

## **A Critical Analysis Of Walking On Different Surfaces On Selected Physiological And Biochemical Variables Among Obese Men**

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### **Abstract**

The purpose of the study is to find out the effect of walking on different surfaces on selected physiological and biochemical variables among obese men. To achieve the purpose of this study, 30 obese men are randomly selected as subjects from the Chennai, Tamilnadu, India. The selected participants were divided into three groups such as Group A underwent mud walking (n=10) and Group B underwent concrete walking (n=10) and Group C acted as control group (n=10). The training period was 60 minutes. Every week, training given only three alternative days for twelve weeks. Control group was not exposed to any specific training but they were participated in regular activities. The data on selected variables of physiological and biochemical variable were collected by administering by radial pulse rate test and Lipid profile results respectively. The pre and post tests data were collected on selected criterion variables prior and immediately after the training programme. It was concluded that, the experimental group had significantly improved in selected variables such as physiological variable and biochemical variable and a significant difference in improvement was found among experimental and control groups in the selected criterion variables such as physiological variable and biochemical variable.

### **Introduction**

Obesity and overweight have in the last decade become a global problem - according

to the World Health Organization (WHO) back in 2005 approximately 1.6 billion adults over the age of 15+ were overweight, at least 400 million adults were obese and at least 20 million children under the age of 5 years were overweight. Experts believe if the current trends continue by 2015 approximately 2.3 billion adults will be overweight and more than 700 million will be obese. The scale of the obesity problem has a number of serious consequences for individuals and government health systems. Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health, leading to reduced life expectancy and/or increased health problems. People are considered obese when their body mass index (BMI), a measurement obtained by dividing a person's weight by the square of the person's height, exceeds  $30 \text{ kg/m}^2$ . Obesity increases the likelihood of various diseases, particularly heart disease, type 2 diabetes, obstructive sleep apnea, certain types of cancer, and osteoarthritis. Obesity is most commonly caused by a combination of excessive food energy intake, lack of physical activity, and genetic susceptibility, although a few cases are caused primarily by genes, endocrine disorders, medications or psychiatric illness. Evidence to support the view that some obese people eat little yet gain weight due to a slow metabolism is limited. On average obese people have a greater energy expenditure than their thin counterparts due to the energy required to maintain an increased body mass.

Dieting and physical exercise are the mainstays of treatment for obesity. Diet quality can be improved by reducing the consumption of energy-dense foods such as those high in fat and sugars, and by increasing the intake of dietary fiber. Anti-obesity drugs may be taken to reduce appetite or decrease fat absorption when used together with a suitable diet. If diet, exercise and medication are not effective, a gastric balloon may assist with weight loss, or surgery may be performed to reduce stomach volume and/or bowel length, leading to feeling full earlier and a reduced ability to absorb nutrients from food. Obesity is a leading preventable cause of death worldwide, with increasing rates in adults and children. Authorities view it as one of the most serious public health problems of the 21st century. Obesity is stigmatized in much of the modern world (particularly in the Western world), though it was widely seen as a symbol of wealth and fertility at other times in history, and still is in some parts of the world. In 2013, the American Medical Association classified obesity as a disease. Walking (also known as ambulation) is one of the main gaits of locomotion among legged animals, and is typically slower than running and other gaits. Walking is defined by an 'inverted pendulum' gait in which the body vaults over the stiff limb or limbs with each step. This applies regardless of the number of limbs - even arthropods, with six, eight or more limbs, walk.

In the UK and the Irish Republic the term walking is used to describe either walking in a park or trekking in the Alps. However, in Canada and the USA the term for a long, vigorous walk is hiking, while the word walking covers shorter walks, especially in an urban setting. Blood lipids (or blood fats) are lipids in the blood, either free or bound to other molecules. They are mostly transported in a protein capsule, and the density of the lipids and type of protein determines the fate of the particle and its influence on metabolism. The concentration of blood lipids depends on intake and excretion from the intestine, and uptake and secretion from cells. Blood

lipids are mainly fatty acids and cholesterol. The number of times a walker's heart beats per minute while at complete rest. Resting heart rate will decrease as the walker's heart becomes larger and stronger with training. A low resting heart rate is an indicator of fitness.

## Methodology

### Selection of subjects

To achieve the purpose of this study, 30 obese men were randomly selected as subjects from Chennai, Tamilnadu, India. The selected subjects were divided into three groups namely experimental 1, experimental 2, and control group. To achieve the purpose of the study, the criterion variables selected for this study was Resting pulse rate and Blood lipids.

### Training programme

The selected participants were divided into three groups such as Group A underwent walking on mud (n=10) and Group B underwent walking on concrete (n=10) and Group C acted as control group (n=10). The training period was one hour approximately. Every week, training given only three alternative days for twelve weeks. Control group was not exposed to any specific training but they were participated in regular activities.

### Test administration

The data on resting pulse rate and Blood lipid level were collected by administering by radial pulse rate test and Lipid profile result respectively. The pre and post tests data were collected on selected criterion variables prior and immediately after the training programme.

### Statistical technique

The collected data were statically analyzed by using analysis of covariance (ANCOVA). It is used to determine the differences if any, among the adjusted post test means on selected criterion variables separately. The level of significance was fixed at 0.05 level of confidence.

**Table-I THE SUMMARY OF MEAN FOR THE PRE AND POST TEST DATA ON SELECTED VARIABLES OF EXPERIMENTAL GROUP 1, EXPERIMENTAL GROUP 2 AND CONTROL GROUP**

Criterion Variables	Mean	Experimental Group 1	Experimental Group 2	Control Group
Resting Pulse rate	Pre Test	83.3	80.8	83.5
	Post Test	82.1	79.8	83.3
Blood Lipid Level	Pre Test	2157	2196	2240
	Post Test	1992	2025	2265

The analysis of covariance on criterion variables of Resting pulse rate and Blood Lipid level for Experimental groups and Control Group have been analyzed and presented in Table- II.

**Table-II THE ANALYSIS OF COVARIANCE ON CRITERION VARIABLES OF EXPERIMENTAL GROUP 1, EXPERIMENTAL GROUP 2 AND CONTROL GROUP**

Criterion Variable	Adjusted Post Test Means			Source of Variance	Sum of Square	df	Means Square	F-ratio
	Experimental Group 1	Experimental Group 2	Control Group					
Resting Pulse rate	81.4365	81.3001	82.4634	B	7.94	2	3.97	1.31*
				W	78.98	26	3.04	
Blood lipid level	201.5357	202.5957	224.0684	B	2866.53	2	1433.27	98.49*
				W	378.34	26	14.55	

\*Significant at 0.05 level confidence. Table value at 0.05 level confidence with df 2 and 26 are 1.31\* and 98.49\* respectively.

From the table – II, the obtained value of ‘F’ – ratio for resting pulse rate for adjusted post test mean was lesser than the table value and Blood lipid level for adjusted post test means was more than the table value of 3.369 for df 2 and 26 required for significant at 0.05 level of confidence. The result of the study indicated that significant differences exist among the adjusted post test means of experimental group 1, experimental group 2 and control group on the improvement of Resting Pulse rate and Blood lipid.

### Conclusions

From the analysis of the data, the following conclusions were drawn, The experimental groups had significantly improved in selected variables such as resting Pulse rate. The experimental groups had significantly improved in selected variables such as Blood Lipid level. A significant difference in improvement was found among experimental group 1, experimental group 2 and control group in the selected criterion variables such as Resting Pulse rate and Blood lipid.

Among the two experimental groups, the Experimental group-1(mud walking group) had significantly improved in selected variables such as Resting pulse rate and Blood Lipid level than Experimental group-2(concrete walking group).

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