



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 8.4
IJAR 2022; 8(3): 384-388
www.allresearchjournal.com
Received: 17-01-2022
Accepted: 21-02-2022

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Abilities of cardio respiratory system and physiological variables of female physical education teacher and sedentary female teacher: A proportional study

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DOI: <https://doi.org/10.22271/allresearch.2022.v8.i3e.9592>

Abstract

In this study, we assessed the abilities of cardio respiratory system and physiological variables of Female Physical Education Teacher and Sedentary Female Teacher. Forty (N=40) teachers of 40 to 47 years of age group (mean \pm s: age = 43.93 ± 2.56 years) were purposively sampled to participate in the present study. They were further divided into two groups which includes twenty (n= 20) Female Physical Education Teachers and twenty (n= 20) Sedentary Female Teachers. All the subjects, after having been briefed about the objective and protocol to participate in this study, gave their consent and volunteered to participate in this study. Statistical technique i.e. the student 't' test was applied to find out the significant differences between teachers of Physical Education and other than physical Education. To test the hypothesis, the level of significance was set at 0.05. The results revealed significant differences between the teachers of Physical Education and other than physical Education on the various Cardio Respiratory and Physiological variables on the sub-variables i.e. Peak Flow, Systolic Blood Pressure and Biceps (Body Composition). However, insignificant differences were noticed with regard to the sub-variables i.e. Body Mass Index, Breath Holding, Diastolic Blood Pressure, Supra Iliac (Body Composition), Sub Scapular (Body Composition) and Triceps (Body Composition). But while comparing the mean values of both the groups, it has been observed that Female Physical Education teachers have demonstrated better Peak Flow, Breath Holding, Systolic Blood Pressure, Diastolic Blood Pressure, Supra Iliac (Body Composition), Sub Scapular (Body Composition), Biceps (Body Composition) and Triceps (Body Composition) than the Sedentary female teachers. It can be noticed that the female sedentary teachers have exhibited more Body Mass Index than the Female Physical Education teachers.

Keywords: Sedentary teachers, PETs, female, respiratory systems and physiology

Introduction

Today is very nearly a replication issue to talk about the current develop of interest in actual wellness is a proficient and powerful working of life. To feel fit is to feel invigorated, dynamic and sure. Presently a day notwithstanding having great monetary condition and training females are overlooking and least worries about then wellness because of the over portion of responsibility at home and in work place. So individuals should look for an ever increasing number of ways by which they can achieve a specific degree of wellness in blend with pleasure.

In this profoundly progressed period regular day to day existence offers less open door for actual work, and the resultant stationary ways of life have genuine outcomes on actual wellness and wellbeing of the general public overall and to the youthful age specifically. An inactive lifestyle style is an unnatural distortion from our transformative constitution and ought to consistently be unfortunate to our species. Present day man is having an inactive existence, absolutely relying upon vehicles to handle from home to working environment and back. There is not really any degree or time for actual work to battle ahead the gamble factors related to numerous infections, for example, cardiovascular, diabetes, and hypertension and furthermore to stay in shape and perform everyday exercises. Inert ways of life propensities progressively adjust their body creation and subsequently they are uncovered for various hypo active infections and furthermore crumbling of actual exhibitions.

Ideal body weight is expected for good actual wellness and wellbeing and to play out our everyday action without fix weakness.

Poor vigorous wellness, weight and absence of advancement of particular sort of solid strength and adaptability are connected with specific infection. It is undeniable that the fit resident are a country's best assets and frail ones its liabilities. It is accordingly the obligation of everybody except particularly female as they are the points of support that ascent the forthcoming age. On the off chance that a female is in showing calling they are the country manufacturers too. So in the event that an educator's body is immature or develop elastic or unmoving, she will be more inclined to get way of life infections. These reasons are the central point for pre developed passing's in India now daily. She or he is glooming his ability for thought and for work, which are of crucial significance to 'one's own life and the overall population in a decent condition.

The vast majority practice since it works on their own appearance and cause them to feel much better about themselves. Albeit many advantages gather from taking an interest in ordinary wellness and wellbeing project and dynamic individuals for the most part live longer, the best advantage of everything is that in great shape people partake in a superior personal satisfaction. These individuals carry on with life to its fullest, with less medical issues than inert people (who additionally may enjoy other pessimistic. I imagine that it very well may be trying for more seasoned ladies overall to address supplement issues as their energy needs decline with maturing. This implies that eating a supplement thick eating routine is particularly significant. Here and there, an entire - food sources veggie lover or vegan diet may really make this more straightforward on account of the decrease in calorie needs that goes with aging. Ladies can at very well on a supplement - thick veggie lover or vegan diet without feeling denied." Writing has to a great extent depicted the positive job applied by actual work to improve general wellbeing, following up on heart, circulatory and respiratory as well as invulnerable capacity (Romeo, W€arnberg, Pozo, & Marcos, 2010; Wu *et al.*, 2019) [6, 10] There were a few investigations did on the body synthesis and cardio respiratory wellness by researcher. Yet, the reasonableness lies in simple and basic method for deciding different morphological and physiological qualities. Thus, the primary point of this exploration paper was to concentrate on cardio respiratory

wellness status and physiological capacity of the assortment of Female Physical Education Teacher and Sedentary Female Teacher.

Methodology

Participants & Measures

The participants were selected from the schools with some inclusion characteristics like Physical Education teachers, sedentary life style as well as they all were vegetarian; forty teachers of different schools of Delhi NCR and Gwalior district were taken as sample. The sample consisted of 40 Female Physical Education teachers and sedentary female teachers. (Mean \pm s: age = 43.93 \pm 2.56 years). They were further divided into two groups which includes twenty (n= 20) Female Physical Education teachers and twenty (n= 20) Sedentary Female teachers. The purposive sampling technique was used to obtain the required data. All participants completed an informed consent form before data collection. Keeping view a feasibility criteria and relevance of the variables in the study. Various Cardio Respiratory Systems related and Physiological variables were measured. Height was measured through Stadiometer; Skin fold caliper was used to measure body composition; Blood pressure was measured by Sphygmomanometer.

Data Analysis

Descriptive statistics (Mean, Standard Deviation, Skewness, Kurtosis, Standard Error of Skewness and Standard Error of Kurtosis) were calculated for all measures. Data screening was used to ensure all dependent variables met the assumptions necessary for the use of parametric statistics before data analysis. In addition, independent t-tests were used to test the between-group differences between Female Physical Education teachers and sedentary female teachers in different parameters. The level of $p \leq 0.05$ was considered significant. Statistical Package for Social Science (SPSS) version 20.0 was used.

Results

Descriptive data for responses to the Female Physical Education teachers and sedentary female teachers in different parameters are shown in Table 1. Measures of skewness and kurtosis found the data to be normally distributed and as such use of parametric statistics was deemed appropriate. Results of the independent t-test are presented in Table 2.

Table 1: Descriptive Statistics of Various Cardio Respiratory and Physiological variables of Female Physical Education teachers and sedentary female teachers

	Descriptive Statistics					
	Mean	Std. Deviation	Skewness		Kurtosis	
			Statistic	Std. Error	Statistic	Std. Error
Body Mass Index	28.33	3.99	0.190	0.374	0.007	0.733
Peak Flow	272.88	69.26	0.350	0.374	-1.215	0.733
Breath Holding	31.01	7.26	1.252	0.374	1.288	0.733
Systolic Blood Pressure	124.00	11.35	-0.446	0.374	0.299	0.733
Diastolic Blood Pressure	79.83	8.17	0.520	0.374	0.186	0.733
Supra Iliac (Body Composition)	29.90	6.99	0.095	0.374	-1.273	0.733
Sub Scapular (Body Composition)	27.75	6.33	-0.072	0.374	-0.683	0.733
Biceps (Body Composition)	21.00	6.95	0.328	0.374	-0.900	0.733
Triceps (Body Composition)	25.93	5.52	0.242	0.374	0.516	0.733
N=40						

For testing the normality of the data (Table 1) skewness and kurtosis (descriptive statistics) has been performed. As a

guideline, a skewness value more than twice its standard error indicates a departure from symmetry. Since none of

the variables skewness is greater than twice its standard error, hence all the variables are symmetrically distributed. Similarly, as a guideline, kurtosis values more than twice its standard error indicates a significant kurtosis. The value of kurtosis for the data to be normal of any of the variable is not more than twice its standard error of kurtosis hence none

of the kurtosis values are significant. In other words the distribution of all the variables is meso-kurtic. The results pertaining to significant difference, if any, between Female Physical Education teachers and sedentary female teachers in different parameters were assessed using the Student's t test and the results are presented in Table 2.

Table 2: Comparative statistics of Female Physical Education teachers and sedentary female teachers on the Cardio Respiratory and Physiological variables

Variables	Levene's Test		Female Physical Education Teachers=20		Female Sedentary Teachers =20		Mean Difference	SE of Mean Difference	t-value	Sig. (p-value)
	F-value	Sig. (p-value)	Mean	SD	Mean	SD				
Body Mass Index	0.88	0.35	27.72	3.57	28.93	4.38	-1.21	1.26	-0.96	0.34
Peak Flow	0.58	0.45	306.75	63.40	239.00	58.41	67.75	19.28	3.52	0.00*
Breath Holding	0.05	0.82	32.55	6.38	29.48	7.91	3.06	2.27	1.35	0.19
Systolic Blood Pressure	4.62	0.04	128.90	7.08	119.10	12.81	9.80	3.27	3.00	0.01*
Diastolic Blood Pressure	0.76	0.39	81.15	7.34	78.50	8.92	2.65	2.58	1.03	0.31
Supra Iliac (Body Composition)	0.76	0.39	31.15	6.69	28.65	7.23	2.50	2.20	1.14	0.26
Sub Scapular (Body Composition)	0.79	0.38	29.05	5.64	26.45	6.85	2.60	1.98	1.31	0.20
Biceps (Body Composition)	0.36	0.55	26.10	4.67	15.90	4.75	10.20	1.49	6.85	0.00*
Triceps (Body Composition)	6.70	0.01*	26.20	3.94	24.45	6.73	1.75	1.74	1.00	0.32

*Significant at 0.05 level, Degree of freedom= 38

Table 2 presents the results of Female Physical Education teachers and sedentary female teachers with regard to the variable of Cardio Respiratory Systems and Physiological. The descriptive statistics shows the mean and SD values of Female Physical Education teachers on the sub-variable Body Mass Index as 27.72 and 3.57, Peak Flow as 306.75 and 63.40, Breath Holding were 32.55 and 6.38, Systolic Blood Pressure were 128.90 and 7.08, Diastolic Blood Pressure were 78.50 and 8.92, Supra Iliac (Body Composition) were 31.15 and 6.69, Sub Scapular (Body Composition) were 29.05 and 5.64, Biceps (Body Composition) were 26.10 and 4.67, Triceps (Body Composition) were 26.20 and 3.94 respectively. However, the female sedentary teachers mean and SD values on the sub-variable Body Mass Index as 28.93 and 4.38, Peak Flow as 239.00 and 58.41, Breath Holding were 29.48 and 7.91, Systolic Blood Pressure were 119.10 and 12.81, Diastolic

Blood Pressure were 81.15 and 7.34, Supra Iliac (Body Composition) were 28.65 and 7.23, Sub Scapular (Body Composition) were 26.45 and 6.85, Biceps (Body Composition) were 15.90 and 4.75, Triceps (Body Composition) were 24.45 and 6.73 respectively. But while comparing the mean values of both the groups, it has been observed that Female Physical Education teachers have demonstrated better Peak Flow, Breath Holding, Systolic Blood Pressure, Diastolic Blood Pressure, Supra Iliac (Body Composition), Sub Scapular (Body Composition), Biceps (Body Composition) and Triceps (Body Composition) than the female sedentary teachers. It can be noticed that the female sedentary teachers have exhibited more Body Mass Index than the Female Physical Education teachers. The comparison of mean scores of both the groups has been presented graphically in Figure 1.

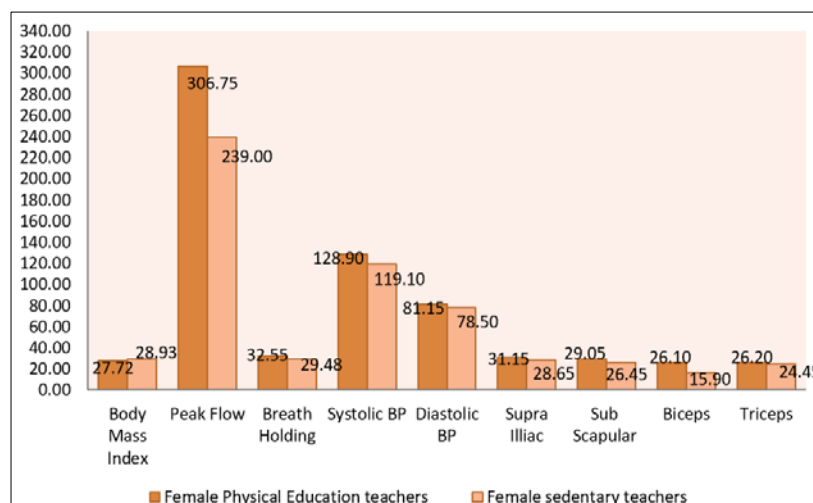


Fig 1: Graphical Representation of Mean Score of Various Cardio Respiratory and Physiological variables

From Table 2, F- and T-table for the testing of variances and equality of means of two unrelated groups of Female Physical Education teachers and sedentary female teachers in different parameters with regard to Body Mass Index, Peak Flow, Breath Holding, Systolic Blood Pressure, Diastolic Blood Pressure, Supra Iliac (Body Composition), Sub Scapular (Body Composition) and Biceps (Body Composition). To test the equality of variances, Levene's test was used. The F-value is insignificant as the p-value is more than 0.05. Thus the null hypothesis of equality of variances may be accepted, and it is concluded that the variances of the two groups are equal. Except the variable Triceps (Body Composition) the F-value is significant as the p-value is less than 0.05. Thus the null hypothesis of equality of variances may be rejected, and it is concluded that the variances of the two groups are not equal in this variable.

From Table 2, it can be clearly seen that three of the variables has shown significant differences i.e. Peak Flow, Systolic Blood Pressure and Biceps (Body Composition) between Female Physical Education teachers and sedentary female teachers except Body Mass Index ('t'-value -0.96), Breath Holding ('t'-value 1.35), Diastolic Blood Pressure ('t'-value 1.03), Supra Iliac (Body Composition) ('t'-value 1.14), Sub Scapular (Body Composition) ('t'-value 1.31), and Triceps (Body Composition) ('t'-value 1.00). The 't'-value shown in the table above were found statistically insignificant ($P > 0.05$). The significant value of "t" at 0.05 levels for degree of freedom 38 is 2.02 and in three of the variables i.e. Peak Flow, Systolic Blood Pressure and Biceps (Body Composition) the p value is less than 0.05. Thus it is concluded that there is significant difference in the Peak Flow ('t'-value 3.52), Systolic Blood Pressure ('t'-value 3.00) and Biceps (Body Composition) ('t'-value 6.85) between Female Physical Education teachers and sedentary female teachers.

Discussion

The motivation behind the current exploration was to think about the capacities of cardio respiratory capacities and physiological factors of Female Physical Education teachers and sedentary female teachers. As the consequences of this exploration shows from the findings of Table 2 with respect to cardio respiratory capacities and physiological factors that huge contrasts have been seen on the sub-factors; Peak Flow, Systolic Blood Pressure and Biceps (Body Composition) between Female Physical Education teachers and sedentary female teachers. It has as of late arisen that inactive way of behaving is autonomous of an absence of actual work as people can be adequately dynamic, in light of the suggested actual work rules, yet additionally spend most of their waking hours taking part in stationary way of behaving. Consequently, the examination local area has moved center towards actual work and Sedentary Behaviour levels during the excess 15.5 hour of day to day waking time (Hamilton *et al.* 2008) [3].

We should decide whether conventional energetic activity preparing (one session each day) impacts unfavorable impacts of inordinate stationary way of behaving and decide whether diminishing inactive way of behaving and expanding non-practice actual work is sufficient, or then again if lifting or keeping up with vigorous limit is required for maximal wellbeing. Late epidemiological proof recommends that inactive way of behaving may increment

risk for early mortality regardless of whether people perform standard characterized practice (Van *et al.*, 2012) [9].

Aging is related with decreased cardiovascular, cardio respiratory and skeletal muscle work, however proof recommends that a piece of these progressions might be because of an expansion in inactive way of behaving all through the life expectancy (Pollock *et al.*, 1997; Trappe *et al.*, 2013) [5, 8]. Further, keeping up with oxygen consuming limit all through the life expectancy is related with diminished early mortality and infection hazard and support of vigorous limit would be reliant upon staying away from an absolutely inactive way of life (Booth, Laye, & Roberts, 2011; Booth, Roberts, & Laye, 2012) [1, 2]. Women for the most part have VO₂ max esteems that are 15-30% lower than men's. This considers distinctions in body piece and haemoglobin fixation. Bulk is one of the main considerations for distinctions in sexual orientation in vigorous limit. A gathering of inactive people, comparatively on prepared people. For inactive gathering the level of contrasts of VO₂ max is 25.3% and for prepared 22.1%. Then, at that point, the exploratory gatherings of male and female further matched by haemoglobin focus then additionally the level of VO₂ max distinction found the middle value of around 11% for each gathering. So there is an organically inborn and unalterable part to the distinction in sexual orientation in high-impact limit (McArdle *et al.*, 1996) [4]. On other hand the relationship between body arrangement and chance component for obtaining cardiovascular sickness has been grounded.

The body organization instead of body weight is related with expanded cardiovascular sickness risk factors (Segal *et al.*, 1987) [7]. Also, the blend of high BMI with at least one different gamble factors (for example smoking, hypertension, hyper-lipidaemia, diabetes mellitus) may prompt various dangers of creating illness (WHO 2005).

Honestly, the epidemiological information whereupon such announcements are based are full of potential issues including the chance of converse causation (i.e., does stationary conduct cause sickness or tight clamp versa), dependence on self-detailed gauges rather than true proportions of inactive way of behaving, absence of a broadly acknowledged and reliably applied functional meaning of stationary way of behaving, and an overall absence of physiologically based investigations.

Conclusion

In conclusion, our results, for the first time in the literature, have shown that the present study signifies that keeping up with customary active work is a significant preventive methodology for physical and physiological wellness. Then, at that point "remain dynamic to feel improved". Hence, people can be adequately dynamic, in light of the actual work rules, yet stationary for the rest of the day. In summary, clinical preliminaries are plainly expected to decide whether customary activity preparing impacts the impeding impacts of unnecessary inactive way of behaving and on the off chance that lessening stationary way of behaving and expanding actual work is sufficient or on the other hand if hoisting or keeping up with vigorous limit is required for maximal wellbeing.

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