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Poundfit exercise and cardiometabolic health in women: a quasi-experimental study

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A B S T R A C T

Background: Poundfit is a rhythmic, music-driven aerobic exercise that integrates cardiovascular movement and strength-based activities. Despite its growing popularity, evidence regarding its effects on cardiometabolic parameters in healthy adults remains limited.

Objective: This study aimed to evaluate the effects of a short-term Poundfit exercise program on blood pressure and blood glucose levels in healthy adult women.

Methods: A quasi-experimental one-group pretest–posttest design was conducted among 22 women aged 19–50 years. Participants attended Poundfit exercise sessions twice weekly for two weeks, with each session lasting 60 minutes. Blood pressure and blood glucose levels were measured before and after the intervention. Pretest–posttest comparisons were analyzed using the Wilcoxon signed-rank test.

Results: Following the two-week intervention, systolic and diastolic blood pressure showed slight reductions, while blood glucose levels showed a slight increase; however, none of these changes were statistically significant ($p = 0.122$ for systolic blood pressure, $p = 0.933$ for diastolic blood pressure, and $p = 0.220$ for blood glucose).

Conclusion: A two-week Poundfit exercise program did not result in statistically significant changes in blood pressure or blood glucose levels in healthy adult women. These findings suggest that short-term Poundfit training may be insufficient to produce measurable cardiometabolic improvements in normotensive individuals, highlighting the need for longer or more intensive exercise interventions in future studies.

INTRODUCTION

Cardiometabolic health is a central determinant in the prevention of chronic non-communicable diseases, including hypertension, type 2 diabetes mellitus, and cardiovascular disorders, which collectively remain the leading causes of morbidity and mortality worldwide.[1,2] Impaired cardiometabolic regulation contributes substantially to long-term health complications, reduced quality of life, and increased healthcare costs. Adult women represent a particularly vulnerable population due to age-related physiological changes, hormonal fluctuations across the lifespan, and lifestyle factors that collectively increase susceptibility to cardiometabolic disturbances when preventive measures are insufficient.[3]

The global burden of cardiometabolic disease remains substantial. Hypertension affects more than 1.13 billion individuals worldwide.[4] In Indonesia, its prevalence has reached 34.1%, placing the country among those with the highest burden globally.[5] Diabetes mellitus presents a similarly alarming trend, with a reported prevalence of 10.9% among Indonesian adults.[5] These epidemiological data underscore the urgent need for effective preventive strategies. Sedentary behavior, unhealthy dietary patterns, obesity, and psychosocial stress are consistently identified as major contributors to cardiometabolic risk, further exacerbating disease prevalence and progression. Consequently, interventions targeting modifiable lifestyle factors are urgently required.[6,7]

Among non-pharmacological approaches, regular physical activity is widely recognized as one of the most effective strategies for improving cardiometabolic health. Exercise enhances cardiovascular function, improves vascular elasticity, regulates blood glucose metabolism, and reduces long-term metabolic risk through weight control and

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improved insulin sensitivity. Numerous studies have demonstrated that moderate-intensity aerobic activities are associated with improved cardiorespiratory fitness and a reduced incidence of hypertension and type 2 diabetes.[7] However, adherence to conventional exercise routines remains a persistent challenge. Monotony, lack of motivation, and time constraints are frequently reported barriers, particularly among women who often balance professional, domestic, and social responsibilities. These challenges highlight the need for innovative, enjoyable, and engaging exercise modalities capable of sustaining long-term participation.

Poundfit has recently emerged as a novel, music-driven aerobic exercise that integrates rhythmic movements into a group-based fitness format.[8] By combining dynamic cardiovascular exercise with music and coordinated movements, Poundfit transforms physical activity into an engaging experience that may enhance motivation and enjoyment. Observational data suggest increasing participation among women, likely due to its energetic format and adaptability across varying fitness levels. Previous research on aerobic exercise broadly indicates beneficial effects on cardiorespiratory capacity, body composition, and metabolic health outcomes.[6,7] Nevertheless, empirical evidence examining the specific effects of Poundfit on cardiometabolic markers particularly blood pressure and blood glucose remains limited.

Existing studies have predominantly focused on conventional aerobic modalities, leaving a clear evidence gap regarding entertainment-based exercise programs such as Poundfit.[8] Despite growing popularity in community and fitness settings, rigorous scientific evaluation of Poundfit's cardiometabolic effects is still scarce. This gap is especially relevant in the context of rising hypertension and diabetes prevalence in Indonesia and globally. Given women's heightened vulnerability to cardiometabolic disorders and the well-documented challenges of exercise adherence, investigating enjoyable yet effective physical activity interventions is of critical importance.

Therefore, this study aimed to evaluate the effects of a structured Poundfit training program on blood pressure and blood glucose levels in healthy adult women. By focusing on these key cardiometabolic parameters, the study sought to determine whether Poundfit could be recommended as a practical, attractive, and sustainable non-pharmacological strategy for improving cardiometabolic health.

METHOD

Study Design

This study employed a quasi-experimental one-group pretest–posttest design. This design was selected to evaluate changes in cardiometabolic parameters following a structured Poundfit exercise intervention without the inclusion of a control group.[9,10]

Setting And Respondent

The study was conducted from May to June 2024 at DM Fitness Center. The study population consisted of adult women who regularly attended fitness activities at the center. A total of 22 healthy adult women aged 19–50 years were recruited using purposive sampling based on predefined inclusion and exclusion criteria. The inclusion criteria were women aged 19–50 years with no history of infectious or metabolic diseases, not participating in any weight loss program during the previous six months, non-smokers, and not pregnant or breastfeeding. Participants with baseline blood pressure exceeding 160/100 mmHg were excluded from the study. All participants met the eligibility criteria prior to enrollment.

Variable, Instrument and Measurement

The primary intervention in this study was a structured Poundfit exercise program. The study outcomes were systolic and diastolic blood pressure and blood glucose levels, which were selected as indicators of cardiometabolic health in healthy adult women. Blood pressure was measured using a digital sphygmomanometer, and blood glucose levels were assessed using a glucometer. Outcome measurements were obtained during the pretest and posttest phases of the study. To ensure measurement accuracy and reliability, all instruments were calibrated prior to data collection, and standardized measurement procedures were applied consistently across all participants.

Intervention Procedure

The Poundfit exercise program was implemented over a two-week period, with sessions conducted twice per week. Each session lasted approximately 60 minutes and followed a standardized Poundfit routine guided by an instructor. Baseline (pretest) measurements of blood pressure and blood glucose levels were obtained prior to the first exercise session. Post-intervention (posttest) measurements were collected after completion of the final exercise session to assess physiological changes associated with the intervention.

Data Analysis

Data were analyzed using appropriate non-parametric statistical methods. Differences between pretest and posttest measurements of blood pressure and blood glucose levels were analyzed using the Wilcoxon signed-rank test. Statistical significance was set at a p-value of less than 0.05.

Ethical Consideration

This study received ethical approval from the Ethics Committee of the Faculty of Health Sciences, Respati University (No. 049.3/FIKES/PL/V/2024). All participants were informed about the study objectives and procedures prior to participation.

RESULTS

Participant Characteristics

A total of 22 adult women participated in this study. The mean age of participants was 31.77 years, with an age range of 21–49 years. Participants reported exercising an average of two times per week (range: 1–5) and had been engaged in fitness training for a mean duration of 6.86 months (range: 1–14 months).

Regarding educational background, half of the participants held a master's degree (50%), followed by senior high school graduates (40.9%) and diploma holders (9.1%). The most common occupation was housewife (50%), followed by business owners (18.2%), students (18.2%), and private sector employees (13.6%). Detailed participant characteristics are presented in Table 1.

Table 1. Characteristics of Participants (n = 22)

Characteristic	Result
Age (years)	
Min–Max	21–49
Mean	31.77
Exercise frequency (times/week)	
Min–Max	1–5
Mean	2
Duration of training participation (months)	
Min–Max	1–14
Mean	6.86
Education, n (%)	
Senior high school	9 (40.9)
Diploma	2 (9.1)
Master's degree	11 (50.0)
Occupation, n (%)	
Housewife	11 (50.0)
Business owner	4 (18.2)
Private sector employee	3 (13.6)
Student	4 (18.2)

Pretest–Posttest Outcomes

Comparisons of blood pressure and blood glucose levels before and after the two-week Poundfit intervention are presented in Table 2. As several outcome variables did not meet normality assumptions, data are reported as median (minimum–maximum), and comparisons were conducted using the Wilcoxon signed-rank test.

Blood glucose levels showed a median value of 89.63 mg/dL at pretest and 96 mg/dL at posttest, with no statistically significant difference observed (p = 0.220). Median systolic blood pressure decreased from 118.68 mmHg at pretest to 115.82 mmHg at posttest; however, this change was not statistically significant (p = 0.122). Diastolic blood pressure showed minimal change between pretest and posttest measurements, with no significant difference detected (p = 0.933).

DISCUSSION

This study examined the short-term effects of a structured Poundfit exercise program on blood pressure and blood glucose levels in healthy adult women. Overall, the findings did not demonstrate statistically significant changes in systolic or diastolic blood pressure, nor in blood glucose levels, following the two-week intervention. These results suggest that while Poundfit may induce acute physiological responses, a short intervention period may be insufficient to produce sustained cardiometabolic adaptations in normotensive and metabolically healthy individuals.

Previous studies have shown that aerobic exercise can induce immediate reductions in blood pressure through mechanisms such as transient vasodilation and temporary modulation of sympathetic nervous system activity.[11,12] However, such acute responses do not necessarily translate into long-term blood pressure reductions. Consistent with earlier reports, short-term exercise interventions in normotensive populations often fail to produce statistically significant or clinically meaningful changes in resting blood pressure.[13-14]

Blood glucose levels also did not show significant changes following the intervention. Exercise-induced improvements in glycemic control are known to be more pronounced in individuals with impaired glucose metabolism. In healthy individuals, short-term aerobic exercise may have minimal effects on resting blood glucose levels. These findings align with previous research indicating that meaningful improvements in glycemic regulation typically require longer intervention durations and are more evident in high-risk or clinical populations.[15-20] Participant characteristics may also have influenced the observed outcomes. The mean age of participants was 31.77 years, placing most individuals in the young to middle-aged adult category. Although cardiometabolic risk tends to increase with age, this population generally maintains relatively preserved cardiovascular and metabolic function.[21-24] Lifestyle interventions such as physical activity remain important preventive strategies in this age group.[25-27]

The average exercise frequency of two sessions per week reflects moderate engagement with the intervention. While regular physical activity has been associated with health benefits, greater frequency, intensity, or duration may be required to elicit significant cardiometabolic changes.[26,27]

Table 2. Pretest–Posttest Changes in Blood Pressure and Blood Glucose Levels

Variable	Pretest Median (Min–Max)	Posttest Median (Min–Max)	p-value
Blood glucose (mg/dL)	89.63 ± 13.18	96 ± 14.19	0.220
Systolic BP (mmHg)	118.68 ± 13.26	115.82 ± 11.46	0.122
Diastolic BP (mmHg)	79.82 ± 7.32	79.14 ± 7.70	0.933

Longer-term participation in physical activity has been associated with improved insulin sensitivity and blood pressure regulation.[28-30] Sociodemographic factors such as education and occupation may also influence health behaviors. Higher educational attainment has been linked to greater health awareness and healthier lifestyle choices.[31,32] While homemakers may be at increased risk of sedentary behavior, they may also have greater flexibility to engage in structured exercise programs.[33,34] Several limitations should be considered, including the short intervention duration, small sample size, absence of a control group, and lack of control over dietary intake, stress, sleep, and physical activity outside the intervention. Despite these limitations, the findings are consistent with existing evidence suggesting that sustained cardiometabolic improvements require longer and more intensive exercise interventions. Future studies should employ longer intervention periods, larger samples, and controlled designs to better evaluate the cardiometabolic effects of Poundfit, particularly in populations with elevated cardiometabolic risk.

CONCLUSIONS AND RECOMMENDATION

This study found no statistically significant changes in blood pressure or blood glucose levels following a two-week Poundfit exercise intervention in healthy adult women. These findings indicate that short-term Poundfit training may be insufficient to produce measurable improvements in resting cardiometabolic parameters in normotensive individuals.

Despite the absence of significant effects, Poundfit represents an engaging form of aerobic physical activity that may support exercise adherence. As such, it may be incorporated as part of a broader lifestyle-based health promotion strategy alongside dietary management and stress reduction. Future studies with longer intervention periods, larger samples, and controlled designs are needed to clarify the potential cardiometabolic benefits of Poundfit..

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