



ISSN: 2456-0057
IJPNPE 2018; 3(1): 890-892
© 2018 IJPNPE
www.journalofsports.com
Received: 16-11-2017
Accepted: 17-12-2017

Biswajit Dhali
Assistant Professor,
Department of Physical
Education, Mugberia Gangadhar
Mahavidyalaya, West Bengal,
India

Dr. Deba Prasad Sahu
Assistant Professor & Head,
Department of Physical
Education, Mahishadal Girls'
College, West Bengal, India

Correspondence
Biswajit Dhali
Assistant Professor,
Department of Physical
Education, Mugberia Gangadhar
Mahavidyalaya, West Bengal,
India

Comparison of physiological status between active and sedentary women

Biswajit Dhali and Dr. Deba Prasad Sahu

Abstract

The purposes of this study were to find out the status of different physiological variables such as heart rate, blood pressure, blood sugar level etc. of active and sedentary women and to compare them between two groups of people who lead active and sedentary life style in rural area of West Bengal. 15 active and 15 sedentary women from the village of Uttar Nischinta, Purba Medinipur, West Bengal were purposively selected as the subjects of this study. Their age ranges from 35-50 years. The Variables of this study were Body weight, Standing height, Age, Heart rate, Blood pressure and Blood Sugar level. The significance of statistical difference of different variables between active and sedentary women was measured by applying statistical t-test at 0.05 level of significance. Statistical findings showed that the Resting heart rate and Blood Pressure of active women was lower than the sedentary women but the difference was not significant. Resting Blood Sugar level of active women was significantly lower than the resting Blood Sugar level of sedentary women.

Keywords: Active, sedentary, heart rate, blood pressure, blood sugar level

Introduction

The value of proper exercise for the total effectiveness of the individual has been well documented, as has been the need for a physically active life style in our sedentary society despite that doing ones job today requires a minimum of strength and endurance. Excellent cardio respiratory condition reflects a stronger heart, good blood vessels and properly functioning lungs. Body activities performed over long period as walking, riding, running and swimming improved cardiovascular condition. The condition of the cardio-respiratory system is generally a good indicator of endurance of total body and regular physical activity can improve people's overall health and reduce various risks for morbidity and mortality due to a sedentary lifestyle [2]. Regular exercise has been reported to improve cardiopulmonary function and reduce the risk factors of cardiovascular diseases [4].

Glucose, the most important carbohydrate fuel in the body with the other food components. In the fed state, the majority of circulating glucose comes from the diet; in the fasting state, gluconeogenesis and glycogenolysis maintain glucose concentrations. Very little glucose is found in the diet as glucose; most is found in more complex carbohydrates that are broken down to monosaccharides through the digestive process [5].

Lack of physical activity is a leading cause of preventable death worldwide. The risk is higher among those who sit still for more than 5 hours per day. There are lot of studies around sedentary lifestyle and diabetes emerging and this study covers few of the aspects. Despite considerable scientific information on physiological performance of human, there is no such information about the rural aged people who are basically earning their bread and butter from cultivation and other active works (100 Diner Kaj, etc.). So far, there is no comparative report on physiological variables of rural women in West Bengal considering active and sedentary lifestyle. Our study was therefore aimed to compare the physiological status of active and sedentary women in rural area of West Bengal.

The purposes of this study were to find out the status of different physiological variables such as heart rate, blood pressure, blood sugar level of active and sedentary women and to compare them between two groups of people who lead active and sedentary life style in rural area of West Bengal.

Methodology

Subjects

15 active and 15 sedentary women from the village of Uttar Nischinta, Purba Medinipur, West Bengal were selected as the subjects for this study. Their age ranges from 35-50 years. The subjects were selected purposively from the villagers. The active women still were engaged in the agricultural work and other active works (100 Diner Kaj, etc.) for 3-5 hrs. Daily. The sedentary women were characterised by sitting or remaining inactive for most of the day with little or no exercise. It includes sitting, reading, watching T. V. (Serial), playing video games, mobile phones with social medias (Facebook, Whats App etc.), and computer use for more time with no vigorous physical activity. And their livelihoods were almost fine. The socioeconomic status was not considered here although all the subjects were residing in a same locality and enjoy same environment.

Variables

- Personal data: Body weight, Standing height and Age.
- Physiological Variables: Heart rate, Blood pressure and Blood Sugar level.

The subjects were refrained from taking food or doing any kind of physical activity atleast for 3 hours before taking data and they were also allowed to take a rest for a minimum period of 30 minutes so that their heart rate may come down to a steady state. Measurements were taken with minimal clothing and barefoot. Body weight were taken through weighing machine, height was measured without shoes to the nearest 0.1 cm from sole of the feet to the vertex in erect body position, with the help of a simple tape. The resting heart rate in beat/min. and blood pressure (systolic and diastolic) in mmHg were recorded by using Omron heart rate and Blood pressure monitor. Blood sugars were measured by the Akucheck glucometer. Only the fasting glucose test was

selected in this study.

Results and Discussion

Table 1: Mean, S.D. & 't' values of Heart Rate of active and sedentary women.

Variables	Group	Mean± S. D.	'T'-Ratio
Heart Rate (beat/min.)	Active	73.06±5.61	.388*
	Sedentary	74.06±6.68	

* Table value of 't' at 0.05 level of confidence = 2.145

From table 1 it was found that the obtained t' value .388 is less than the table value of 2.145 with the D.F. 14 at .05 level of confidence. It was concluded that there was no significant difference of heart rate between active and sedentary women. Statistical findings showed that resting heart rate of active person is lower than the resting heart rate of sedentary women.

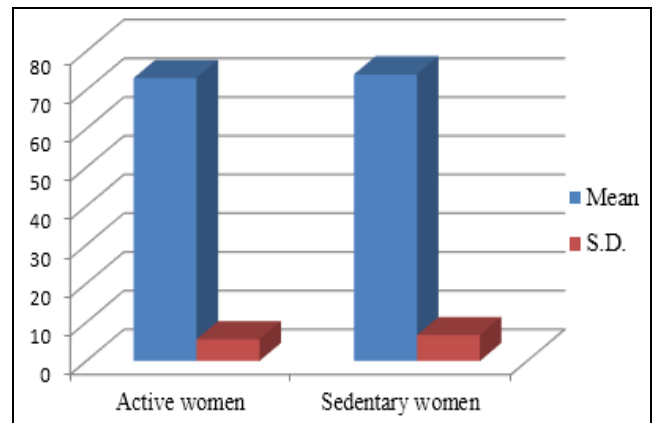


Fig 1: Graphical representation of mean, S. D. of Heart Rate of active and sedentary women.

Table 2: Mean, S. D. & 't' values of Systolic Blood Pressure of active and sedentary women.

Component	Group	Mean± S. D.	'T'-Ratio
Systolic Blood Pressure (mmHg)	Active	115.13±7.25	.394*
	Sedentary	116.06±8.19	

* Table value of 't' at 0.05 level of confidence = 2.145

From table 2 it was found that the obtained 't' value .394 is less than the table value of 2.145 with the D. F. 14 at .05 level of confidence. It was concluded that there was no significant difference of Systolic blood pressure between active and sedentary women. Statistical findings showed that resting Systolic Blood Pressure of active person is lower than the resting Systolic Blood Pressure of sedentary women.

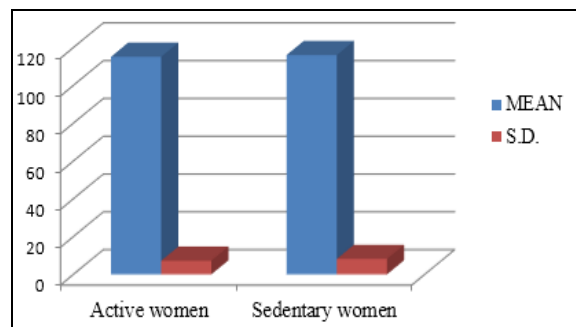


Fig 2: Graphical representation of mean, S. D. of Systolic blood pressure of active and sedentary women.

Table 3: Mean, S. D. & 't' values of Diastolic Blood Pressure of active and sedentary women.

Component	Group	Mean± S. D.	'T'-Ratio
Diastolic Blood Pressure (mmHg.)	Active	76.73±4.36	.609*
	Sedentary	77.80±7.69	

* Table value of 't' at 0.05 level of confidence = 2.145

From table 3 it was found that the obtained 't' value. 609 is less than the table value of 2.145 with the D. F. 14 at .05 level of confidence. Then it was concluded that there was no significant difference of Diastolic blood pressure between active and sedentary women. Statistical findings showed that resting Diastolic Blood Pressure of active person is lower than the resting Diastolic Blood Pressure of sedentary women.

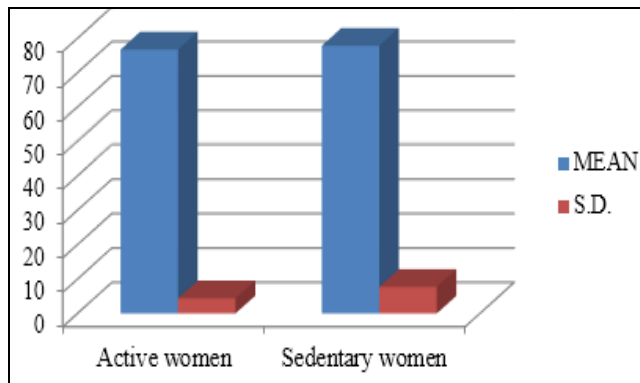


Fig 3: Graphical representation of mean, S. D. of Diastolic blood pressure of active and sedentary women.

Table 4: Mean, S. D. & 't' values of Blood Sugar of active and sedentary women.

Component	Group	Mean± S. D.	'T'-Ratio
Blood Sugar (mg. /dl.)	Active	79.53±9.31	3.532*
	Sedentary	93.06±10.44	

* Table value of t' at 0.05 level of confidence =2.145

From table 4 it was found that the obtained 't' value 3.532 is more than the table value of 2.145 with the D. F. 14 at .05 level of confidence. It was concluded that there was significant difference of Blood Sugar between active and sedentary women and the normal blood sugar level of active women was significantly lower than the sedentary women.

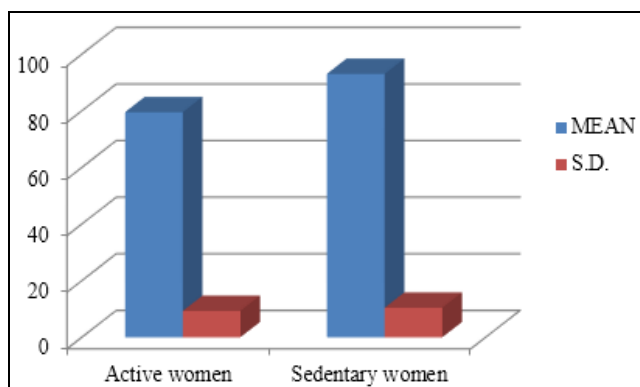


Fig 4: Graphical representation of mean, S.D. of normal blood sugar level of active and sedentary women.

Discussion

The blood glucose level was significantly lower for each exercise condition compared to rest [1]. Exercise causes profound changes in glucose homeostasis. For people with type 1 diabetes, aerobic exercise usually causes blood glucose concentration to drop rapidly, while anaerobic exercise may cause it to rise, thereby making glycaemic control challenging [6]. Physical activity has a blood glucose lowering effect [8]. Moderate intensity exercise improves blood glucose, but most people fail to achieve the required exercise volume [7]. Our results are similar to what the previous workers had shown,

that there exists an inverse relationship between socioeconomic status and the prevalence of diabetes [9]. Resting Blood Sugar level of active person was significantly lower than the resting Blood Sugar level of sedentary person [3]. In the present study

Conclusions

On the basis of the result of the study, the following conclusions were drawn:

- Resting heart rate and both Blood Pressure of active women was lower than the sedentary women but the difference was not significant.
- Resting Blood Sugar level of active women was significantly lower than the resting Blood Sugar level of sedentary women.

Reference

1. Avery MD, Walker AJ. Acute effect of exercise on blood glucose and insulin levels in women with gestational diabetes. *J Matern Fetal Med.* 2001; 10(1):52-8.
2. Bize R, Johnson JA, Plotnikoff RC. Physical activity level and health-related quality of life in the general adult population: a systematic review. *Prev Med.* 2007; 45(6):401-415.
3. Dhali B, Paul A. Comparison of physiological status between active and sedentary persons, *International Journal of Physical Education, Sports and Health.* 2017; 4(3):308-310.
4. Kemi OJ, Haram PM, Loennechen JP, Osnes JB, Skomedal T, Wisløff U *et al.* Moderate vs. high exercise intensity: differential effects on aerobic fitness, cardiomyocyte contractility, and endothelial function. *Cardiovasc Res.* 2005; 67:161-172.
5. Michael J, Millin Mc, Blood Glucose. *The History, Physical, and Laboratory Examinations.* 3rd edition, Butterworth Publishers, a division of Reed Publishing, 1990. Bookshelf ID: NBK248PMID: 21250092.
6. Michael Riddell PHD, Bruce A, Perkins. Exercise and Glucose Metabolism in Persons with Diabetes Mellitus: Perspectives on the Role for Continuous Glucose Monitoring, *J Diabetes Sci Technol.* Published online Jul. 2009; 3(4):914-923.
7. Peter O, Adams. The impact of brief high intensity exercise on blood glucose levels, *Diabetes Metab Syndr Obes.* 2013; published online. 2013; 6:113-122. doi:10.2147/DMSO.S29222,
8. Sheri R, Colberg, Manuel J, Hernandez. The Big Blue Test: Effects of 14 Minutes of Physical Activity on Blood Glucose Levels *Diabetes Care.* diabetesjournals.org, 2013, 1. doi: 10.2337/dc12-1671 vol. 36 no. 2 e21, 2013 by the American Diabetes Association.
9. Steven M, Haffner. Epidemiology of Type 2 Diabetes: Risk Factors. *Diabetes Care.* 1998; 21(3):C3-C6.