

## EFFECT OF WALKING AND AEROBIC TRAINING ON CARDIO RESPIRATORY ENDURANCE

**P.Kumaravelu**

**Asst.Professor**

**Department of Physical Education Tamilnadu Physical Education and Sports University**

### **Abstract**

The purpose of this study was to analyze the effect of walking and aerobic training on cardio respiratory endurance. Sixty-middle aged men were selected as subject at random and their age was between 35 and 45 years, they were divided into three groups namely walking training group WTG (n = 20), Aerobic training group ATG (n = 20) and control group CG (n = 20). The data were collected on the selected variable before and after the training programme. The training period was limited to twelve weeks with three alternative days per week. The collected data were analyzed by using Analysis of covariance and it revealed that the statistically significant differences were found among experimental and control groups. The favoring was towards the aerobic training group and aerobic training programme was more effective than walking training programme on cardio respiratory endurance

**Key words:** Walking, Aerobic training, Cardio respiratory endurance.

### **Introduction**

Cardio respiratory endurance is the ability to do moderately strenuous activity over a period of time. It reflects how well your heart and lungs work together to supply oxygen to your body during exertion and exercise. It also called aerobic fitness. Cardio respiratory endurance is considered the most important component of health-related fitness because the functioning of the heart and lungs is so essential to overall wellness. A person simply cannot live very long or very well without a healthy heart. Low levels of cardio respiratory fitness are linked with heart disease, the leading cause of death in the world. Cardio respiratory endurance is developed by activities that involve continuous rhythmic movements of large muscle groups like those in the legs-for example, walking, jogging, cycling, and aerobic dance.

Walking is a mode of Lifestyle Physical Activity and provides a viable alternative for meeting the current recommendations for physical activity. Walking can be planned or unplanned, accumulated and/or continuous, and therefore easily integrated into everyday life. Walking is especially promising as a focus of intervention because of its accessibility and acceptability, particularly among populations with a low prevalence of physical activity. Walking is the most common form of physical activity among the general population and among major subpopulations such as older persons and ethnic minorities. It is estimated that nearly 4 out of 10 adults walk for exercise, and for most walkers walking is their only form of leisure time physical activity.

Aerobic training exercises are any activity which increases the heart rate via working of the body muscles and strengthens the heart and lungs, (cardio vascular) system. An aerobically fit individual can work longer, more vigorously and achieve a quicker recovery. Energy is derived aerobically when oxygen is utilized to metabolize substrates obtained from food, and deliver energy to the working muscles. A sports event, or activity that will build cardio respiratory endurance, is termed aerobic when the majority of the energy in the athlete is derived aerobically (aerobic training is without oxygen debt). Aerobic training should be activities that are performed continuously for a minimum of 15 to 20 minutes at a level of 70% to 90% of maximal heart rate no less than three times a week.

The purpose of the study was to find out the effect of walking and aerobic training on cardio respiratory endurance.

### Methodology

For this study Sixty-middle aged men were selected as subject at random and their age was between 35 and 45 years, the selected subjects were divided in to three groups of twenty each at random. Group I underwent walking training,(WTG) Group II underwent aerobic training programme (ATG) for five days per week up to twelve weeks and Group III acted as control (CG) who did not participate in any specific training. Cardio respiratory endurance was selected as dependent variable and it was measured by Coopers 12 minutes Run/Walk test. All the subjects were tested on selected criterion variable prior to and immediately after the training period.

### Results and Discussions

The collected data were analyzed statistically by using analysis of covariance (ANCOVA) to determine the differences, if any among the adjusted post test means on selected dependent variables separately. Whenever the 'F' ratio for adjusted test was found to be significant, the Scheffe's test was applied as post-hoc test to find out paired mean differences.

**Table I - Mean Standard Deviation and Adjusted Mean among the Experimental and Control Group on Cardio Respiratory Endurance**

Test		Walkin gTraini ng	Aerobi cTraini ngGrou	ControlG roup
Pre test	Mean	1967.50	1954.75	1959.25
	SD	146.74	227.66	252.46
Pos ttest	Mean	2107.50	2172.25	1946.75
	SD	170.07	243.64	242.82
AdjustedMean		2100.82	2177.74	1947.94

Note. Evaluated at covariates appeared in the model pre-12 min run= 960.50.

From the Table I for the cardio respiratory endurance the pre test means for ATG, ATG and CG were 1967.50, 1954.75, 1959.25 respectively and the standard deviation for the pre test for WTG, ATG and CG were 146.74, 227.66, 252.46 respectively, the post test means for WTG, ATG and CG were 2107.50, 2172.25, 1946.75 respectively and the standard deviation for the post test for WTG, ATG and CG were 170.07, 243.64, 242.82 respectively and the Adjusted means for WTG, ATG and CG were 2100.82, 2177.74, 1947.94.

**Table II - Paired sample 't' Test for Pre and Post Test Means of Cardio Respiratory Endurance**

Variable	Walking Training Group	Aerobic Training Group	Control Group
Cardio Respiratory	7.98	13.84	0.52

\* Significant at 0.05 level with df 19 is 2.07.

Tale II reveals that the obtained t-values on cardio respiratory endurance are: 7.98(walking training group), 13.84(aerobic training group) and 0.52(control group). From the results it was inferred that since the obtained t-values are found s higher than the required table value for DF 1, 19 at 0.05 level of confidence, it confirms the effect of walking training and aerobic training on development of cardio respiratory endurance positively.

**Table III - Results of Analysis of Covariance for the Cardio Respiratory Endurance among Three (WTG, ATG and CG) Groups**

Variable	F-Ratio	ETA <sup>2</sup>	Account of Variance	Sig.
Cardio Respiratory Endurance	36.14	0.873	87.3%	.000

(The table value required for 0.05 level of significance with df 2 & 56 is 3.15)

The F ratio for cardio respiratory endurance was 36.14 ( $p = .000$ ) and found as significant at 0.05 level for DF 2, 56. From the results it was inferred that the training methods had differed significantly on cardio respiratory endurance. This effects accounted for 87.3% of the variance on cardio respiratory endurance ( $Eta^2 = 0.873$ ). The ANCOVA results of comparing the three groups on the indicated that there were statistically significant differences among the three groups in the Cardio Respiratory Endurance.

**Table VI - Scheffe's Post Hoc Pair wise Comparisonson Cardio Respiratory Endurance**

Walking Training Group	Aerobic Trainin gGroup	Control Group	Differences	C.I. Value
2100.82	2177.74	-----	76.92*	69.07
2100.82	-----	1947.94	152.88*	
-----	2177.74	1947.94	229.80*	

\*Significant at.05 level CI value — Confidence Interval value of Scheffe's post hoc test.

The aerobic training (Adj.mean = 2177.74) significantly outperformed walking training (Adj.mean = 2100.82) and also two experimental groups namely walking and aerobic training group significantly outperformed than control group (Adj.mean = 1947.94) in cardio respiratory endurance with adjusted mean differences of 76.92, 152.88and 229.80 (CI = 69.07).

## Findings

1. This study was found that the walking training group improved the participants' cardio respiratory endurance.
2. This study was found that the aerobic training group improved the participants' cardio respiratory endurance.
3. Aerobic training outperformed than the walking training on cardio respiratory endurance.
4. Both aerobic training and walking are excellent aerobic exercises. They will both improve anyone's overall health and fitness. Either is better exercise than sitting in front of the television. Get off that couch and start moving those legs. Choose whichever of these exercise programs best meets your needs and preferences.

### Discussion

Walking and aerobic training may be similar activities but they are very different in other aspects. These aspects may include elements such as calorie expenditure, impact, efficiency and even the recovery periods. Although walking is good exercise for those who are just starting to work out and previously did not do any exercise, it is inferior to aerobic training in terms of total benefits. Those who start their exercise by walking are encouraged to gradually increase the intensity to a jog and then a run. The peoples want to achieve the maximum benefits associated with exercising on a regular basis; they select and do the aerobic exercises. It helps to develop the health related physical fitness components especially cardio respiratory endurance. This study was compared walking and aerobic training in an effort to find the differences and how they can be to help the individual to achieve the development of cardio respiratory endurance.

### References

1. Davis, J. A., Frank, M. H., Whipp, B. J., & Wasserman, K. (1979). Anaerobic threshold alterations caused by endurance training in middle-aged men. *Journal of Applied Physiology*, 46(6), 1039-1046,
2. Hardman, A. E., & Hudson, A. (1994). Brisk walking and serum lipid and lipoprotein variables in previously sedentary women--effect of 12 weeks of regular brisk walking followed by 12 weeks of detraining. *British Journal of Sports Medicine*, 28(4), 261-6.
3. Hardman, A. E., Jones, P. R., Norgan, N. G., & Hudson, A. (1992). Brisk walking improves endurance fitness without changing body fatness in previously sedentary women. *European Journal of Applied Physiology and Occupational Physiology*, 65(4), 354-9. Clausen JP. Effect of physical training on cardiovascular adjustments to exercise in man. *Physiol Rev* 1977;57:779-815.