

Effect Of Moderate Intensity Walking On Blood Pressure In Prehypertensive Adults

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ABSTRACT

The study analyzed the effect of moderate intensity walking on the blood pressure of pre hypertensive men. For this purpose, 30 sedentary prehypertensive men aged from 30 to 40 were selected from Trivandrum, Kerala. They were divided equally and randomly in to two groups [fifteen members each] the group 1 remained as the control group, group 11as experimental group. The resting blood pressure variables [systolic and diastolic blood pressure]were measured before and after the training programmer. The experimental group underwent walking programmer for five days a week for twelve weeks. The training consisted of warm up, Brik walking and cool down. Experimental group's intensity was fixed from 50-70% of maximum heart rate and 20-45 minutes duration. The control group did not undergo any training. ANCOVA for finding significant adjusted post test mean difference of groups with respect to each prater. Paired sample t-test was used for finding significant ore test to post test mean differences in each group. The results clearly indicate that the walking programmer of 12 weeks has lowered the resting systolic and diastolic blood pressure of the prehypertensive men. The control group did not show any improvement in resting blood pressure.

KEYWORDS: Walking, Blood Pressure.

INTRODUCTION

Hypertension is defined as a systolic blood pressure [BP] >140 mm hg or diastolic BP>90 hg or being on antihypertensive treatment. Hypertension is higher in people who are obese who smoke who are under a lot of stress, suggesting that control of these factors can reduce the risk of disease. A growing body of evidence indicates that regular exercise may moderate blood pressure in people who are hypertensive. Elevated blood pressure is a dangerous threat to cardiovascular health because it may be present with no outward signs. Early treatments critical to preventing the complications of high blood pressure. The evidence regarding the possible effect of regular exercise on hypertension is unclear. It does paper that many people ca moderate or even reduce blood pressure with regular exercise. Although Bless than 140\90 mm hg was once considered normal, the seventh report of the joint national committee on prevention, detection, evaluation and treatment of high BP now includes the category of pre hypertension, defined as the pressure range between 120\80 and 139\89 mm hg [chobanian et al.2003]. The morbidity and mortality associated with hypertension are substantial. Nearly one billion people in the world currently have hypertension, causing high blood pressure to be one of the ten leading risk factors influencing the global burden of disease. It is estimated to lead to over seven million deaths each year, about 13 per cent of the total deaths worldwide Owwho2002;Kearney et al. 2005].

METHODOLOGY

The study analyzed the effect of moderate intensity walking on the blood pressure of pre hypertensive men. For this purpose, 30 sedentary prehypertensive men aged from 30 to 40 were selected from Trivandrum, Kerala. They were divided equally and randomly in to two groups [fifteen members each] the group 1 remained as the control group, group 11as experimental group. The resting blood pressure variables [systolic and diastolic blood pressure] were measured before and after the training programmer. The experimental group underwent walking programmer for five days a week for twelve weeks. The training consisted of warm up, Brisk walking and cool down. Experimental group's intensity was fixed from 50-70% of maximum heart rate and 20-45 minutes duration. The control group did not undergo any training. ANCOVA for finding significant adjusted post test mean difference of groups with respect to each prater. Paired sample t-test was used for finding significant ore test to post test mean differences in each group.

ANALYSIS OF DATA AND RESULT OF THE STUDY

The data on age of respondents belonging to control and experimental groups were collected and calculated the AM and SD. For testing the significance of the observed mean difference ANOVA has Been carried out. The details are shown in table 1.

TABLE I
CINOARUSIB IF AGE IF RESPONDENTS IN CONTROL AND
EXPERIMENTAL GROUPS

Group	AM	SD	SV	SS	DF	MS	F	P
Control group	35.73	3.88	BG	17.63	1	17.63	1.544	0.224
Experimental group	37.27	2.79	WG	319.87	28	11.42		
			T	337.50	29			

The table-1 indicates that average age of control group is 35.73 years with SD3.88 years and the average age of experimental group is 37.27 years with SD2.79 years. ANOVA showed that there do not exists significant difference between control and experimental group with respect to thir average age [$F=1.544$, $P>005$]. Hence the groups are homogeneous and the groups ca be equitable for post-test scores. Comparison of pre-test, post-test and adjusted post-test SBP of control and experimental groups. The data on pre-test and post-test SBP of respondents belonging to control and experimental groups were collected and calculated the AM and SD. For testing the significance of the observed mean difference ANOVA, has been carried out . for testing the genuineness of post-test mean difference in SBP between control and experimental groups, ANCOVA has been carried out for eliminating the effect due to pre-test SBP on the final SBP scores. The details are shown in table 2.

TABLE 2
COMPARISON OF RE-TEST, POST-TEST AND ADJUSTED POST-TEST SBP
OF CONTROL AND EXPERIMENTAL GROUPS

SBP	GROUP	AM	SD	SV	SS	DF	MS	F	P
Pre test	Control group	129.20	5.75	BG	3.33	1	3.33	0.095	0.761
	Experiment group	129.87	6.12	WG	986.13	28	35.22		

				T	989.47	29			
Post test	Control group	129.07	5.50	BG	34.13	1	34.13	1.275	0.268
	Experimental group	126.93	4.83	WG	74.87	28	26.78		
				T	784.00	29			
Adj. test	Control group	129.35	1.53	BG	54.07	1	54.07	22.964	0.000**
	Experimental group	126.66	1.53	WG	63.57	27	2.35		
				T	117.64	28			

The average pre-test SBP of control group is 129.20 mm hg with SD 5.75 and the average SBP of experimental groups is 126.93 mm hg with SD 4.83. ANOVA showed that there do not exist significant difference between control and experimental group with respect to their average SBP [F=0.095, P>0.05].

The average post-test SBP of control group is 129.07 mm hg with SD 5.50 and the average SBP of experimental group is 126.93 with SD 4.83. ANOVA showed that there do not exist significant difference between control and experimental group with respect to their average SBP [F=1.275, P>0.05].

The average adjusted post-test SBP of control group is 129.35 mm hg with SD 1.53 and the average SBP of experimental group is 126.66 mm hg with SD 1.53. ANCOVA showed that there exists significant difference between control and experimental group with respect to their average SBP [F=22.964, P<0.01].

COMPARISON OF PRE-TEST AND ADJUSTED POST-TEST DBP OF CONTROL AND EXPERIMENTAL GROUPS

The data on pre-test and post-test DBP of respondents belonging to control and experimental group were collected and calculate the AM and SD. For testing the significance of the observed mean difference, ANOVA has been carried out. For testing the genuineness of post-test mean difference in DBP between control and experimental groups, ANCOVA has been carried out for eliminating the effect due to pre-test DBP on the final DBP score. The details are shown in table 3.

TABLE 3
COMPARISON OF PRE-TEST, POST-TEST AND ADJUSTED POST-TEST DBP OF CONTROL AND EXPERIMENTAL GROUPS

SBP	GROUP	AM	SD	SV	SS	DF	MS	F	P
Pre test	Control group	82.67	2.23	BG	38.53	1	38.53	4.898	0.035*
	Experiment group	84.93	3.28	WG	220.27	28	7.87		
				T	258.80	29			
Post test	Control group	82.53	2.20	BG	1.20	1	1.20	0.242	0.626
	Experimental group	82.93	2.25	WG	138.67	28	4.95		
				T	139.87	29			

Adj. test	Control group	83.28	1.31	BG	7.70	1	7.70	4.901	0.035*
	Experimental group	82.18	1.31	WG	42.42	27	1.57		
				T	50.12	28			

*Significant at 5% level ($p < 0.05$)

Table-3 indicate that average pre-test DBP of control group is 82.67mm Hg with SD 2.23 and the average DBP of experimental group is 84.93mm Hg with SD 3.28. ANOVA showed that there exists significant difference between control and experimental group with respect to their average pre-test DBP ($F=4.898, P<0.05$). The average post-test DBP of control group is 82.53mm Hg with SD 2.20 and the average DBP of experimental group is 82.93 with SD 2.25. ANOVA showed that there do not exists significant difference between control and experimental group with respect to their average DBP ($F=0.242, P<0.05$). The average adjust post-test DBP of control group is 83.28mm Hg with SD 2.31 and the average DBP of experimental group is 82.18mm Hg with SD 1.31. ANCOVA showed that there exists significant difference between control and experimental group with respect to their average DBP ($F=4.901, P<0.05$). Effectiveness of training on SBP of control and experimental groups. The pre-test to post-test difference in SBP of control and experimental group were assessed by paired t test. The details are shown in table 4.

TABLE 4
COMPARED OF PRE-TEST TO POST-TEST DIFFERENCE IN SBP OF CONTROL AND EXPERIMENTAL GROUPS

Group	SBP	AM	MD	t	DF	P
Control group	Pre-test	129.200	0.133	0.435	14	0.670
	Post-test	129.067				
Experimental group	Pre-test	129.867	2.933	5.047	14	0.000**
	Post-test	126.933				

**Significant at 1% level ($P < 0.01$)

Table-4 showed that there is no significant pre-test to post-test change in average SBP of control group ($t=0.435, P>0.05$). But there exists significant improvement in SBP of experimental group ($t=5.047, P<0.01$).

EFFECTIVENESS OF TRAINING ON DBP OF CONTROL AND EXPERIMENTAL GROUPS

The pre-post to post-test difference in SBP of control and experimental groups were assessed by paired t test. The details shown in table 5.

TABLE 5
COMPARISON OF PRE-TEST TO POST-TEST DIFFERENCE IN DBP OF CONTROL AND EXPERIMENTAL GROUPS

Group	DBP	AM	MD	t	DF	P
Control group	Pre-test	82.667	0.133	0.564	14	0.580
	Post-	82.533				

	test					
Experimental group	Pre-test	84.933	2.000	3.873	14	0.000**
	Post-test	82.933				

**Significant at 1% level ($P < 0.01$)

Table 5 showed that there is no significant pre-test to post-test change in average DBP of control group ($t=0.564$, $P > 0.05$). But there exists significant improvement in DBP of experimental group ($t=3.873$, $P < 0.01$)

CONCLUSIONS

1. The results clearly indicate that the walking programmer of 12 weeks has lowered the resting systolic and diastolic blood pressure of the prehypertensive men. The control group did not show any improvement in resting blood pressure.
2. The study demonstrate the positive benefits of walking on prehypertensive patient and the role in prevention, treatment and management of pre hypertension and significant lower odds of developing hypertension. The finding and insights of the study may be directly translated into practical health management programmer, especially in the management of hypertension.

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