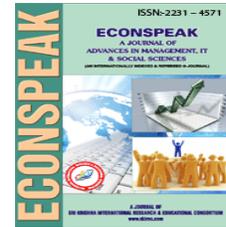




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COMPARATIVE STUDY OF PHYSICAL FITNESS OF SENIOR SECONDARY SCHOOLS STUDENTS OF C.B.S.C. AND P.S.E.B. SCHOOLS

RUPENDER SINGH*; RAJESH KUMAR PHOR**

*Department of Physical Education,
Gobindgarh Public College, Alour,
Khanna-141403, Punjab.

**Department of Physical Education,
Gobindgarh College of Education, Alour,
Khanna-141403, Punjab.

ABSTRACT

The present study is identifying difference between the physical fitness of senior secondary school students of C.B.S.E. and P.S.E.B. schools of district Fategarh Sahib, Punjab. The investigator used AAHPER youth fitness battery consisting of six items: pull-up, sit-up shuttle run, standing board jump, 50-yard dash and 600-yard run. Scores on the parameters referred to above were of 200 students, 100 students were PSEB and 100 from CBSE schools falling within the age group 16 to 19 years. Mean and Standard deviation was calculated from the obtained data and further 't' test was applied to compare the CBSC and PSEB students. The level of significance was chosen at .05 level.

KEYWORDS: *Comparative study, Physical Fitness, 10+2 Students, C.B.S.C. & P.S.E.B. Schools.*

INTRODUCTION

Physical education is an integral part of education. The programme of physical education provides vital experience for the growth and development of the personality of the child enables him to become an efficient and productive member of society. The physical fitness has been acclaimed as one of the most essential requirements of personality development. This is also highly required for the sportsmen of caliber. Thus a certain level of fitness is needed for every individual.

In other words, in these days of explosive population growth and high technology, there has been a concern in education in educating a citizen to maintain optimal level of physical fitness for personal efficiency and national progress, all over the world. Amongst the various objectives of physical fitness, could be realized in a large measure only by physical education and not by other components of school curriculum. The physical fitness implies the ability of each person to live most effectively with his or her potential ability to function depending upon the physical, mental, social and spiritual components of fitness, all of which are related to each other and mutually interdependent.

Most authors define physical fitness as the capacity to carry our everyday activities (work and play) without excessive fatigue and with enough energy in reserve for emergencies. Physical fitness is the capacity of the heart, blood vessels, lunge and muscles to function at optimal efficiency.

The world health organization described physical fitness “as the ability to undertake muscular work satisfactory.” (Anderson et al., 1971), while the president’s council on physical fitness and Sports (1981) spoke of “the ability to carry out daily tasks with vigour and alertness, without undue fatigue and with ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies.” Thus physical fitness is the ability to least, to bear up, to withstand stress and to preserve under difficult circumstances where an unfit person would quit. It is the opposite to enter restfully into life’s activities, and of becoming exhausted from unexpected demanding physical exertion. This definition implies that physical fitness is more than “not being sick or merely being well.” It is different from immunity to disease. It is positive quality, extending efficient movement; alertness of mind emotional adjustment provides the framework of fitness (Clarke, 1966).

The totally fit individual or the psychologically stable, not seriously affected by worry or tension has realistic perception of the world and is adjusted socially in society. In sports and physical education, physical fitness as a single factor is the most important determinant. According to Harre (1979), for a high level of efficiency in technique and tactics in most sports, a high level of physical fitness is most important. Therefore, for developing an efficient system of making selection strategy in sports, the physical fitness is considered to be of outmost importance.

According to AAHPER, physical fitness represents the capacity to live most vigorously and effectively with one’s own resources. In other words, “that state which characterizes the degree of which the person is able to function. Men’s existence and effectiveness depends upon his physical fitness. Physical fitness really implies more than the ability to do a work without much efforts. Physical fitness, to some degree, all of life activities, not only his physical well being, but also mental effectiveness and personal social adjustment as well.

Today the concept about physical education has altogether changed. Experts and administrators have realized the contribution of it for the development of personality and optimal level of motor performances. Fitness has immense contribution in making community. The individual’s capacity to live healthy life makes for a happy family life. It is closely related to the efficiency in the office, the factory and the field. Fitness is the basis of human happiness. It

should serve that high purpose both in the individual and in the community. Fitness is the source of the beauty and joy, the twin revelations of the divine in us.

REVIEW OF LITERATURE

The AAHPER Youth Fitness test is the first ever to be developed by the physical education profession for which national norms were determined. The national norms were established in 1957 with the seven –item test battery. Those were: pull –up for judging arms and shoulder girdle strength; sit –up for judging efficiency of abdominal and hip flexor muscles; shuttle run for judging speed and change of direction; standing broad jump for judging explosive muscle power of leg extensor; 50- yards dash for judging speed; 600 –yards run (with optional run of one mile or nine minutes for 10-12 or one-and-a-half miles or twelve minutes for age thirteen and older) –judging endurance and softball throw.

An investigation was made to determine the relationship between the physical fitness ratings of aviation cadets and certain early life experiences pertaining to physical activity by Bucher and Taddonio (1965). The Army, air –Force physical fitness test consisting of sit –ups, pull –ups and 300 –yards, shuttle run and a 50 item questionnaire were administered to 1,226 aviation cadets aged eighteen to twenty –seven . PER data were grouped; end mean and standard deviation were also calculated. Rural and urban areas determined by U.S. Bureau of Census Definition. Data referred to favorite activities in the elementary school and participation in varsity sports revealed some significant difference with were reared to geographical areas and size of communities in which cadets were reared. There was no consistent pattern of relationship between the mean PER of cadets and their age. Ponthioux and Barker (1965) investigated the relationship between socio-economic status and the seven aspects of physical fitness measured by the AAHPER Youth Fitness Test. The subjects of the study were 329 girls and 304 boys of ages ten, eleven and twelve. Socio –economic status was measured by index of status characteristics. Significant relationship was found, but they did not favor one status group in all components of fitness. Results indicated that the boys of lower socio-economic status were faster and better co-ordination than the upper status boys. The high status boys surpassed the lower status boys in agility and speed and in strength of abdominal and hip flexor muscles. Askew (1966) as a follow-up of a study reported by willgoose, Askew and Askew (1966) on the reliability of the 600-yard run-walk test at the junior high school level. Forty-six girls and seventy-one boys of grade 2 were tested at two different times under similar conditions. Eighty-five percent of those taking this test also participated in the previously reported junior high school test in 1960. The result of the two tests was tested for significance with t-ratio technique. within the limits of this study, it was observed that when the 600-yard run-walk was properly administered, it was a reliable measure of an individual’s ability.

The study was under taken by Dowel and Landiss (1971) to determine the physical fitness trends of entering college freshman. Entering male fresh students were tested on the Texas A and M Physical Fitness Test each fall since 1947. The test included pull-ups, and 300-yard shuttle-run. A total of 5,496 subjects were used in this twenty years study. ANOVA between years was computed for each physical fitness. Lashley (1972) conducted a study to determine the difference between the levels of physical fitness, personality characters and socio-economic status of Negro and Caucasian junior high school boys. The AAHPER Youth Fitness

Test, the California Psychological Inventory, and the American Home Scale were administered to 500 subjects. Following conclusions were drawn:

1. Caucasian junior high school boys were significantly better in 600-yard run-walk than the Negro boys.
2. Negro junior high school boys were significantly better in pull-ups and sit-ups than the Caucasian boys.
3. There was no significant difference between two groups on the shuttle-run, standing broad jump, fifty-yard dash, and the softball throw.
4. There was significant relationship between socio-economic status and the level of physical fitness of Caucasian and Negro junior high school boys.

Alexander (1973) determined, by means of factor analysis, the factors which contributed to motor performance. Thirty-four variables were administered to 220 male and female students. Person product-moment Correlation Coefficient and Factor Analysis techniques were employed. Six robust factors that existed in the male group were leg-strength and endurance, arm explosive strength basketball skills, muscular strength and endurance and grip strength. For females, muscular endurance and agility, leg power, explosive strength, balance and strength of the arms. Bissonnette (1974) to identify the nature of physical fitness possessed by elementary school boys through factor analysis. Twenty-four physical fitness evaluation items were administered to 112 boys, seven and eight years of age, and 117 boys, eleven and twelve years of age. The data collected were correlated. The varimax Criterion for Rotation was employed to maximize three loading on each factor. Five similar physical fitness factors were identified for all ages. They were named body fat, body dimensions static strength, hip flexibility recovery pulse and muscular endurance. Mason (1979) wanted to investigate the relationship between the self-concept and physical fitness performance of white, American Indian and Black women college students. Another aspect of the study was to compare the three groups of women on their self-concept and physical fitness performances. Sixty women students, twenty white, twenty American Indian and twenty Black were randomly sampled for the required P.E. service classes to participate in the study. The "How I see myself (HISM) Scale" and the "Lindsey Physical Fitness Test" were used for measuring the self-concept and physical fitness performances of the three ethnic groups of women. According to results, the following conclusions were drawn:

1. College women regardless of ethnic classification were more alike on feelings about themselves than they were different.
2. College women had positive feelings about themselves.
3. There was no significant relationship between the self-concept and fitness performances of the White women college students.
4. There was no significant relationship between the self-concept and fitness performances of the American Indian women college students.

5. There was no significant relationship between the self-concept and fitness performance of the Black women college students.
6. There is no significant difference in self-concept of the three groups.
7. The Black women were significant better on endurance than the White and the Indian women college students.
8. College women had good feelings about themselves and were above average on physical fitness.

Chaiwateharaporn (1983) compared the physical fitness levels of the Oklahoma state university faculty group (n=62) with those of the commercial subjects (n=308) who were tested in the Mobile Lab Programme. Results an conclusion: Most of the scores of the physiological variables of males of the Oklahoma state university, faculty were better than those of the commercial males. As the mean age increased one year, all tested males showed some decreases in the physiological variables. Most of the physiological variables of males were better than those of females in the commercial group showed some decreases in physiological variables. Among three different communities most of the physiological variables of females in Shawnae were better than those of the other. Among eight different communities, most of the physiological variables of males in cushing were better than those of the others. Among the different professionals, most of the physiological variables of the related professional were better than those of the others. Between the test and retest results, the groups who did not exercise before the first test and did later, showed aome improvements in the physiological variables. The groups who did not exercise before and after the first test did not any improvements in the physiological variables. Another study was conducted by Singh, a (1986) to study the physical fitness of Punjab University men students ranging in age from seventeen to twenty-two years. The test battery included the test items extent flexibility, dynamic flexibility, shuttle-run, cricket ball throw, pull-ups. Kalidasan and Sivaramakrishan (1999) studied comparison of fitness level of Tamil Nadu Cricketers with the selected international norms. The physical fitness components namely running speed and agility, muscular endurance, running endurance, and flexibility were tested among 100 subjects taken randomly. The analysis revealed that Tamil Nadu Cricketers showed higher standard than the minimum as in Frank Tyson's case in all physical fitness tests expect in 15 minutes run and sit-ups. The desired standard was crossed only on running speed/agility test.

Dhayanithi and Ravikumar (2002) studied continuous and alternate pace endurance methods and their effects on training and detraining on selected physical and physiological variables among boys. Training is the only means to achieve the true goals of high-level competitions. 60 school boys aged 13 to 14 years were selected as subjects and divided randomly into three equal groups namely Control Group (CG), Alternate pace Running Group (AOGR) and Slow Continuous Running Group (SCRG) to find out the training an detraining effect. The second and third groups underwent two different duration endurance training for 12 weeks whereas the control was not given any training. Pre and post test were applied for all the three groups to find out the training effect in the following test items (1) Cooper's 12 minute run/walk to measure cardio-respiratory endurance, (2) Vital capacity through Wet Spirometer and (3) 50 mts. Sprint for speed. The test

was repeated on 10th, 20th, 30th, 40th, and 50th days after completion of training to find out the detraining effect. Data were analysis through 't' test, ANACOVA and ANOVA statistical techniques and revealed the following;

1. Both the training improved significantly with respect to 12 minutes run walk and vital capacity, but only alternate pace groups showed significant improvement in the case of 50 mts. Sprint.
2. On comparison of the training effect, no significant difference was observed among the training groups on cardio-respiratory endurance and vital capacity, but there was significant difference among the training groups in favor of alternate pace running groups on speed.
3. The training effect sustained for 30 and 20 days with respect to 12 minutes Run Walk in slow continuous and alternate pace running groups respectively.
4. The sustainability of training extended to 20 days in both the training groups on vital capacity.

In the case of 50 mts. The effects of training sustained up to 20th day and 10th day in alternate pace running and slow continuous running groups respectively. Gupta et. al. (2002) conducted a study of the physical fitness spinal mobility and flexibility in footballers. The study deals with physical fitness, spinal mobility, and flexibility of 95 footballers of national and inter-university levels. The player's performance was compared with adequate controls. Three physical fitness tests viz. sit-ups, standing broad jump and shuttle run, anterior and lateral spinal flexion and spinal extension were conducted on all the subjects. The results of this study indicated a greater physical fitness in footballers than control showing significant differences in sit-ups (t-value = 4.30 for males and 5.76 for females), standing broad jump (t-value = 7.12 for males and 10.2 for females), shuttle run (t-value = 4.79 in males) anterior spinal flexion (t-value =3.24 in males and 2.20 in females), lateral spinal flexion (value =4.45 in males and 2.40 in females) and in spinal extension (t-value = 2.27 in males and 2.20 in females).

SIGNIFICANCE OF THE STUDY

1. The knowledge of the level of physical fitness of the students would help the teachers of physical education and other planners to design and plan their training and other curricular programmers accordingly.
2. The results of the study would also help the teachers of physical education and others to select boys for different sports and for the purpose of classification.
3. The results of the study would help the teachers of physical education to know the existing gap between the C.B.S.E and P.S.E.B school boy's physical fitness.
4. The study would provide the guidelines for the boy's to know their own worth with other boys.
5. The study would add to the critical literature in the field of physical education and sports.

6. The status of physical fitness of the students would be identified by the present study.

PURPOSE OF THE STUDY

1. To determine and compare the physical fitness of C.B.S.E. and P.S.E.B. school boys.
2. To compare their performances in various items of AAHPER Youth Fitness Test battery.

HYPOTHESIS

It is hypothesized that there would be a significant difference between the physical fitness of the student of CBSE and P.S.E.B. senior secondary schools. A general notion is prevalent among the people that C.B.S.E. school boys are stronger than C.B.S.E. boys and hence more physically fit.

METHODS AND PROCEDURE

Tester competency was evaluated together with reliability of tests. Reliability of test was established by test-retest method whereby consistency of result was obtained by product movement correlation. The data were collected from randomly selected 25 subjects through test-retest. The test-retest scores for each variable were then correlated and the confidents thus obtained have been presented in table- 1.

TABLE- 1
COEFFICIENTS OF RELIABILITY OF TEST –RETEST SCORE

Sr. No	Test Item	Coefficients' of reliability
AAHPER Youth Fitness Test Battery		
1.	Pull –up	0.89
2.	Sit –up	0.94
3.	Shuttle Run	0.87
4.	Standing Board Jump	0.88
5.	50- Yard Dash	0.96
6.	600- Yard Run/Walk	0.75

It may be Observe from the above table- 1 that the data pertaining to different tests were quite reliable and the table further indicated that the tester reliability was significantly high (reliability coefficient ranging from 0.75 to 0.96) which ensured the competency of the investigator to administer the tests.

The statistical analysis of data consisting of raw scores made by the subjects on AAHPER Youth Fitness battery have been presented in this chapter. The raw data appear in

appendices (a) through (b) The level of significance to test the hypothesis in terms of t-ratio obtained was chosen as .05 level of confidence which is recognized as appropriate since the research process adopted did not involve highly sophisticated equipment demanding the application of a more stringent level of significance.

TABLE – 2

**SIGNIFICANCE OF DIFFERENCE OF MEAN SCORE IN COMPONENTS OF
PHYSICAL FITNESS IN C. B. S. E. AND P.S.E.B. BOY**

Sr.No.	Components	Mean \pm S.D. C.B.S.E.	Mean \pm S.D. P.S.E.B.	D.M.	t'
1.	Pull –ups	13.28 \pm 2.70	9.19 \pm 2.98	4.09	0.76*
2.	Sit –ups	30.69 \pm 3.79	26.77 \pm 4.24	3.92	7.13*
3.	Shuttle Run	11.71 \pm 0.68	11.67 \pm 0.52	0.04	0.05
4.	Standing Board Jump	81.04 \pm 4.79	71.30 \pm 5.42	9.74	13.52*
5.	50- Yards Dash	7.48 \pm 0.50	7.76 \pm 0.43	0.28	4.66*
6.	600- Yard Run/Walk	108.20 \pm 8.48	109.50 \pm 11.92	1.30	0.89
7.	Physical Fitness	252.40 \pm 12.23	237.13 \pm 10.47	15.27	

(Components)

*Significance: Value of 't' to be significant at .05 level of confidence with 198 degree of freedom was 1.97.

Analysis of table -2 also reveals that C.B.S.E. students were superior to the P.S.E.B. students in total physical fitness as well as its components such as pull –ups, sit –ups, standing board jump, 50- yards dash and 600- yard run/walk performance except in the case of shuttle run where C.B.S.E. students had slight edge over P.S.B.E. students.

Differences means in performance of pull –ups, sit –ups, standing broad jump, 50 yard dash and also composite physical fitness score for C.B.S.E. and P.S.E.B. boys were statistically significance as their obtained 't' values of 10.76, 7.13, 13.52, 4.66 and 9.54 respectively were more than the tabulated 't' value of 1.97 required to be significance at 0.5 level $t_{.05}(197) = 1.97$, where 't' valued obtained for shuttle run, 0.05 and 600- yard run/walk, 0.89 were not statistically significance as they were found less than the required value of 1.97. It is further indicated that C.B.S.E. students were superior in strength of shoulder, abdominal strength, power of legs, running speed and endurance, to those of their P.S.E.B. counterparts but C.B.S.E. student were little more agile than the students belonging to P.S.E.B.

CONCLUSIONS

On the basis of analysis and interpretation of data of the P.S.E.B. students had better physical fitness level than the C.B.S.E. students as measured by their performance in various items of the physical fitness test battery (AAHPER). They were also better in almost all the components of physical fitness such as strength, speed, endurance and power than their C.B.S.E. counterparts. This may be attributed to the fact that P.S.E.B. students lead harder life as compared to their C.B.S.E. counterparts due to lack of modern amenities. Moreover, they are more adapt to hard physical labour by way working in fields or other forms of labour due to social and environmental factors. It was hypothesized that there would be a significant difference between the physical fitness of the students of C.B.S.E. and P.S.E.B. senior secondary schools. From the above results and discussion it is observed that the hypothesis stands proved to be correct.

RECOMMENDATION

1. The study revealed that students belonging to P.S.E.B. schools had level of physical fitness than C.B.S.E. students. Thus more stress may be given to improve the fitness level of C.B.S.E. students.
2. The same study may be repeated with girls as subjects.
3. Similar study may be undertaken on a larger sample.
4. Similar study may be conducted on different levels of sports persons.
5. The study may be repeated with respect to another physical fitness test on the same subjects.
6. A similar study may be repeated for the comparison of facilities and physical education programme in P.S.E.B. and C.B.S.E. areas.

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