aims to address these concerns by promoting regular exercise and healthy lifestyle habits. This study aimed to investigate the impact of a six-week aerobic dance intervention within this program on cardiovascular fitness and weight loss among women participants.

Hypotheses: H01: There is no significant difference in cardiovascular fitness levels following a 6-week aerobic dance program.
H02: There is no significant difference in weight loss following a 6-week aerobic dance program.

Methodology: This study utilized a quasi-experimental design, with 14 women participants recruited from the Seremban Fit Challenge program. Pre and post-tests were conducted to assess cardiovascular fitness using a 1-mile run test, and weight loss was measured. Statistical analysis included paired sample T-tests to compare pre and post-test measurements.

Methodology:

Study Design:

This study utilized a quasi-experimental design to investigate the effectiveness of a six-week aerobic dance program on cardiovascular fitness and weight loss among women participants. A quasi-experimental design was chosen due to practical constraints and the absence of a control group.

Participants:

Participants were recruited from the Seremban Fit Challenge program, with a total of 14 women enrolled in the study. Inclusion criteria included being female and actively participating in the Seremban Fit Challenge program. Participants were selected based on their availability and willingness to participate in the six-week aerobic dance intervention.

Intervention:

The intervention consisted of a six-week aerobic dance program conducted as part of the Seremban Fit Challenge. Participants attended aerobic dance sessions once a week for a duration of 60 minutes per session. The aerobic dance sessions incorporated various dance movements and choreographies designed to improve cardiovascular fitness and promote weight loss. The sessions were conducted in a group setting under the guidance of trained instructors.

Data Collection:

Data collection occurred at three stages: pre-intervention, mid-intervention, and post-intervention. Pre and post-tests were conducted to assess cardiovascular fitness and weight loss. Cardiovascular fitness was measured using a 1-mile run test, while weight loss was measured using weight scales. The same procedures were followed for both pre and post-tests to ensure consistency and reliability of measurements.

Data Analysis:

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) Version 20. Paired sample T-tests were used to compare pre and post-test measurements of cardiovascular fitness and weight loss. Descriptive statistics such as mean, standard deviation, and range were calculated to summarize the demographic characteristics of the participants and the outcome variables. Statistical significance was set at $p < 0.05$.

Ethical Considerations:

Ethical approval was obtained from the relevant institutional review board prior to the commencement of the study. Informed consent was obtained from all participants, and they were assured of confidentiality and anonymity throughout the study. Participants were also informed of their right to withdraw from the study at any time without consequence.

Limitations:

Limitations of this study include the lack of a control group, which limits the ability to establish causality. Additionally, the sample size was relatively small, consisting only of women participants from the Seremban Fit Challenge program. The results may not be generalizable to other populations or settings. Furthermore, self-reported data on dietary habits and lifestyle factors may introduce bias into the study findings.

Delimitations:

The study focused specifically on women participants from the Seremban Fit Challenge program, limiting the generalizability of the findings to this population. The duration of the intervention was limited to six weeks, and data collection was conducted at predetermined time points (pre, mid, and post-intervention). These delimitations provide a clear scope for the study and help to establish the parameters of the research.

Results: The results indicated significant improvements in cardiovascular fitness and weight loss following the six-week aerobic dance intervention.

1-Mile Run Test Results:

Test Type	Pre-Test (Mean ± SD)	Post-Test (Mean ± SD)	t-value	Degrees of Freedom	p-value
Mean Difference	12.35 ± 2.14	11.51 ± 1.98	3.93	13	<0.05

Weight Loss Results:

Test Type	Pre-Test (Mean ± SD)	Post-Test (Mean ± SD)	t-value	Degrees of Freedom	p-value
Mean Difference	65.93 ± 11.24	64.57 ± 11.30	5.47	13	<0.05

Results:

1-Mile Run Test Results:

The 1-mile run test was utilized as a measure of cardiovascular fitness before and after the six-week aerobic dance intervention. The pre-test mean time to complete the 1-mile run was 12.35 minutes, with a standard deviation of 2.14. Following the intervention, the post-test mean time decreased to 11.51 minutes, with a standard deviation of 1.98. The paired sample T-test revealed a significant mean difference of 0.84 minutes between pre and post-test measurements ($t = 3.93$, $df = 13$, $p < 0.05$). This indicates a notable improvement in cardiovascular fitness among participants after completing the aerobic dance program.

Weight Loss Results:

Weight loss was assessed before and after the six-week aerobic dance intervention to determine its effectiveness in promoting weight management. The pre-test mean weight of participants was 65.93 kg, with a standard deviation of 11.24. Following the intervention, the post-test mean weight decreased to 64.57 kg, with a standard deviation of 11.30. The paired sample T-test revealed a significant mean difference of 1.36 kg between pre and post-test measurements ($t = 5.47$, $df = 13$, $p < 0.05$). This indicates a significant reduction in body weight among participants following the aerobic dance program.

Discussion:

The results demonstrate significant improvements in both cardiovascular fitness and weight loss among women participants following the six-week aerobic dance intervention. The observed decrease in 1-mile run times indicates enhanced endurance and cardiovascular performance among participants. This improvement can be attributed to the aerobic nature of dance, which requires sustained rhythmic movements that elevate heart rate and promote cardiovascular adaptation.

Furthermore, the significant reduction in body weight highlights the effectiveness of aerobic dance as a means of facilitating weight loss. The combination of calorie expenditure during dance sessions and potential modifications in dietary habits likely contributed to the observed changes in body weight. The results support previous research indicating the efficacy of aerobic dance in promoting weight management and overall health.

Conclusion:

In conclusion, the findings of this study underscore the effectiveness of a six-week aerobic dance program in improving cardiovascular fitness and facilitating weight loss among women participants. Aerobic dance offers a enjoyable and accessible form of exercise that can be incorporated into diverse fitness routines. These results contribute to the growing body of evidence supporting the use of aerobic dance as a viable strategy for promoting cardiovascular health and healthy weight management.

Recommendations:

Based on the findings, it is recommended to further explore the long-term effects of aerobic dance interventions on cardiovascular health and weight management. Future research should also investigate the applicability of aerobic dance programs to diverse populations and settings. Efforts to promote aerobic dance as a feasible and enjoyable exercise option should be encouraged, particularly in community-based health initiatives and fitness programs. Additionally, education and awareness campaigns may help to increase participation and adherence to aerobic dance programs, thereby maximizing their potential benefits for cardiovascular fitness and weight management.

REFERENCE

1. Arena, R., Riebe, D. and Thompson, P. D. With Linda S. Pescatello; associate editors (2013) ACSM's guidelines for exercise testing and prescription. 9th edn. Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins Health.
2. Baumgartner, T. A. (2012) Conducting and reading research in kinesiology. 5th edn. New York, NY: McGraw-Hill.
3. Caspersen, C., Powell, K., & Christenson, G. (1985). Physical activity, exercise, and physical fitness: definitions and distinctions for healthrelated research. *Public Health Reports*, 100(2), 126
4. Centers for Disease Control and Prevention. (2015). Aerobic Activity Routines. Retrieved 25 May 2015,
5. Chee, H., L., Kandiah, M., Khalid, M., Shamsuddin, K., Jamaluddin, J., Nordin, N., A., M., M., Shuib, R. and Osman, I. (2004). Body mass index and factors related to overweight among women workers in electronic factories in Peninsular Malaysia. *Asia Pac J Clin Nutr* 2004 248-258.
6. Driskell, J. A., B.R. Meckna and N.E. Scales. (2006). Differences exist in the eating habits of university men and women at fast-food restaurant. *Nutrition Research* 26, no. 10:524-530.
7. Fahlman, M., M., Hall, H., L. and Lock, R. (2006). Ethnic and socioeconomic comparisons of fitness, activity levels, and barriers to exercise in high school females. *J Sch Health*. 2006; 76(1): 12-17.
8. George, J., Vehrs, P., Allsen, P., Fellingham, G., & Fisher, A. (1993). VO₂max estimation from a submaximal 1-mile track jog for fit collegeage individuals. *Medicine & Science in Sports & Exercise*, 25(3), 401- 406.
9. Gutin, B., Barbeau, P., Owens, S., Lemmon, C., Bauman, M., & Allison, J. et al. (2002). Effects of exercise intensity on cardiovascular fitness, total body composition, and visceral adiposity of obese adolescents. *American Journal of Clinical Nutrition*, 75(5), 818-26.
10. Halvorsen, S., Haakstad, LA., Edvardsen, E., & Bø, K. (2012). Effect of aerobic dance on cardiorespiratory fitness in pregnant women: a randomized controlled trial. *PubMed - NCBI.Ncbi.nlm.nih.gov*. Retrieved 7 April 2015
11. Heyward, V.H. (2006) *Advanced Fitness Assessment and Exercise Prescription*. 5th edn. Leeds: Human Kinetics Publishers.
12. Jakubec, A., Stejskal, P., Kováčová, L., Elfmark, M., Řehová, I., Botek, M. and Petr, M. (2008). Changes in heart rate variability after a six month long aerobic dance or step- dance programme in women 40–65 years old: The influence of different degrees of adherence, intensity and initial levels. *Acta Univ. Palacki. Olomuc., Gymn.* 2008, vol. 38, no. 2.
13. Jaywant, P. (2015). *Journal of Exercise Science and Physiotherapy - Effect of aerobic dance on the body fat distribution and cardiovascular endurance in middle aged women (Health Collection) - Informit*. *Exercise Fitness and Health Alliance*, 9(1), 6. Retrieved 3 March 2015.

14. Leelarungrayub, D., Saidee, K., Pothongsunun, P., Pratanaphon, S., YanKai, A., & Bloomer, R. (2015). Six weeks of aerobic dance exercise improves blood oxidative stress status and increases interleukin-2 in previously sedentary women.
15. Li, C., Tseng, H., Tseng, R., Lee, S. (2015). The effectiveness of an aerobic exercise intervention on worksite health-related physical fitness- -a case in a high-tech company.
16. Okura, T., Nakata, Y., Lee, D., J., Ohkawara, K. and Tanaka, K. (2005). Effects of aerobic exercise and obesity phenotype on abdominal fat reduction in response to weight loss. *International Journal of Obesity* (2005)29, 1259–1266.
17. Pantelic, S., Milanovic, Z., Sporis, G., & Stojanovic-Tosic, J. (2013). Effects of a Twelve-Week Aerobic Dance Exercises on Body Compositions Parameters in Young Women. *Int. J. Morphol.*, 31(4), 1243-1250. Retrieved 20 May 2015.
18. Rahimi, R. (2006). Effect of moderate and high intensity weight training on the body composition of overweight men. *Facta universitatis-series: Physical Education and Sport*. Retrieved 14 April 2015,