

EFFECTS OF FUNCTIONAL EXERCISE ON CARDIOVASCULAR FITNESS AND BODY MASS INDEX OF SEDENTARY STUDENTS

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Abstract: The aim of the study is to determine the Functional Exercise on Cardiovascular fitness of Sedentary Students. Two groups were targeted; experimental and control group; 20 Sedentary Students considered as experimental group and 20 other than Sedentary Students considered as control group. The training programme was only given to experimental group. The age of the subjects were ranged between 18 to 25 year. Cardio – Vascular Endurance was evaluated by using 12 minute Run & Walk Test. Body Mass Index is calculated from body mass (M) and height (H). $BMI = M / (H \times H)$, where M = body mass in kilograms and H = height in meters. The higher score of the Body Mass Index usually indicates higher levels of body fat. The result shows that there were significant difference was found in pre and -post test of Cardiovascular Fitness ($t=p<.05$), and Body mass Index on experimental group. The findings of the study revealed that there was significant effects of Functional Exercise on found on Cardio – Vascular Endurance and Body Mass Index of Sedentary Students.

Key words: Endurance, Body Mass Index, Sedentary, Exercise

INTRODUCTION

Functional exercise is one such training method used in a strength and conditioning programme, and in this fact sheet we provide information related to the correct design and implementation of a circuit training programme. Effective programme design and implementation can result in improved athletic performance. Today sport is considered as the most important factor for around development. Exercise is also linked with the image of country and national pride. Everybody accepts the importance of sports as a base for health of body and mind. Cardiovascular fitness of an individual is mainly dependent on lifestyle related factors such as daily physical activity levels. It was believed that the low cardiovascular fitness level of an individual is associated with higher mortality rate. (Jourkesh et.al.2012). For Cardiovascular fitness, the activity components included are not only for muscular development and endurance training. The lungs, heart, and circulatory system are also the focal points in health and fitness. The reason for this is to improve stamina, immune system, and maintain good body composition. Cardiovascular fitness reduces the risk of cardiovascular diseases and other diseases like hypertension, Diabetes obesity, and may cure respiratory problems like asthma (Amusa, & Goon, 2011). Cardiovascular fitness of our citizens is a vital prerequisite to a country's realization of its full potentials a nation (Lamb et.al. 1988). Cardiovascular fitness recognized as an important component of health and it may be important for the performance of functional activities and quality of life (Maria et. al., 2003).

Methodology

Two groups were targeted; experimental and control group; 20 Sedentary Students considered as experimental group and 20 other than Sedentary Students considered as control group. The training programme was only given to experimental group. The age of the subjects were ranged between 18 to 25 years. The data was collected through respondents in the form of different experimental tests. The demographic information was obtained before seeking responses. The research design was experimental research design. All test were conduct in SRTM University campus

Administration of Tests

Pre and Post-tests were applied on experimental group's to health related physical fitness on Cardio – Vascular Endurance was evaluated by using 12 minute Run & Walk Test.

Cardiovascular Endurance:

This component was evaluated by using 12 minute Run & Walk Test.

The 12 minute run test requires the person being tested to run or walk as far as possible in a 12 minute period. The objective of the test is to measure the maximum distance covered by the individual during the 12 minute period and is

usually carried out on a running track by placing cones at various distances to enable measuring of the distance. A stopwatch is required for ensuring that the individual runs for the correct amount of time. When time is over, at that time investigator gives signal to stop. Subject was stands right there where he stops. Then investigator measures the crossed distance by the subject.

Body Composition was evaluated by using Body Mass Index (BMI).

Body Mass Index is calculated from body mass (M) and height (H). $BMI = M / (H \times H)$, where M = body mass in kilograms and H = height in meters. The higher score of the Body Mass Index usually indicates higher levels of body fat. **Scoring:** Use the BMI table to determine BMI rating. The rating scale is the same for males and females. You can also use the reverse lookup BMI table for determining your ideal weight based on height.

Functional Exercise:

A functional exercise was planned for 05 weeks, 4 days a week and 30 minutes a day. Exercise that use large muscles groups that can be maintained continuously and are aerobic in nature. The exercise session should consist of the following procedure: Warm - up period was approximately 10 min., this was combine callisthenic– type stretching, exercise and progressive aerobic activity. However, cool down period were 5 to 10 min.

Result and discussion

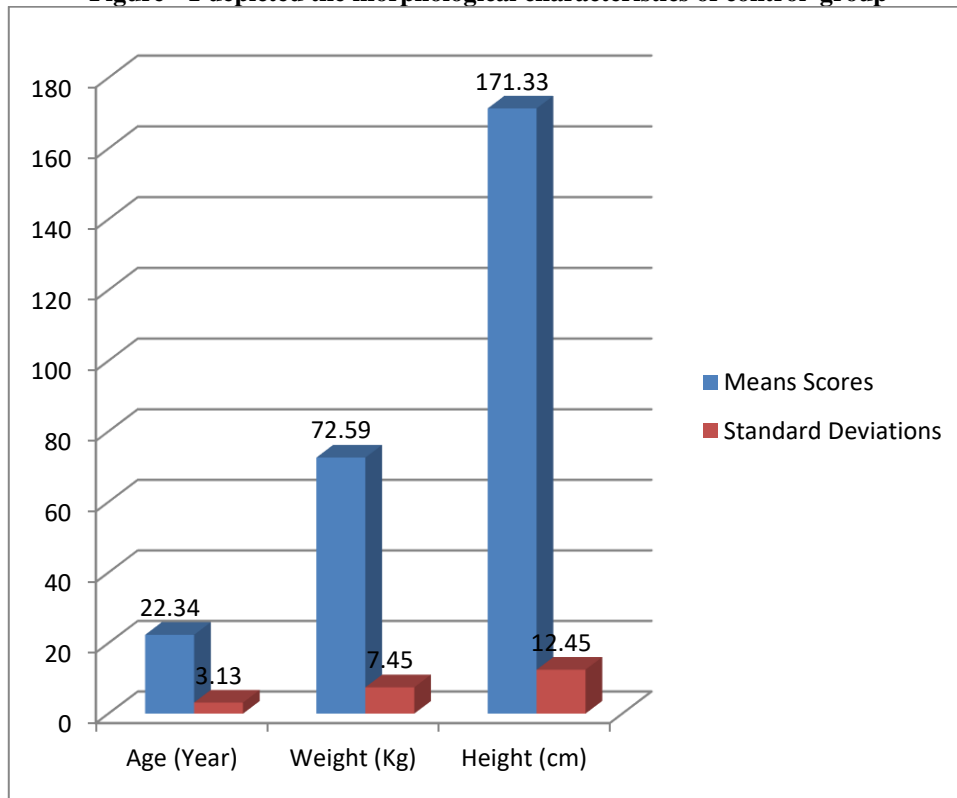
The present section is dedicated to the presentation of results along with the discussion of present study. The results and discussion have been presented in console comprehensive manner that is easy to comprehend starting with selected variables

TABLE-1
DESCRIPTIVE STATISTICS OF MORPHOLOGICAL CHARACTERISTICS OF CONTROL GROUP

Sr. No.	Components	Means Scores	Standard Deviations
1.	Age (Year)	22.34	3.13
2.	Weight (Kg)	72.59	7.45
3.	Height (cm)	171.33	12.45

Table -1 depicted the morphological characteristics of control group, the Mean Scores (S.Ds.) age of control group was 22.34 (3.13) years, mean scores (S.Ds.) weight was 2.59 (.45) Kg, and mean scores (S.Ds.) height was 171.33 (11.45) cm.

Figure -1 depicted the morphological characteristics of control group

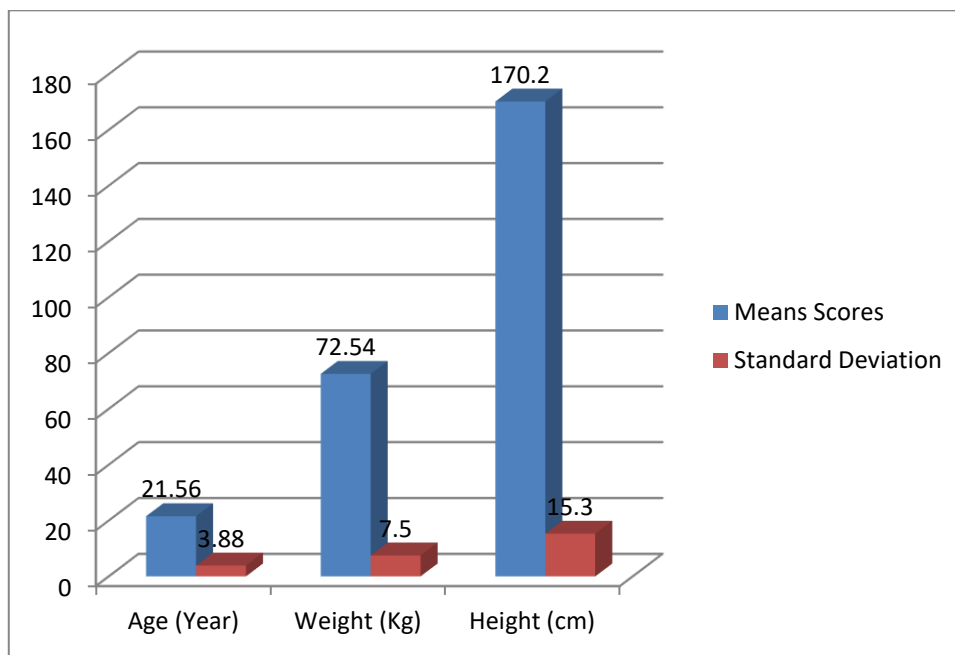


**TABLE-2
SHOWS MEAN SCORES AND STANDARD DEVIATIONS OF MORPHOLOGICAL CHARACTERISTICS OF EXPERIMENTAL GROUP**

Sr. No.	Components	Means Scores	Standard Deviation
1.	Age (Year)	21.56	3.88
2.	Weight (Kg)	72.54	7.50
3.	Height (cm)	170.20	15.30

Table-2 shows Mean Score (S.Ds.) age of Experimental group was 21.56 (3.88) years, mean score (S.Ds.) weight was 72.54 (7.50) Kg., mean score (S.Ds.) height was 170.20 (15.30) cm.

**Figure-2
Shows mean scores and standard deviations of morphological characteristics of experimental group**



**TABLE -3
PRE AND POST TEST OF MEAN SCORES AND STANDARD DEVIATION WITH T-RATIO OF CARDIOVASCULAR FITNESS AND BODY MASS INDEX OF CONTROL GROUP**

Parameter	Stages	Numbers	Mean scores	S.D.	t-ratio
Cardiovascular Fitness	Pre Test	20	1576.89	35.60	NS
	Post Test	20	1559.90	35.65	
Body Mass Index	Pre Test	20	20.33	3.11	NS
	Post Test	20	20.41	3.23	

Table 3 depicted Mean Scores, Standard Deviation and t-ratio of pre and post-test of Cardiovascular Fitness and Body Mass Index of control group.

TABLE-6
PRE AND POST TEST OF MEAN SCORES AND STANDARD DEVIATION WITH T-RATION OF
CARDIOVASCULAR FITNESS AND BODY MASS INDEX OF EXPERIMENTAL GROUP (SEDENTARY
STUDENTS)

Parameter	Stages	Numbers	Mean scores	S.D.	t-ratio
Cardiovascular Fitness	Pre Test	20	1570.80	15.23	P<.05
	Post Test	20	1789.86	16.70	
Body Mass Index	Pre Test	20	21.23	3.40	P<.05
	Post Test	20	19.10	3.02	

Table 4 depicted Mean Scores, Standard Deviation and t-ratio of pre and post-test of Cardiovascular Fitness and Body Mass Index of experimental group.

RESULTS AND DISCUSSION

The aim of the study is to determine the Functional Exercise on Cardiovascular fitness of Sedentary Students. The several study shown that sedentary life style (lifestyle without physical or sporting activity will contribute to life style disease such as cardiovascular disease, hypertension, diabetes and obesity . physical inactivity increase the risk of lifestyle diseases. sedentary life style **can lead to fatty material building up in your arteries** (the blood vessels that carry blood to your organs). If the arteries that carry blood to your heart get damaged and clogged, it can lead to a heart attack. The engaging in regular Exercise is particularly apparent in the prevention of several chronic diseases, including: obesity, depression, cardiovascular disease, diabetes, cancer, Blood pressure, and osteoporosis. With regards to mean score of pre and post of Cardiovascular endurance of control group were obtained 1576.89 and 1559.90 respectively , However, the Standard Deviation of pre and post of Cardiovascular fitness of control group were obtained 15.67 and 15.60 respectively. The result reveals that no significant difference of Cardiovascular endurance was found between pre and post-test of control group .With regards to mean score of pre and post of Body mass index of control group were obtained 20.67 and 20.13 , However, the Standard Deviation of pre and post of Body mass index of control group were obtained 3.20 and 3.43 respectively. The result reveals that no significant difference of Body mass index was found between pre and post-test of control group . With regards to mean score of pre and post of Cardiovascular endurance of Experimental group were obtained 1570.80 and 17.89.86 respectively, However, the Standard Deviation of pre and post of Cardiovascular endurance of Experimental group were obtained 15.23 and 16.70 respectively. The result reveals that significant effects of circuit and yoga training on Cardiovascular endurance was found between pre and post-test of Experimental group .With regards to mean score of pre and post of Body mass index of Experimental group were obtained 21.23 and 19.10 , However, the Standard Deviation of pre and post of Body mass index of Experimental group were obtained 3.40 and 3.02 respectively. The result reveals that significant effects of circuit and yoga training on Body mass index was found between pre and post-test of Experimental group . Our findings are in agreement with other study that has examined cardiovascular fitness levels in African-American adults. According to observations of the Amsterdam Growth and Heath Longitudinal Study, physical activity levels affect cardiovascular capacity during puberty and later in life. Thus, we assumed that physical activity levels of our study participants were similar as earlier in their life and consequently their Cardiovascular capacity resulted from long term engagement in a given physical activity pattern.

REFERENCES

- [1]. Caspersen C. J., Powell K. E., Christenson G.M. (1985)“Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research”, Public Health Rep 100:126–131
- [2]. Clausen J P (1977) “Effects of physical training on cardio vascular adjustments to exercise in man.”Physiol Rev. 57(4):779-815
- [3]. Dubbert PM (2002) “Physical activity and exercise: recent advances and current challenges. Journal of Consulting and clinical psychology.”70:526-536. Dio: 10.1037/0022-0066X.70.3.526.
- [4]. Huang YC, Malina RM (2007) “BMI and health- related physical fitness in Taiwanese youth 9-18 years.” Med Sci sports Exerc, 39(4):701-708.
- [5]. Hulens M, Vansant G, et.al. (2002), “Health-related quality of life in physically active and sedentary obese women”, Am J Hum Biol. 2002 Nov-Dec; 14(6):777-85.

- [6]. Ismailov R. M. , Leatherdale S. T. (2010), “Rural-urban differences in overweight and obesity among a large sample of adolescents in Ontario.”*Int. Journal of .,PPediatrObes.* Aug; 2010, 5(4):351-60.
- [7]. J Bharti (2010) “Effects of endurance training on school boys.” Unpublished M.P.Ed. Dissertation, Swami Ramanand Teerth Marathwada University Nanded.
- [8]. Jackson J, Sharkey B, and Johnston L (1979) “Cardio respiratory adaptations to training at specified frequencies.” *Res. Q.* 39:295-300.
- [9]. Jourkesh et. al. (2011) *Annals of Biological Research*, , 2 (2):460-467
- [10]. Juhee Kim, Aviva Must et. al. (2005), “Relationship of Physical Fitness to Prevalence and Incidence of Overweight among Schoolchildren”, *Obesity Research* (2005) 13, 1246–1254; doi: 10.1038/oby.2005.148
- [11]. Kwok Kei Maket. al., (2010) “Health related physical fitness & Weight status in Hong Kong adolescents *BMC public health*”, 10:88.
- [12]. L. O. Amusa, D. T. Goon (2011), “Health-related physical fitness among rural primary school children in Tshanda, South Africa” *Scientific Research and Essays Vol. 6(22)*, pp. 4665-4680, 7 October, 2011, Available online at <http://www.academicjournals.org/SRE> ISSN 1992-2248 ©2011 Academic Journals
- [13]. Lamb KL, Brodie DA, Roberts K (1988) “Physical fitness and health-related fitness as indicators of a positive health state.” *Health PromotInt* 3:171–182.
- [14]. Lamb KL, Brodie DA, Roberts K (1988) “Physical fitness and health-related fitness as indicators of a positive health state”, *Health Promoting* 3:171–182.
- [15]. Malina RM (2007): “Physical Fitness of children and adolescents in the United States: Status and secular change”. *Med sports sci.*, 50:67-90.
- [16]. Maria Eugenia Peña Reyes, SweeKheng Tan, et. al., (2003), “Urban–rural contrasts in the physical fitness of school children in Oaxaca, Mexico”, Article first published online: 27 OCT 2003 DOI: 10.1002/ajhb.10218
- [17]. MehtapÖzdirenc, AyseÖzcan, et.al (2005), “Physical fitness in rural children compared with urban children in Turkey”, Article first published online: 2 FEB 2005 DOI: 10.1111/j.1442-200x.2004.02008.x
- [18]. Orjan E, Kristjan O, Bjorn E (2005): “Physical performance and body mass index in Swedish children and adolescents” *Scand J Nutr*, 49(4):172-179.
- [19]. Pongprapai S, Mo-suwan L, et. al. (1994) “Physical fitness of obese school children in Hat Yai, southern Thailand”, *Jun;25(2):354-60.*
- [20]. R.B. Patil, (2012), “A Comparative Study of Physical Fitness among Rural Farmers and Urban Sedentary Group of Gulbarga District”, *Al Ame en J Med S ci* (2012)5 (1):39 -44 (A US National Library of Medicine enlisted journal)
- [21]. Roxane R. Joens-Matre (2008), “Rural–Urban Differences in Physical Activity, Physical Fitness and Overweight Prevalence of Children”, *The Journal of Rural Health Vol. 24, No. 12008* National Rural Health Association
- [22]. Sallis, J.F., McKenzie, et. al. (1999) “Effects of health – related physical education on academic achievement”, *Project SPARK, Research Quarterly for Exercise and Sport*, 70:127-134.