Research Journal of Physical Education Sciences _____ISSN 2320– 9011
Vol. **3(6),** 1-5, June **(2015)** *Res. J. Physical Education Sci.*

Diagnostic Study of Selected Physical Fitness and Physiological Variables between Sedentary, Active and Deaf and Dumb School going Girl students

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Available online at: www.isca.in, www.isca.me
Received 17th April 2015, revised 13th May 2015, accepted 14th June 2015

Abstract

The purpose of the study was in relation to Sedentary, active and deaf and dumb school going girl students where the selected physical fitness and physiological variables were analyze. A total of 60 girl students 20 sedentary, 20 active and 20 deaf and dumb school going girl students which were selected from the St. Lawrence Public School of Samna in Patiala, DAV Public School Patiala and School of Deaf and Dumb Students Safdipur Patiala (Punjab) India. Deaf and dumb girl students were active and they were in training for different games and events. After the selection of 60 girl students who had their age ranging from 12-15 years studying in different classes i.e. 7th, 8th, 9th, they were administered tests on selected criterion variables. He selected Physical Fitness and Physiological variables were speed, agility, flexibility, strength (grip, leg & back strength), and breath holding capacity, blood pressure, cardiovascular endurance and pulse rate. Which were tested on sedentary, active and deaf and dumb school going girl students. The data was analyzed by applying one way an ova. The results of these selected physical fitness and physiological variables leads to the significant difference between sedentary ,active and deaf and dumb school going girl students at 0.05 level of significance.

Keywords: Physical fitness (speed, agility, flexibility and strength) and physiological variables (breathe holding capacity, blood pressure, and cardiovascular endurance and pulse rate).

Introduction

Good health is the result of living in accordance with natural laws pertaining to the body, mind and environment. These laws relate to fresh air, sunlight, diet, exercise, rest, relaxation, sleep, right attitudes of mind, good habits the human body is the only machine that breaks down when not used. And it is the only mechanism that functions better and healthier the more it is put to use The objective of the study was to investigate how the heart rate adjusts during different physical tests Children with autism spectrum disorder (ASD) do indeed have a lower cardiac response to specific tests. Twenty children including 10 subjects with ASD diagnosis and 10 control subjects was evaluated using the Euro fit Physical Fitness Test Battery Both groups showed similar trend with the cardiac kinetic reflecting the adjustment to the effort? However, the significant heart rate decrease of the ASD group during physical test could be due to an alteration of the cardiac response. In addition, the scores obtained by children with ASD on physical tests confirmed the lack of motor abilities such as balance and executive functions. Pace[1]. This study aimed to establish whether time spent in sport-related physical activities and sedentary behaviors (e.g., TV viewing, videogame usage, and homework) was prospectively associated with change in blood pressure (BP) for 5 yr. Children completed detailed activity questionnaires. BP was measured using a standardized protocol. Time spent in physical activity and screen time could influence BP measures during childhood[2]. Physical education (PE) programs are evolving from a traditional skill-centered model to a health-centered model that focuses on time engaged in moderate to vigorous physical activity (MVPA). The purpose of this study was to examine the effects of integrative strength and skill-based training on measures of physical fitness in children during primary school PE. A significant ($p \leq 0.05$) interaction of group by time was observed in FIT participants with improvements in aerobic capacity, push-ups, sit and reach flexibility, and single leg hop[3]. Behavior is a major risk factor for developing chronic diseases and is associated with low cardio respiratory fitness in adults. The purpose of this study was to assess how sedentary behavior and different physical activity subcomponents are associated with 10-14 year-old schoolchildren's cardio respiratory fitness.135 school children (81 girls, 12±1 year) completed 7-day minute-by-minute habitual physical activity monitoring using triaxial accelerometers and undertook a maximal cardio respiratory fitness test. There was no relationship between sedentary behavior and cardio respiratory fitness. These findings suggest that, for children, advice should focus on higher intensity physical activity and not sedentary behavior as a means to maintain or improve cardio respiratory[4]. It establishes the relationship between the compliance with the governmental physical activity guidelines (at least a minimum of one hour of moderate to vigorous physical activity, MVPA, five times a week), health-related physical fitness and different health related lifestyle variables in a representative sample of Spanish children. As a conclusion, this study emphasizes the need to promote an active lifestyle in which physical activity suppose a minimum of one hour of regular MVPA, at least five

times a week, to achieve a healthy fitness status[5]. The aim of this study was to measure physical fitness of deaf Dutch elementary school children compared with hearing children and to investigate the influence of age on physical fitness. Deaf children were physically less fit than hearing children. Overall, physical fitness increased with age in deaf children, but no significant differences were found between the age groups of 9-10 years and 11-12 years on most of the Euro fit items. The difference in performance between deaf and hearing children, favoring the latter, increased with age in handgrip strength and the 20-m endurance shuttle run. More attention should be paid to developing and maintaining an adequate level of physical fitness in deaf children[6]. Assessed participation in vigorous activity and television watching habits and their relationship to body weight and fitness given by U.S children Andersen[7].

Subjects: A total 60 girl students 20 sedentary, 20 active and 20 deaf and dumb school going girl students which were selected from the St. Lawrence Public School of Samana in Patiala, D.A V. Public School Patiala and Patiala, School of Deaf and dumb safdipur Patiala.

Objectives of the Study: To observe selected physical fitness and physiological variables of sedentary, active, deaf and dumb school going girl students.

Hypotheses: It were hypothesized that there will be significant difference in Selected Physical fitness and Physiological Variables of Sedentary, Active and Deaf and Dumb School going girl students.

Methodology

Physical Fitness Variables: Speed: The score is determined by the minimum time taken by the subject to complete 50 yard dash.

Agility: The subject is asked to start run in between or crossing the zigzag cones behind the starting point and stop at the finishing point. Task competed in minimum time in minutes or seconds is determined as the score.

Flexibility: It will be measured with the help of sit and reach test and this test were first described by Wells and Dillon. The maximum reach of the examinee is recorded in inches.

Strength: Grip Strength Test: (Dynamometer): The resistance overcomes in nearest half of kilogram in a leg dynamometer for hand grip strength test.

Leg and back strength test: (Dynamometer): The resistance overcomes in nearest half of kilogram in a leg dynamometer for a leg strength test.

Physiological Variables: Breath holding capacity: This test was done with the help of nasal clip. The maximum time to hold breath is recorded with the help of stop watch recorded as score.

Blood Pressure (systolic and disystolic): It will be measured with the help of digital automatic blood pressure. The reading on the digital automatic blood pressure is taken as score.

Cardiovascular Endurance: Harvard step test: The scoring is done according to the formula.

$$F.I = \frac{\text{Duration of Exercise in seconds}}{5.5\times \text{ pulse count of 1 to 1.5 minutes after exercise.}} \times 100$$

Pulse rate: It will be measured with the help of finger type pulse ox meter. Readings taken on the finger type pulse ox meter.

Statistical Consideration: The 'f' test was applied to compare the mean scores and standard deviation of the three groups.

Results and Discussion

To find out the effect of selected Physical fitness and Physiological variables on sedentary, active and deaf and dumb school going girl's student. The level of significant was set at .05 level of confidence.

Physical Fitness Variables: Table-1 shows that the Mean and Standard Deviation values of Speed Ability with regard to sedentary girl students is 11.2 and 1.84 in the case of Active girl students is 7.35 and 0.85 and for Deaf and Dumb girl students is 8.73 and 0.75 respectively. The calculated f-value (48.75) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and Dumb girl students for their Speed Ability.

Table-1
Speed

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	11.2	1.84	0.41	48.74
Active girls	7.35	0.85	0.19	
Deaf and Dumb girls	8.73	0.75	0.16	

*Significant at 0.05 levels Tabulated 'f' at.05=5.79, DF=02

Table-2 shows that the Mean and Standard Deviation values of Agility Ability with regard to sedentary girl students is 12.4 and 1.54 in the case of Active girl students is 10.0 and 0.83 and for Deaf and Dumb girl students is 13.8 and 1.02 respectively. The calculated f-value (32.53) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and Dumb girl students for their Agility Ability.

Table-2
Agility

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	12.4	1.54	0.34	32.53
Active girls	10.0	0.83	0.18	
Deaf and Dumb girls	13.8	1.02	0.22	

* Significant at 0.05 levels Tabulated 'f' at. 05= 5.79, DF=02

Table-3
Flexibility

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	6.37	0.64	0.14	12.8
Active girls	8.35	1.73	0.38	
Deaf and Dumb girls	7.2	1.14	0.25	

*Significant at 0.05 levels Tabulated'f'at.05=5.79 , DF=02

Table-3 shows that the Mean and Standard Deviation values of Flexibility Ability with regard to sedentary girl students is 6.37 and 0.64 in the case of Active girl students is 8.35 and 1.73 and for Deaf and Dumb girl students is 7.2 and 1.14 respectively. The calculated f-value (12.8) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and Dumb girl students for their Flexibility Ability.

Table-4
Grip Strength (Right Hand)

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	13.0	4.24	0.94	20.72
Active girls	20.7	4.52	0.94	
Deaf and Dumb girls	20.2	3.82	1.01	

*Significant at 0.05 levels Tabulated'f'at.05=5.79, DF=02

Table-4 shows that the Mean and Standard Deviation values of grip strength Ability with regard to sedentary girl students is 13.0 and 4.24 in the case of Active girl students is 20.7 and 4.52 and for Deaf and Dumb girl students is 20.2 and 3.82 respectively. The calculated f-value (20.72) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and dumb girl students for their grip strength Ability.

Table-5
Grip Strength (Left Hand)

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	13.1	1.83	0.41	19.31
Active girls	17.2	4.11	0.91	
Deaf and Dumb girls	15.5	3.03	0.67	

*Significant at 0.05 levels Tabulated 'f' at. 05=5.79, DF=02

Table-5 shows that the Mean and Standard Deviation values of grip strength Ability with regard to sedentary girl students is 13.1 and 1.83 in the case of Active girl students is 17.2 and 4.11 and for Deaf and Dumb girl students is 15.5 and 3.02 respectively. The calculated f-value (19.31) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and Dumb girl students for their grip strength Ability Dumb girl students for their grip strength Ability.

Table-6
Leg Strength

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	34.4	10.8	2.43	20.3
Active girls	47.6	19.6	4.40	
Deaf and Dumb girls	33.9	8.33	1.86	

* Significant at 0.05 levels Tabulated 'f' at .05=5.79 , DF=02

Table 6 shows that the Mean and Standard Deviation values of leg strength Ability with regard to sedentary girl students is 34.4 and 10.8 in the case of Active girl students is 47.6 and 19.6 and for Deaf and Dumb girl students is 33.9 and 8.33 respectively. The calculated f-value (20.3) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and Dumb girl students for their leg strength Ability.

Table-7
Back Strength

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	20.6	8.93	1.99	8.91
Active girls	35.6	14.0	3.15	
Deaf and Dumb girls	24.9	11.0	2.46	

*Significant at 0.05 levels Tabulated'f'at.05=5.79, DF=02

Table-7 shows that the Mean and Standard Deviation values of back strength Ability with regard to sedentary girl students is 20.6 and 8.93 in the case of Active girl students is 35.6 and 14.0 and for Deaf and Dumb girl students is 24.9 and 11.0 respectively. The calculated f-value (8.91) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf

and Dumb girl students for their back strength Ability.

Physiological Variables: Table-8 shows that the Mean and Standard Deviation values of breath holding capacity Ability with regard to sedentary girl students is 16.9 and 3.52 in the case of Active girl students is 34.0 and 11.9 and for Deaf and Dumb girl students is 18.6 and 8.55 respectively. The calculated f-value (23.2) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and Dumb girl students for their breath holding capacity Ability

Table-8
Breath Holding Capacity

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	16.9	3.52	0.78	23.2
Active girls	34.0	11.9	2.66	
Deaf and Dumb girls	18.6	8.55	1.91	

* Significant at .05 levels Tabulated 'f' at .05=5.79, DF=02

Table-8 shows that the Mean and Standard Deviation values of breath holding capacity Ability with regard to sedentary girl students is 16.9 and 3.52 in the case of Active girl students is 34.0 and 11.9 and for Deaf and Dumb girl students is 18.6 and 8.55 respectively. The calculated f-value (23.2) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and Dumb girl students for their breath holding capacity Ability

Table-9
Systolic Blood Pressure

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	70.0	16.3	3.88	5.98
Active girls	61.8	9.04	3.12	
Deaf and Dumb girls	72.9	11.4	3.67	

*Significant at 0.05 levels Tabulated 'f' at .05=5.7, DF=02

Table-9 shows that the Mean and Standard Deviation values of systolic blood pressure capacity with regard to sedentary girl students is 70.0 and 16.3 in the case of Active girl students is 61.8 and 9.04 and for Deaf and Dumb girl students is 72.9 and 11.4 respectively. The calculated f-value (5.98) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and Dumb girl students for their systolic blood pressure capacity.

Table-10
Disystolic Blood Pressure

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	68.9	8.17	1.82	8.12
Active girls	53.2	15.4	3.46	
Deaf and Dumb girls	66.3	14.8	3.31	

* Significant at 0.05 levels. Tabulated'f'at.05=5.79, DF=02

Table-10 shows that the Mean and Standard Deviation values of disystolic blood pressure capacity with regard to sedentary girl students is 16.9 and 3.52 in the case of Active girl students is 34.0 and 11.9 and for Deaf and Dumb girl students is 18.6 and 8.55 respectively. The calculated f-value (23.2) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and Dumb girl students for their disystolic blood pressure capacity.

Table-11
Cardiovascular Endurance

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	46.9	7.9	1.7	11.3
Active girls	32.7	3.30	0.73	
Deaf and Dumb girls	38.2	14.0	3.1	

*Significant at 0.05 levels Tabulated'f'at.05=5.79, DF=02

Table-11 shows that the Mean and Standard Deviation values of cardiovascular endurance Ability with regard to sedentary girl students is 46.9 and 7.9 in the case of Active girl students is 32.7 and 3.30 and for Deaf and Dumb girl students is 38.2 and 14.0 respectively. The calculated f-value (11.3) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and Dumb girl students for their cardiovascular endurance Ability.

Table-12
Pulse Rate

Group	Mean	Standard Deviation	Standard Error Mean	f-value
Sedentary girls	84.2	12.3	2.76	8.8
Active girls	10.9	2.45	96.3	
Deaf and Dumb girls	96.3	9.66	2.16	

* Significant at 0.05 levels. Tabulated'at.05=5.79, DF=02

Table-12 shows that the Mean and Standard Deviation values of pulse rate capacity with regard to sedentary girl students is 84.2 and 12.3 in the case of Active girl students is 10.9 and 2.45 and

for Deaf and Dumb girl students is 96.3 and 9.66 respectively. The calculated f-value (8.8) which is more than the tabulated f-value (5.79) at .05 levels. So, it shows that there is a significant difference between Sedentary, Active and Deaf and dumb girl students for their pulse rate capacity.

Discussion of findings: The present study was conducted on 60 girl students who were divided into sedentary, active and deaf and dumb girl students. Deaf and dumb girl students were active and they were in training for different games and events.

Selected Physical fitness Variables: The result of the study showed that there were differences between all the three groups i.e. Sedentary, Active and Deaf and Dumb School going girl students. It was found that these three levels of groups were statistically different when compared with each other. It was found that Active School going girl students group was much superior to the other two counter partners. Health-related fitness in school children: compliance with physical activity recommendations and its relationship with flexibility, agility, speed, strength and diet quality, showed that there were differences between different groups of Spanish children's and children of primary school supports the result of present study.

Selected Physiological variables: The findings of the present investigation show that there exists a significant difference between all the three groups of i.e. Sedentary, Active and Deaf and Dumb School going girl students. The findings are supported with the study undertaken by Gopinath B, Hardy LL[2], Denton SJ, Trenell MI, Plötz T, Savory LA, Bailey DP, Kerr CJ[4]. Where differences were found between sedentary and yogic subjects. These findings support the related study and the result.

Discussion of hypotheses: There are significant differences for Selected Physical fitness and Physiological variables between three groups of i.e. Sedentary, Active and Deaf and Dumb School going girl students. These hypotheses are accepted because significant differences were reported in various selected physical fitness and physiological variables between all of Sedentary, Active and Deaf and Dumb School going girl students. Hence hypotheses were accepted in all selected physical fitness and physiological variables.

Conclusion

There have been found significant difference among sedentary, active and deaf and dumb school going girl students on selected physical and physiological variables.

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