The Effect of Six Weeks of Brisk Walking on Respiratory Rate of Sedentary College Students

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Abstract

The purpose of the present study was to examine the effect of six weeks of brisk walking on respiratory function of sedentary college students. The sample was consisted of thirty (N 30) sedentary college students and their age ranged between 18-25 years of age .the subjects were briefed in details about the study. The criterion measures for the study was respiratory rate and it was measured by respiration in unit counts per minute by carefully watching the movements of the subject's abdomen. The total research period was of 12 weeks out of which six (6 weeks) of brisk walking programme was employed. Mean respiratory rate differed statistically significantly between Observation points (F (4, 116) = 199.65, $P <$ 0.000 that insignificant difference was found in case first observation and second observation (MD=0.16, p=1.00), whereas significant difference was found in second and third observation (MD=2.3, p=1.00) , third observation and fourth observation (MD=2.53, p=0.00) and fourth and fifth observation (MD=3.33, p=0.00).

KEYWORDS: Brisk walking, Respiratory rate, Sedentary.

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1 Introduction

Brisk walking exercise has been proposed as a less expensive alternative, with a good clinical outcome when patients are frequently counseled by motivated, supportive physicians. However, brisk walking programmes mainly consist of endurance type exercise activities. As combined endurance and resistance type exercise training has been reported to be of greater clinical benefit. Brisk is also a term familiar to most people, and it is used frequently to designate an accelerated walking pace. In the direction it is defined as "quickly and active; lively: a brisk walk." The brisk pace starts at about 17 minutes per mile at the slow end of the range and stops out at 14 minutes per mile. The brisk walk-18 to 14-minutes miles is the pace that most long term exercise-walkers use. It delivers enough cardiovascular improvement and caloric expenditure for the time spent to be the best all-around exercise on a risk- reward basis for all people who do not have physical impairment in their walking gait, it cannot be beaten. Walking is one of the best things you can do for your health. It's good for your heart, blood pressure and weight management. When you're walking to get or stay fit, your form, pace, and breathing is especially important. Mastering a good walking technique takes some time. But with practice, it will become second nature and will help you increase and maintain your pace comfortably. Thus the investigator interested in whether six weeks of brisk walking programme is effective in decreasing the respiratory rate of sedentary college students.

2. Material and Methods

2.1 Subjects

For the purpose of the study thirty (N=30) male sedentary college students of Lucknow Christian College, Lucknow between 18 to 25 years of age were selected as subjects for the present study and the subjects were briefed in details about the study.

2.2 selections of variables

Based on literary evidence, discussion with expert and scholar's own understanding respiratory rate was selected as variable for the present study.

2.3 Procedure

Periodisation of training and collection of data was showed in table 1

2.4 Administration of test

Resting Respiratory Rate

Objective: To measure Respiratory Rate.

Equipment required: Stopwatch.

Procedure: The Resting Respiratory Rate of each subject was recorded in the morning session. Before recording the Resting Respiratory Rate, the subject was instructed to remain for five minutes in supine lying position. The tester then recorded the rate of respiration in unit counts per minute by carefully watching the movements of the subject's abdomen. Similarly, the respiration rate was counted during the game and at the termination of the game (three minute recovery).

Score: The total number of respiratory movements per minute was the final score.

Periodisation of training and collection of data presented in Table 1

Table- 1 ***Periodisation of training and collection of data***

Phase -1				Phase-2								Phase-3			
Training	Weeks	Days	Obs	Training	Weeks	Days	Obs	Training	Weeks	Days	Obs	Training	Weeks	Days	Obs
No	1	1	A	Brisk Walking	4	22		Brisk Walking	7	43		De	10	64	
		2				23				44				65	
		3				24				45				66	
		4				25				46				67	
		5				26				47				68	
		6				27				48				69	
		7				28				49				70	
	2	8			5	29			8	50			11	71	
		9				30				51				72	
		10				31				52				73	
		11				32				53				74	
		12				33				54				75	
		13				34				55				76	
		14				35				56				77	
	3	15			6	36			9	57			12	78	
		16				37				58				79	
		17				38				59				80	
		18				39				60				81	
		19				40				61				82	
		20				41				62				83	
		21	B			42	C			63	D			84	E

Note:- obs = observation
The Total research period was of 84 days. obs A=day1, obs B=21st day, obs C=42nd day, obs D=63rd day and obs E=84th day).

2.5Statistical Analysis

To determine the level of Respiratory rate, descriptive statistics was applied. To determine the effect of brisk walking on Respiratory rate in sedentary college students one factor repeated measures analysis of variance was used to compute the data.

3 Findings

The findings and discussion of findings with regard to the present study have been presented in two sections. Section one deal with the mean and standard deviation of Aerobic/cardiovascular function. Section two deals with the one factor repeated measures Analysis of variance of Aerobic/cardiovascular function variable.

SECTION ONE
Mean and Standard deviation of Respiratory Rate

Table-2

Variable	Observation									
	obs A		obs B		obs C		obs D		obs E	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Respiratory Rate	19.37	1.9	**19.53**	**1.89**	**17.23**	**1.87**	**14.7**	**2.23**	**18.03**	**1.56**

The Mean of Respiratory rate in Table-7 shows that there was minor increase in respiratory rate from observation one to observation second (**obs A 19.37**(r/min), **obs B 19.53**(r/min), whereas after second observation to fourth observation there was sequential decrease in respiratory rate till the training phase **obs C 17.23**(r/min), **obs D 14.7**(r/min)**)**. Whereas at obs E of detraining phase there was slight increase in the mean of respiratory rate (18.03 r/min).

SECTION TWO

The findings pertaining to brisk walking one factor repeated measure analysis of variance was computed and data pertaining to that have been presented in tables.

Respiratory Rate

Mauchly's Test of Sphericity for Respiratory rate presented in table 2

Table-3

Mauchly's Test of Sphericity for Respiratory rate

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	Df	Sig.	Epsilon[a]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Observation	.599	14.058	9	0.121	.771	.873	.250

The above table reveals that the Mauchly's Test of Sphericity was insignificant (i.e has a probability value was greater than 0.05) and it is conduced that there was no significant variance of difference and thus the condition of Sphericity has not been violated, $X^2(9) = 14.058$, $p = 0.121$.

One Factor Repeated-Measure Analysis of Variance of Respiratory Rate Presented in Table 9.1

Table-3.1

One Factor Repeated-Measure Analysis of Variance for Respiratory Rate

Source	SS	Df	MS	F	P
Between-Subject	449.093	29	15.486	-	-
Within-Subject					
Observation	463.227	4	115.807	197.630	.000
Subject x Observations	67.973	116	.586		

A repeated measures ANOVA with a Sphericity assumed determined that mean respiratory rate differed statistically significantly between Observation points (F (4, 116) = 197.630, $P < 0.000$).

Table-3.2

Pair wise Comparison of observations in relation to Respiratory Rate

(I) Observation	(J) Observation	Mean Difference (I-J)	Sig.[a]
1) 19.37	2) 19.53	**0.167**	**1.000**
2) 19.53	3) 17.23	**2.300***	**1.000**
3) 17.23	4) 14.7	**2.533***	**0.000**
4) 14.7	5) 18.03	**3.333***	**0.000**

Post hoc tests using the Bonferroni correction revealed that insignificant difference was found in case first observation and second observation (MD=0.167, p=1.000), whereas significant difference was found in second and third observation (MD=2.30, p=1.000) , third observation and fourth observation (MD=2.53, p=0.000) and fourth and fifth observation (MD=3.33, p=0.000). We can, therefore, conclude that a brisk walking training program (6 Observations) elicits a statistically significant reduction in Respiratory rate.

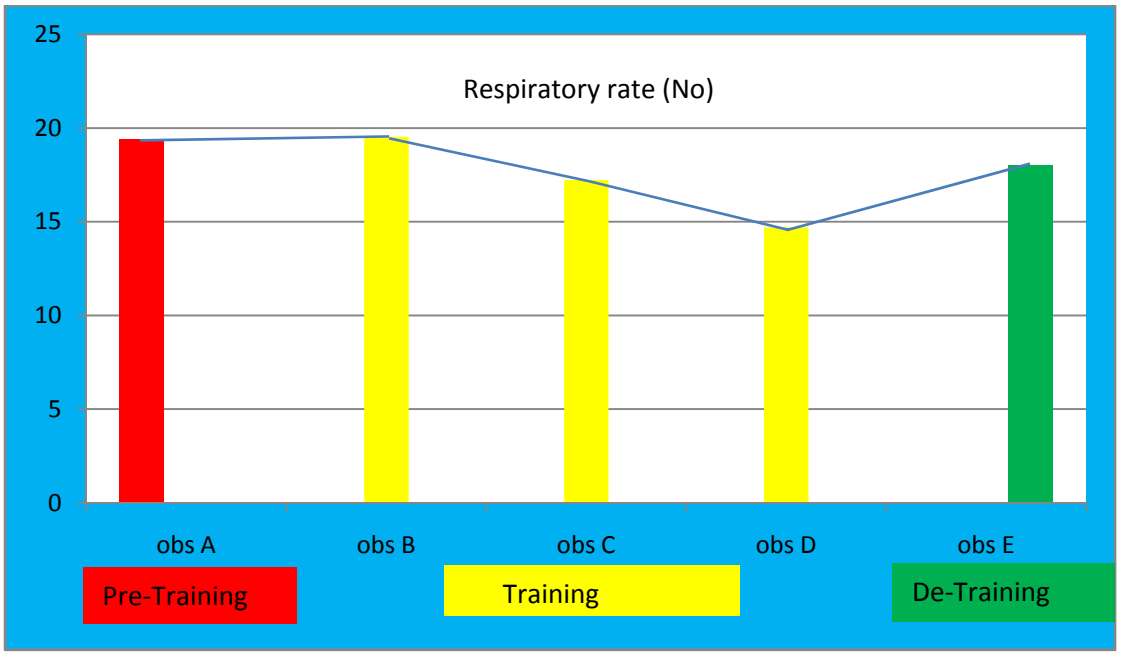

Illustration: 2 Graphical representation of means on repeated observations in relation to Respiratory rate(r/min).

4. Discussion of Findings

The Mean of Respiratory rate in table-7 reveals that there was minor increase in respiratory rate from observation one to observation second (**obs A 19.37**(r/min), obs **B 19.53**(r/min), whereas after second observation to fourth observation there was sequential decrease in respiratory rate till the training phase **obs C 17.23**(r/min), obs **D 14.7**(r/min)**)**. Whereas at obs E of detraining phase there was slight increase in respiratory rate (18.03 r/min). The mean respiratory rate differed statistically significantly between Observation points (F (4, 116) = 197.630, $P < 0.000$). Insignificant difference was found in case first observation and second observation (MD=0.167, p=1.000), whereas significant difference was found in second and third observation (MD=2.30, p=1.000), third observation and fourth observation (MD=2.53, p=0.000) and fourth and fifth observation (MD=3.33, p=0.000). We can, therefore, conclude that a brisk walking training program (6 weeks) elicits a statistically significant reduction in Respiratory rate

5. Conclusion and recommendation

From the above discussion it is concluded that a brisk walking training programme (6 weeks) elicits a statistically significant decrease in respiratory rate of sedentary college students. The results of this study may be used by Physical Education teachers, Health trainers and Fitness experts for prescribing the brisk walking programme for different age groups and sex.

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