Effect of Brisk Walking on Blood Pressure and Physiological Parameters in Middle-Aged Women

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Abstract

This study investigates the impact of brisk walking on natural grass on physiological parameters, specifically systolic and diastolic blood pressure. Thirty middle-aged women from Tirunelveli District, Tamil Nadu, were randomly chosen for the research. The participants were divided equally into two groups: a brisk walking group (Group I) and a control group (Group II). The experimental group followed a structured walking routine three times a week for 12 weeks, while the control group maintained their usual daily activities without additional training. Blood pressure levels were recorded before and after the intervention using a sphygmomanometer. Statistical analysis was conducted using ANCOVA to determine significant differences between the groups. Results indicated a notable reduction in both systolic and diastolic blood pressure among participants in the brisk walking group compared to the control group, confirming the positive physiological effects of walking on grass.

Introduction

Walking barefoot on grass, commonly known as "earthing," has gained popularity due to its potential health benefits. Many individuals prefer early morning or late afternoon walks to harness the natural energies of the earth. Reflexology theories suggest that various pressure points on the feet correspond to different organs, including the eyes. Walking barefoot stimulates these pressure points, potentially improving overall well-being. Additionally, it strengthens the muscles, tendons, and ligaments in the feet, enhancing flexibility, posture, and reducing the risk of injuries. Walking barefoot can be particularly beneficial for individuals with flat feet and those seeking to improve postural alignment. Brisk walking on

grass is often recommended for its ability to improve cardiovascular fitness, lower blood pressure, and enhance overall well-being. It serves as a low-impact exercise suitable for individuals of all ages, particularly middle-aged adults looking to maintain an active lifestyle. This study explores the physiological benefits of brisk walking on grass and its impact on systolic and diastolic blood pressure among middle-aged individuals.

Methodology

This study aimed to assess the physiological impact of brisk walking on grass on systolic and diastolic blood pressure. The participants, 30 middle-aged women from Tirunelveli District, were randomly assigned to two groups: the brisk walking group (Group I) and the control group (Group II). Group I followed a structured walking program three days per week for 12 weeks, whereas Group II did not engage in any additional exercise beyond their regular routine. Pre- and post-intervention blood pressure measurements were taken using a sphygmomanometer. The analysis was conducted using ANCOVA to identify any significant changes in the recorded variables. The confidence level was set at 0.05 for statistical validation. The study followed ethical guidelines, ensuring that participants provided informed consent before enrolling in the research. The intervention was monitored to maintain consistency in the walking routine, ensuring participants adhered to the prescribed regimen. Environmental factors, such as temperature and humidity, were also considered to minimize external influences on the results.

Analysis of the Data

The effects of brisk walking on grass on systolic and diastolic blood pressure were analyzed separately, with findings presented below.

Systolic Blood Pressure

The analysis of covariance on systolic blood pressure of the pre and post test scores of brisk walking on grass group and control group have been analyzed and presented in Table I.

TABLE I: ANALYSIS OF COVARIANCE OF THE DATA ON SYSTOLIC BLOOD PRESSURE OF PRE AND POST TESTS SCORES OF BRISK WALKING ON GRASS GROUP AND CONTROL GROUP

Test	Brisk Walking on Grass Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	129.33	128.67	Between	3.33	1	3.33	0.25
S.D.	3.74	3.19	Within	368.67	28	13.17	
Post Test							
Mean	125.20	127.93	Between	56.03	1	56.03	4.76*
S.D.	3.26	2.84	Within	329.37	28	11.76	
Adjusted Post Test							
Mean	124.93	128.20	Between	79.64	1	79.64	68.54*
			Within	31.38	28	1.16	

* Significant at .05 level of confidence.
(The table value required for significance at .05 level of confidence with df 1 and 28, 1 and 27 were 4.20 and 4.21 respectively)

The table I shows that pre-test means on systolic blood pressure of brisk walking on grass group and control group are 129.33 and 128.67 respectively. The obtained "F" ratio of 0.25 for pre -test means is less than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on systolic blood pressure. The post-test means on systolic blood pressure of brisk walking on grass group and control group are 125.20 and 127.93 respectively. The obtained "F" ratio of 4.76 for post-test means is more than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on systolic blood pressure. The table I further shows that the adjusted post-test mean values of brisk walking on grass group and control group are 124.93 and 128.20 respectively. The obtained "F" ratio of 68.54 for adjusted post-test means is greater than the required table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on systolic blood pressure. The results of the study indicated that there was a significant difference between the adjusted post-test means of brisk walking on grass group and control group on systolic blood pressure.

Diastolic Blood Pressure

The analysis of covariance on diastolic blood pressure of the pre and post test scores of brisk walking on grass group and control group have been analyzed and presented in Table II.

TABLE II: ANALYSIS OF COVARIANCE OF THE DATA ON DIASTOLIC BLOOD PRESSURE OF PRE AND POST TESTS SCORES OF BRISK WALKING ON GRASS GROUP AND CONTROL GROUP

Test	Brisk Walking on Grass Group	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test							
Mean	87.13	86.87	Between	0.53	1	0.53	0.12
S.D.	2.22	1.76	Within	123.47	28	4.41	
Post Test							
Mean	82.80	86.40	Between	97.20	1	97.20	14.70*
S.D.	1.82	1.67	Within	185.20	28	6.61	
Adjusted Post Test							
Mean	82.71	86.49	Between	106.93	1	106.93	98.85*
			Within	29.21	28	1.08	

* Significant at .05 level of confidence.
(The table value required for significance at .05 level of confidence with df 1 and 28, 1 and 27 were 4.20 and 4.21 respectively)

The table II shows that pre-test means on diastolic blood pressure of brisk walking on grass group and control group are 87.13 and 86.87 respectively. The obtained "F" ratio of 0.12 for pre -test means is less than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on diastolic blood pressure. The post-test means on diastolic blood pressure of brisk walking on grass group and control group are 82.80 and 86.40 respectively. The obtained "F" ratio of 14.70 for post-test means is more than the table value of 4.20 for df 1 and 28 required for significance at .05 level of confidence on diastolic blood pressure. The table II further shows that the adjusted post-test mean values of brisk walking on grass group and control group are 82.71 and 86.49 respectively. The obtained "F"

ratio of 98.85 for adjusted post-test means is greater than the required table value of 4.21 for df 1 and 27 required for significance at .05 level of confidence on diastolic blood pressure. The results of the study indicated that there was significant difference between the adjusted post-test means of brisk walking on grass group and control group on diastolic blood pressure.

Discussion

The findings of this study align with existing research supporting the benefits of brisk walking on cardiovascular health. Walking on natural surfaces such as grass is believed to have additional benefits due to the grounding effect, which may enhance circulation and reduce inflammation. The results of this study provide further evidence that engaging in regular brisk walking on grass can lead to measurable improvements in blood pressure regulation. Several physiological mechanisms may explain these effects. Physical activity is known to enhance endothelial function, reduce arterial stiffness, and improve circulation. Additionally, exposure to nature while walking may contribute to stress reduction, which in turn can have a positive effect on blood pressure. The study underscores the importance of incorporating natural movement-based activities into daily routines to promote long-term cardiovascular health.

Conclusion

The findings suggest that brisk walking on grass significantly improves both systolic and diastolic blood pressure. The intervention demonstrated measurable physiological benefits, supporting the inclusion of walking on grass as an effective exercise strategy for managing blood pressure. These results highlight the importance of natural, low-impact exercises in promoting cardiovascular health. Given the promising findings of this study, further research is recommended to explore the long-term effects of walking on grass on other physiological parameters, such as heart rate variability, cholesterol levels, and overall cardiovascular fitness. Future studies may also consider a larger sample size and a longer intervention period to validate and expand on these findings.

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