

# Effect of Treadmill and Upright Bike on Vital Capacity of Sedentary People

Rajesh Sahu

Research Scholar Email: [rajeshsahu95@gmail.com](mailto:rajeshsahu95@gmail.com)

**Abstract:** *The Objective of this study was to determine the effect of treadmill and upright bike on vital capacity of sedentary people. The subjects for this study were selected from district of Gwalior, M.P. A total of 30 male subjects were selected and used as one experimental group (15) and other control group (15). Treadmill and upright bike was considered the independent variable and Vital Capacity was considered the dependent variable. Vital Capacity was measured in Liters by Dry Spiro meter. The Pre Test Post Test randomize group design was used for this study. Tests were administered before the training program and after the completion of the treatment again test were administered. ANCOVA was used to locate significance effect of treadmill and upright bike on Vital Capacity. At 0.05 levels of significance. In relation to vital capacity, effect of treadmill and upright bike was found significant on experimental group.*

**Keywords** Treadmill and Upright bike, Vital Capacity

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## INTRODUCTION

One of the largest hopes of humans as well as the root of happiness that is ultimately pursued by humans is living long healthily. Today, the average life span of humans is being extended since mortality rates due to infectious diseases and other diseases are decreasing thanks to epoch-making development of medicine and accordingly, interest in health is increasing because humans' desire for longevity (1). However, modern people's health is greatly threatened as the vital resistance of their bodies is decreasing due to the development of material civilization and increased ages, cardiac disorders and pulmonary disease are greatly increasing and they do not exercise sufficiently due to their busy daily life (2). In India too, adult diseases due to insufficient exercise are in a rapidly increasing trend because of excessive nutrition supply and automation as a result of economic growth (3).

Many experimental and epidemiological evidences have been reported indicating that regular aerobic exercise improves risk factors such as cholesterol, hypertension, blood sugar, etc. and enhances the functions of the heart, lungs and blood vessels to prevent or delay the progress of cardiovascular diseases such as coronary artery diseases(4). Methods to show the effects of aerobic exercise on vital capacity, while increasing aerobic abilities in a short time includes treadmill training, upright bike training In particular, treadmill training and upright bike training has been mainly used

in various kinds of experiments because of its advantages in that exercise loads can be adjusted by changing rotating speeds or gradients and thus not only exercise loads can be accurately figured out but also the same load can be imposed in the case of repeated measurement (5). Furthermore, there are reports indicating that regular treadmill training and upright bike training is effective in reducing the onset ratios of cardiovascular diseases(6) and that treadmill exercise uses many muscles and thus its exercise loads are large and therefore, it increased physical abilities through cardiopulmonary function exercise and systemic exercise, and reported that treadmill exercise and upright bike training with gradually increasing speeds increased heart rates and ventilation increased in normal persons(7).

## METHODS

**Selection of Subjects** - Thirty male living in, Gwalior district, M.P were selected at random as subject of the study and divided in to two groups of 15 subjects each. All subjects were almost from the same socio economic group and were found to be physically fit for the type of program they were subjected to. The subjects were divided into two groups (experimental group and control group) at random by drawing the lots. The ages of these subjects range between 35 to 40 years.

**Selection of Variable** - On the basis of various literature on physiological variables; finding out the related research study and keeping in mind the specific purpose

of the study to find out the effect of treadmill and upright bike on vital capacity. Vital capacity was measured in liters by dry Spiro meter.

**Experimental Design** - Pre-test post-test randomized group design was employed in the study. The subjects were divided into experimental group and control group. The experimental group was imparted 20 minutes of training of treadmill and upright bike on vital capacity for six weeks under the supervision and guidance of the researcher, while no training was imparted to control group. At the end of six weeks post test was conducted for both the group.

**Procedure for Administration of the Test** - After selecting the subjects, they were estimated for their capacity. Vital capacity was measured in liters by dry Spiro meter. After collecting the initial data, the subjects were administrated for six week training schedule, which was five day per week for duration of 20 minutes of running and Cycling on treadmill and upright bike. Immediately after the training schedule, the vital capacity was again estimated by Vital capacity was measured in liters by dry Spiro meter.

**Test Administration (Vital Capacity)** - Vital capacity was measured with the help of Dry Spiro meter. It was

**Table-I Analysis of Variance of Comparison of Means of Experimental Group and Control Group in Vital Capacity**

	Source of variation	Sum of Squares	df	Mean Square	F- Value
Pre Test	Between Groups	.056	1	.56	.301
	Within Groups	5.245	28	.187	
Post Test	Between Groups	4.720	1	4.720	22.503
	Within Groups	5.873	28	.210	

\*Significant at .05 level

F value required to be significant at 1, 28 df = 4.20

In relation to pretest, table –I revealed that the obtained 'F' value of .301 was found to be insignificant at 0.05 level, is case of vital capacity since this value was found lower than the tabulated value 4.20 at 1, 28 degree of freedom.

ensured that the pointer of the scale was at the zero mark at the beginning of the test. The subject took a deep breath before starting the test, and then after the fullest inhalation the subject placed the mouthpiece attached to the hose connected to the air, escaped through the edges of the mouthpiece. The subject exhaled slowly and steadily while bending forward slightly until the maximum volume of air could be expelled without taking a second breath. The subjects were instructed that they should blow out only through the mouth not by the nose – clip to prevent the air from escaping through the nose.

**Scoring:** The score of vital capacity for each subject were recorded in liters.

**Statistical Procedure** - To find out the effect of treadmill and upright bike on vital capacity 'ANCOVA' as a statistical technique was used. The level of significance was set at 0.05 level

## RESULTS

In relation to post test, significant difference was found among experimental group and control group pertaining to vital capacity since 'F' value of was found significant at .05 level.

**Table – II Analysis of Co-Variance of Comparison of Adjusted Post Test Means of Experimental Group and Control Group in Vital Capacity**

	Sum of Squares	df	Mean Square	F-Value
Contrast	3.723	1	3.723	120.928
Error	.831	27	.031	

F value required to be significant at 1, 27 df = 4.23

Table-II revealed that the obtained 'F' value of 120.928 was found to be significant at 0.05 level in case of vital

capacity, since this value was found higher than the tabulated value 4.23 at 1, 27 degree of freedom

**Table – III Adjusted Post Test Means of Experimental Group and Control Group in Relation to Vital Capacity**

Groups	N	Adjusted Mean	Std. Error
Experimental Group	15	3.878	.45
Control Group	15	3.169	.45

## DISCUSSION

The purpose of the present study was to examine the effect of treadmill and upright bike on vital capacity in sedentary people. Results showed that treadmill and upright bike improve vital capacity of sedentary peoples. It was found that the participants who followed the treatment of treadmill and upright bike improved their vital capacity as compared to participants in control group. Directly or indirectly vital capacity is related to exercise types.

Exercise increases vital capacity because lungs need more oxygen to supply the muscles with vital nutrients. Vital capacity refers how much air a person can expel from the lungs after a fullest inspiration. Therefore the more you exercise the more nutrients you will need to support the system. Lungs expand during this during exercise session in order to cater for the extra need hence increasing the vital capacity.

Results that the researcher found in the present study also showed that by doing exercise on treadmill and upright bike we can enhance our pulmonary functions. Above findings are in a partial consonant of the studies done so far (Sang Wan Lim, 2011; Ahmad Azad, 2011 and M.M. Barnes; 2009). Some studies have also reported a positive association between physical activity, physical fitness and lung capacity.

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