

Effect Of Walking On Different Surfaces On Selected Motor Fitness And Physiological Variables Among Obese School Boys

Shunmuga Kumar.M and Dr. K. Sankaran

*Department of Physical education,
Dr.M.G.R.Educational and Research Institute University,
Chennai, Tamilnadu, India.
Shunmugam321@gmail.com & 9445430259
Department of Physical education,
Dr.M.G.R.Educational and Research Institute University,
Chennai, Tamilnadu, India.
9445970953*

Abstract:

The purpose of the study is to find out the effect of walking on different surfaces on selected motor fitness and physiological variables among obese school boys. To achieve the purpose of this study, 30 obese students are randomly selected as subjects from different schools in 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 motor fitness and physiological variable were collected by administering by cooper test and radial pulse rate test 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 motor fitness and physiological variable and a significant difference in improvement was found among experimental and control groups in the selected criterion variables such as motor fitness and physiological variable.

Key Words: - Cardiovascular Endurance; Resting Pulse rate; Obese.

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 kg/m². 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. Cardiovascular fitness is the ability of the heart and lungs to supply oxygen-rich blood to the working muscle tissues and the ability of the muscles to use oxygen to produce energy for movement. The resting heart rate or pulse rate of the body (commonly called RHR) is the number of contractions of the heart that occur in a single minute while the body is at complete rest. This number will vary depending upon the age, gender, and general health of a person. There will

also be a large different in the resting heart rate of athletes when compared to non-athletes

Material & methods

Participants

To achieve the purpose of this study, 30 obese students were randomly selected as subjects from different schools on 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 Cardiovascular endurance and Resting pulse rate.

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.

Procedure

The data on cardiovascular endurance and resting pulse rate were collected by administering by cooper test and radial pulse rate test respectively. The pre and post tests data were collected on selected criterion variables prior and immediately after the training programme.

Statistical analysis

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.

Results & Discussion

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
cardiovascular endurance	Pre Test	1760	1795	1755
	Post Test	2105	2195	1825
Resting Pulse rate	Pre Test	74.3	73.9	74.9
	Post Test	68.5	68.7	74

The analysis of covariance on criterion variables of cardiovascular fitness and resting pulse rate 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					
Cardiovascular endurance	2117.258	2164.354	1843.387	B	596020.52	2	298010.2	42.11*
				W	184008.06	26	7077.23	
Resting Pulse rate	68.2407	68.2852	73.774	B	186.86	2	93.43	101.82*
				W	23.86	26	0.92	

Significant at 0.05 level confidence. Table value at 0.05 level confidence with df 2 and 26 are 42.11 and 101.82* respectively.

From the table – II, the obtained value of ‘F’ – ratio for cardiovascular endurance for adjusted post test mean was greater than the table value and resting pulse rate for adjusted post test means also greater 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 cardiovascular endurance and Resting Pulse rate.

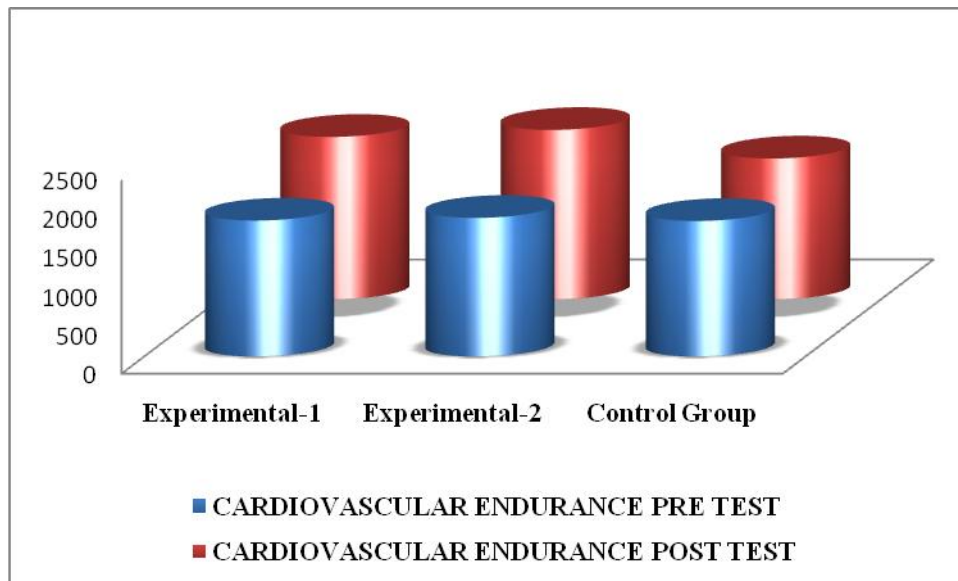


Figure I illustrate the pre and post test means of Experimental and Control groups on cardiovascular endurance of obese school boys.

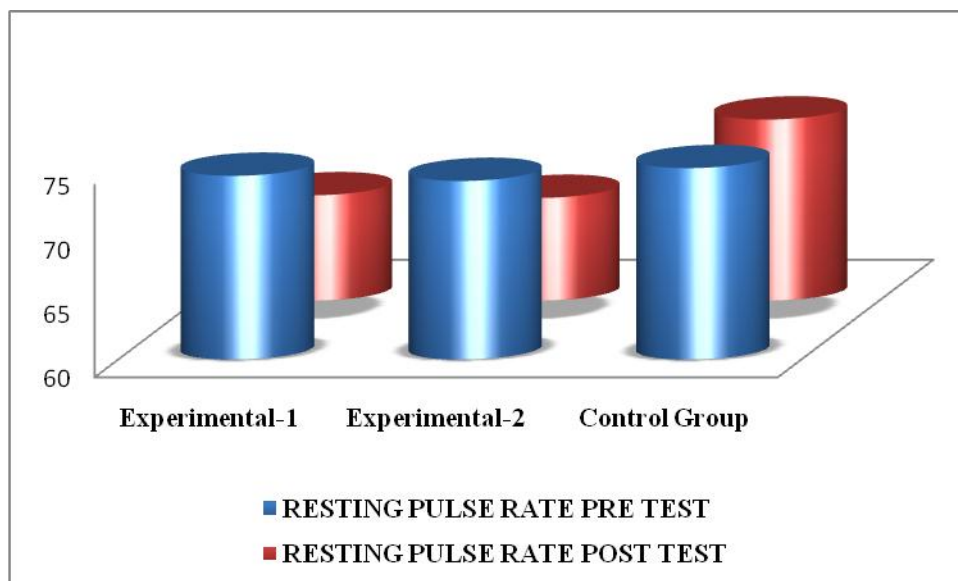


Figure II illustrate the pre and post test means of Experimental and Control groups on Resting pulse rate of obese school boys.

The results of the present study reveal that the experimental group has significantly increased cardiovascular endurance as compared to control group.

The results of the present study reveal that the experimental group has significant improvement in resting pulse rate as compared to control group.

These results are in conformity with the findings of the studies undertaken by the following sports scientist. Delextrat A et al., (2011) suggested that Walking at

lower or higher than preferred frequencies could be used as an exercise mode to promote weight loss in obese teenagers by testing with twelve obese and twelve non-obese teenagers. Test them on treadmill walking at their comfortable speed for 6 periods of 4 min each. Cardio respiratory rate will take the every 3rd and 4th min of each period and took the rate of pulse in rest before and after the test with adequate rest.

Conclusions

From the analysis and discussion of the data, the following conclusions were drawn, The experimental groups had significantly improved in selected variables such as cardiovascular endurance. The experimental groups had significantly improved in selected variables such as resting Pulse rate. A significant difference in improvement was found among experimental group 1, experimental group 2 and control group in the selected criterion variables such as cardiovascular endurance and resting pulse rate. Among the two experimental groups, the Experimental group-2(mud walking group) had significantly improved in selected variables such as Cardiovascular endurance and Resting pulse rate than Experimental group-1(concrete walking group).

References:

1. Balamurugan, K.V. (2014). Effect of Aerobic Training on Coronary Heart Disease Risk Factors in Obese Men. *International Journal of Recent Research and Applied Studies*, 1, 5(6), 23 - 26.
2. Chetta A, Zanini A, Pisi G, Aiello M, Tzani P, Neri M, Olivieri D. (2006) Reference values for the 6-min walk test in healthy subjects 20-50 years old. *Respiratory Medicine*, 100(9), 1573-1578.
3. Deeva, E & S.Nagarajan (2014). Effect of Aerobic Exercises with Medium Intensity and Duration on Selected Motor Fitness Variables of Handball Players. *International Journal of Recent Research and Applied Studies*, 2014, 2 (7), 27 -29.
4. Delextrat A, Matthew D, Cohen DD, Brisswalter J. (2010). Effect of stride frequency on the energy cost of walking in obese teenagers. *Human movement science*, 30(1), 115-124.
5. Karthikeyan, P. (2014). Comparison of Selected Physical and Physiological Parameters between Obese and Non Obese Men. *International Journal of Recent Research and Applied Studies*, 2014, 5 (16), 79-80.
6. Ramakrishnan. A., R.Gopinath. (2014). Effects of Weight Training and Circuit Weight Training on Selected Strength and Physiological Variables. *International Journal of Recent Research and Applied Studies*, 1, 3(1), 1 - 4.
7. Saminathan, V. (2014). Influence of physical exercises on body mass index among obese women. *International Journal of Recent Research and Applied Studies*, 1 (6), 21 - 22.