Research Papers

COMPARATIVE EFFECT OF HEALTH RELATED PHYSICAL FITNESS OF GOVERNMENT & PUBLIC SCHOOL CHILDREN OF INDORE CITY

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Abstract

Health is a common theme in most cultures. In fact, all communities have their concepts of health, as part of their culture. Among definitions still used probably the oldest is that health is the "absence of disease". In some cultures, health and harmony are considered equivalent, harmony being defined as "being at peace with the self, the community, god and cosmos". The ancient Indians and Greeks shared this concept and attributes disease to disturbances in bodily equilibrium of what they called "humors".

INTRODUCTION

Modern medicine is often accused for its preoccupation with the study of disease, and neglect of the study health. Consequently, our ignorance about health continues to be profound, as for example, the determinates of health are not yet clear, the current definitions of health are elusive, and there is no single yardstick for measuring health. There is thus a great scope for the study of the "epidemiology" of health.

Health continues to be a neglected entity despite lip services. At the individual level, it cannot be said that health occupies an important place; it is usually subjugated to other needs defined as more important, e.g. wealth, power, prestige, knowledge, security. Health is often taken for granted, and its value is not fully understood until it is lost.

Physical Health

Physical fitness is good bodily health, and is the result of regular exercise, proper diet and nutrition, and proper rest for physical recovery

Mental Health

Mental health refers to a human individual's emotional and psychological well-being. According to the World Health Organization, there is no one "official" definition of mental health. Cultural differences, subjective assessments, and competing professional theories all affect how "mental health" is defined. In general, most experts agree that "mental health" and "mental illness" are not opposites. In other words, the absence of a recognized mental disorder is not necessarily an indicator of mental health.

Health related fitness focuses on optimum health and prevents the onset of disease and problems associated with inactivity.

Maintaining an appropriate level of health related fitness allows a person to:

Meet emergencies;
Reduce the risk of disease and injury;
Work efficiently;

Participate and enjoy physical activity (sports, recreation, leisure); and

Look one's physical best.

Physical fitness should be the result of the balance of activities that are provided in the physical education programs at school and continued by the family and in other community activities outside of school. Practicing at home initiates the opportunity for parents and students to exercise and be physically active together, making fitness a family activity.

Physical fitness is used in two close meanings: general fitness (a state of health and well-being) and specific fitness (a task-oriented definition based on the ability to perform specific aspects of sports or occupations).

Physical fitness is the capacity of the heart, blood vessels, lungs, and muscles to function at optimum efficiency. In previous years, fitness was defined as the capacity to carry out the day's activities without undue fatigue. Automation increased leisure time, and changes in lifestyles following the industrial revolution meant this criterion was no longer sufficient. Optimum efficiency is the key. Physical fitness is now defined as the body's ability to function efficiently and effectively in work and leisure activities, to be healthy, to resist hypo kinetic diseases, and to meet emergency situations. Fitness can also be divided into five categories: aerobic fitness, muscular strength, muscular endurance, flexibility, and body composition.

The Physical fitness is the sum total of five motor abilities namely Strength, Speed, Endurance, Flexibility and Co-coordinative abilities. These five motor abilities and their complex forms (e.g. Strength endurance, Explosive strength endurance, Explosive strength etc.) are the basic prerequisites for human motor actions. Therefore, the sports performance in all sports depends to a great extend on these abilities. The improvement and maintenance of physical fitness or condition is perhaps the most important aim of sports training. Each sport requires a different type and level of physical condition (specific fitness / condition) and as a result a different type of fitness training is required for different sports. Some sports like distance running require a very high level of endurance but a low level of other motor abilities. Sports like shooting and archery do not require a high level physical condition.

Thus coaching schemes in training school should have medical care and guidance, since sports by its very nature, demands physical exertion frequently by beyond the bounds of mere stereotyped exercise. This simple fact is partially a result of specialization, organization and mere systematic approaches to training in sports –all of which have served to heighten competition and place greater demands upon the participants. thus practicing or competing in modern sports without substantial physical training before, is conducive more to physical disability than to the achievement of peak or all round efficiency failure is common as the practice sessions and the actual sports competition typically lack exercises of sufficient intensity and frequency to adequately condition the athletes 's body for the demands of competition

. Fitness means many things to many people. The physician may view fitness as the absence of disease. The body – builder may considers it well developed muscles, while the young women may think its a curvaceous figure. The coach defines fitness as the factors related to success in sports, and the physical educator looks for strength, endurance, flexibility, speed and agility.

Physical fitness is many – faceted. Basic to it are proper nutrition, adequate rest, good health practices, and good medical and dental cure. However these are not enough. An essential element is physical activity. Exercise for bodies that head it.

Regular, vigorous exercise increases muscle strength and endurance. It also improves the functioning of the large, heart, and blood vessels ; promotes flexibility of the points ; releases mental and physical tensions ; and aids in weight control or reduction.

Physical fitness is the capacity to carry out, reasonably well, various form of physical activities without being tired. It includes qualities important to individual the, man's physical fitness. A high level fitness has a negative impact on both health and daily living.

It is well said that the fit citizen are a nations best asset and weaker one's are liabilities It is the duty of each country to promote physical fitness of its citizens because physical fitness is the basic requirement for most of the tasks, to be undertaken by individual in their daily lives. If a person is not physically, mentally and socially fit, he cannot do anything in his life.

The purpose of this study was to find out the comparative effect of health related physical fitness of students of government and public school of Indore City and based on the expert's

opinion and scholars own understanding it was hypothesized that:

1. There would be no significant difference of health related physical fitness between government school and public school children.

2. There would be a significant difference of health related fitness between age groups of children of government and public school children i.e. 15 to 18 years age group would be better than 12 to 15 years of age group.

METHODOLOGY

Participants

100 students were selected as subject for this study. 50 students were taken from government schools and 50 students from Public Schools of Indore. The subjects were also representing two age group i. e. 12 to 15 years and 15 to 18 years.

Experimental Design

As two factors i.e. school type and age groups were used for this study so 2x2 factorial designs were applied. Each sub group were consisting of 25 subjects each. The design was follows.

	Government school	Public school
12 to 15 years	25 subjects	25 subjects
15 to 18 years	25 subjects	25 subjects

Criterion Measure

The criterion measure chosen for testing the hypothesis was as follows:-

1. Strength - No. of correct push-ups
2. Flexibility - Scores obtained in sit and reach test. In centimeters.
3. Cardiovascular Endurance - Total distance covered in meters in 9 minute run or walk test
4. Over all Health Related Physical Fitness - Composite standard score of all the above three variables.

ADMINISTRATION OF THE TEST

1. Nine minute run –walk test [cardiovascular –fitness]

Purpose: To measure cardiovascular fitness.

Equipments: - track, stop watches, measuring tape and whistle.

Description : The test was conducted in a 400mts track in which the whole track was divided in 8 segments of 50mts each, The Runner start behind a starting line , on the starting signal subject run or /walk as many laps as possible around the Track within the 9 minutes duration. On the completion of the 9 minute whistle was blown by the tester and the subjects stop at their place.

Spotters were available for marking point on ground where subjects stop.

Scoring: The score in meters is determined by multiplying the number of complete laps the time distance of each lap, plus the number of segments of an incomplete lap, plus the number of meters stepped off between a particular segments.

2. Sit and reach test [flexibility]

Purpose: To measure the development of hip and hamstring muscles of the leg. The object is to see how for you can extend your fingertips beyond your Foot line in a long sitting forward stretching position .

Equipments : Floor mat and modified flex measure.

Description: The subject was instructed to sit on the mat in a long sitting position facing a wall. The flex measure was placed against the wall so it may not move further. The sole of the subjects was touching the modified flex measure. Now the subjects bend forward slowly and slide his hand over the measuring scale. The final position of middle finger tips on scale. Was be measured from foot line to distance covered in cms .

Precaution: Do not bend knee while bending flow and.

Scoring: The best of three trails measured to the nearest of a centimeter will be the score.

3. Floor Push-ups [strength]

Purpose: The measure the arm and shoulder strength.

Equipment: A mat on the floor.

Descriptions: From a straight arm front leaning rest position, the performer lowers the body until the chest touches the mat and then pushes upward to the straight arm support.

The exercise is continued for as many repetitions as possible without rest. The body must not sag or pike upward but maintain a straight line throughout the exercise.

Scoring : The score was the number of correct push-ups executed.

RESULT:

In order to find out the comparative effect of health related physical fitness of government and public school boys of Indore city. Two way analysis of variance on 9 min run/walk, pushups, and sit and reach test is applied. Wherever F value was found significant, Least Significance Difference (Ronald. A. Fisher) post hoc test for mean comparison were conducted.

TABLE – 1

TWO WAY ANALYSIS OF VARIANCE OF 9 MINUTE RUN/WALK TEST OF GOVERNMENT ANDPUBLIC SCHOOL STUDENTS IN TWO AGE CATEGORIES

Source of variance	Degree of freedom	Sum of square	Mean of square	F – ratio	Tab. f
Row (age)wise	1	44647.690	44647.690	0.373	3.96
Column (school) wise	1	1101870.090	1101870.090	9.216*	3.96
Interaction(sub groups)	1	1075991.290	1075991.290	9.000*	3.96
Error	96	11477637.840	119558.728		

*Significant at 0 .05 level

Table 1 shows that the calculated F- value of data row (age) wise is 0.373   which is less than tabulated value of F (3.96) and found insignificant. The calculated F- value of column (school) wise is 9.216 which is greater than tabulated value of F (3.96) and shows that there is a significant difference between groups. When the data was analyzed for interaction calculated F value 9.00 is also found significant as It is greater than tabulated F – 3.96. Further the LSD post hoc test is applied to find out critical difference in column wise and interaction wise data and presented in table – 2 and 3.

TABLE – 2

SCHOOL (COLUMN) WISE CRITICAL DIFFERENCE OF 9 MINUTE RUN/ WALK TEST

Group Mean			
Public school	Government School	Mean difference	Critical difference
1741.00	1531.06	209.94*	136.92

*Significant at 0.05 level

Table – 2 reveals that the mean difference between public and government school is higher than critical difference at 0.05 level of significance. So it shows significant difference between the public and government school performance in 9 min run / walk test. It shows that public school students are better than government school student in 9 min run / walk test

TABLE – 3

SUB GROUP (INTERACTING) WISE CRITICAL DIFFERENCE OF 9 MINUTE RUN/WALK TEST

Group Mean				Mean difference	Critical difference
15 to 18 years of Public School	12 to 15 years of Public School	12 to 15 years of Government School	15 to 18 years of Government School		
1823.60	1658.40			165.2	193.64
1823.60		1655.92		167.68	193.64
1823.60			1406.20	417.4*	193.64
	1658.40	1655.92		2.48	193.64
	1658.40		1406.20	252.2*	193.64
		1655.92	1406.20	249.72*	193.64

*Significant at 0.05 level

Table-3 also indicates that 15 to 18 years of government school boys was found significantly in ferric than all other groups. Whereas no significant difference was found between other three groups. i.e. 15 to18 years of public school, 12 to 15 years of public school and 12 to 15 years of government school.

Figure 1
GRAPHICAL REPRESENTATION OF AGE WISE COMPARISON OF THE MEAN SCORESOF 9 MINUTE RUN WALK TEST BETWEEN STUDENTS OF GOVERNMENT AND PUBLIC SCHOOL
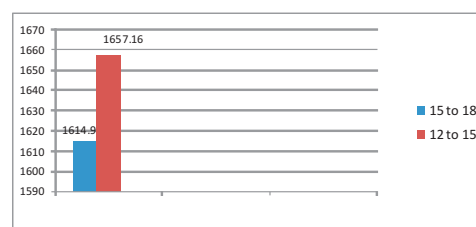

Figure 2
GRAPHICAL REPRESENTATION OF SCHOOL WISE COMPARISON OF THE MEAN SCORES OF 9 MINUTE RUN WALK TEST BETWEEN STUDENTS OF GOVERNMENT AND PUBLIC SCHOOL
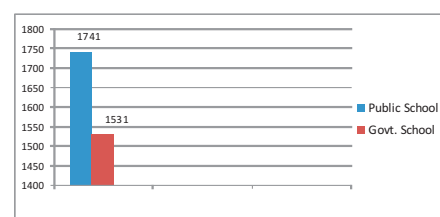

Figure 3
GRAPHICAL REPRESENTATION OF INTERACTION WISE COMPARISON OF THE MEAN SCORES OF 9 MINUTE RUN WALK TEST BETWEEN STUDENTS OF GOVERNMENT AND PUBLIC SCHOOL
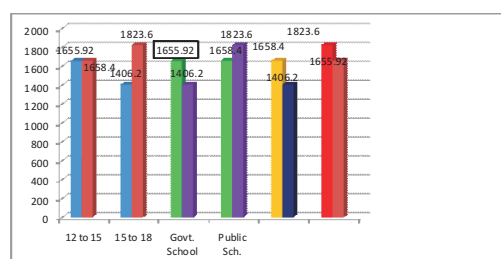
TABLE – 4

TWO WAY ANALYSIS OF VARIANCE OF PUSHUPS TEST OF GOVERNMENT AND PUBLIC SCHOOL STUDENTS IN TWO AGE CATEGORIES

Source of variance	Degree of freedom	Sum of square	Mean of square	F - ratio	Tab. F
Row (age)wise	1	252.810	252.810	3.152	3.96
Column (school) wise	1	18.490	18.490	0.231	3.96
Interaction(sub-groups)	1	252.810	252.810	3.152	3.96
Error	96	7698.640	80.194		

Not Significant at 0.05 level

Table - 4 indicates that the calculated F- value of data in row (age) wise is 3.152, column wise is 0.231 and interaction wise is 3.152 and all are less than tabulated value of F (3.96) ,it indicates that none 'F' ratio was found significant.

Figure 5
GRAPHICAL REPRESENTATION OF SCHOOL WISE COMPARISON OF THE MEAN SCORES OF PUSH UP TEST BETWEEN STUDENTS OF GOVERNMENT AND PUBLIC SCHOOL
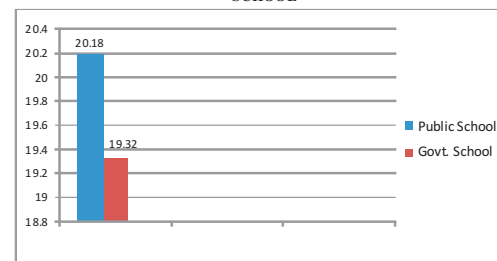
Figure 6
GRAPHICAL REPRESENTATION OF INTERACTION WISE COMPARISON OF MEAN
SCORES OF PUSH UPTESTBETWEEN STUDENTS OF GOVERNMENT AND
PUBLIC SCHOOL

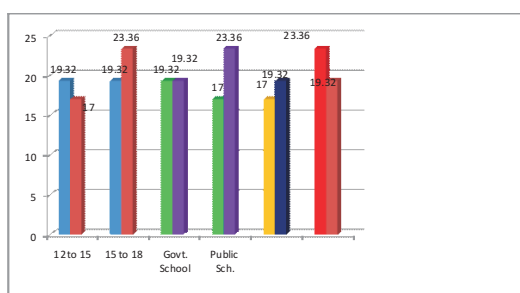**TABLE – 5**
TWO WAY ANALYSIS OF VARIANCE OF SIT AND REACH TEST OF
GOVERNMENT AND PUBLIC SCHOOL STUDENTS
IN TWO AGE CATEGORIES

Source of variance	Degree of freedom	Sum of square	Mean of square	F - ratio	Tab. F
Row (age)wise	1	5.760	5.760	0.904	3.96
Column (school)wise	1	68.890	68.890	10.814*	3.96
Interaction(sub-groups)	1	2.560	2.560	0.402	3.96
Error	96	611.540	6.370		

*Significant at 0.05 level

The table 5 clearly shows that the calculated F-value of row (age) wise is 0.904 and calculated F-value of interaction wise is 0.402 are less than tabulated value of F (3.96) and are found insignificant . The calculated F- value of column wise is 10.814 which is greater than tabulated value of F (3.96) and shows that there is a significant difference between groups. Further the post hoc test is applied to find out critical difference in column wise data and presented in table – 6

TABLE – 6
CRITICAL DIFFERENCE IN COLUMN WISE DATA OF SIT & REACH TEST OF
GOVERNMENT AND PUBLIC SCHOOL STUDENTS IN TWO AGE CATEGORIES

C1 (Government School)	C2 (Public school)	Mean difference	Critical difference
8.38	6.72	1.66*	0.50

*Significant at 0.05 level

Table – 6 shows that the mean difference between public and government school is higher than critical difference at 0.05 level. So it show significant difference between the public and government school student on of performance Sit & reach test. It shows that government school student is better than public school students in sit & reach test.

Figure 7
GRAPHICAL REPRESENTATION OF AGE WISE COMPARISON OF THE MEAN
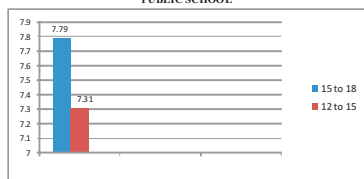SCORES OF SIT AND REACH TEST BETWEEN STUDENTS OF GOVERNMENT AND
PUBLIC SCHOOL

Figure 8
GRAPHICAL REPRESENTATION OF SCHOOL WISE COMPARISONOF THE MEAN
SCORES OF SIT AND REACH TEST BETWEEN STUDENTS OF GOVERNMENT AND
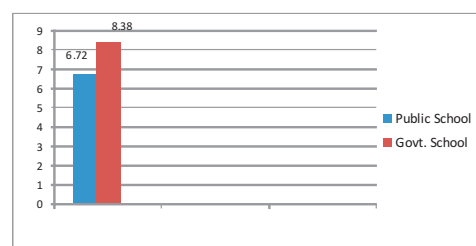PUBLIC SCHOOL

Figure 9
GRAPHICAL REPRESENTATION OF INTERACTION WISE COMPARISON OF
THEMEAN SCORES OF SIT AND REACH TEST BETWEEN STUDENTS OF
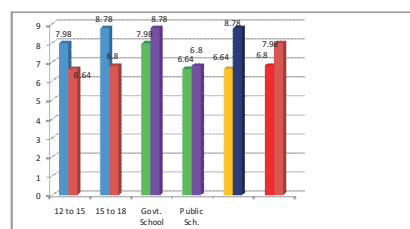GOVERNMENT
AND PUBLIC SCHOOL

TABLE – 7
TWO WAY ANALYSIS OF VARIANCE OF COMPOSITE STANDARD SCORE OF ALL
THE ABOVE THREE VARIABLES OF GOVERNMENT AND PUBLIC SCHOOL
STUDENTS IN TWO AGE CATEGORIES

Source of variance	Degree of freedom	Sum of square	Mean of square	F - ratio	Tab. f
Row (age)wise	1	6.038	6.038	0.007	3.89
Column (school) wise	1	22.152	22.152	0.026	3.89
Interaction(sub-groups)	1	31.221	31.221	0.037	3.89
Error	296	250718.162	847.021		

*Significant at 0.05 level

Table – 7 indicates that the calculated F- value row (age) wise is 0.007 , column wise 0.026 and interaction wise 0.037 and all are less than tabulated of F (3.89) it indicates that none "F" ratio was found significant and there is no need to apply a post hoc test .

Figure 10
GRAPHICAL REPRESENTATION OF COMPARISON OF THE MEAN OF COMPOSITE
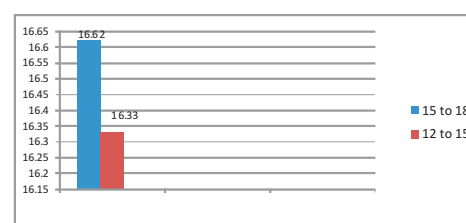SCORES OF ALL THE VARIABLES BETWEEN STUDENTS OF GOVERNMENT AND
PUBLIC SCHOOL

Figure 11
GRAPHICAL REPRESENTATION OF SCHOOL WISE COMPARISON OF THE MEAN
SCORES OF COMPOSITE SCORE OF ALL THE VARIABLES BETWEEN STUDENTS OF
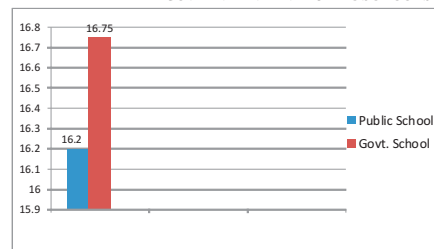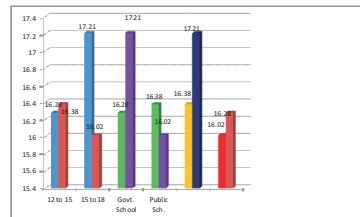GOVERNMENT AND PUBLIC SCHOOLS

Figure 12

GRAPHICAL REPRESENTATION OF INTERACTION WISE COMPARISION OF THE MEAN SCORE OF ALL THE VARIABLES BETWEEN STUDENTS OF GOVERNMENT AND PUBLIC SCHOOLS

Discussion of findings

The finding of the present study on 9 min run and walk test, pull-up and sit and reach test are presented earlier with the help of table finding and represented as follows.

9 Min Run and Walk Test

The finding of the present study on 9 min run and walk test clearly indicates that age wise no significant difference was found, where as school wise and sub group wise significant difference was found. when means are compared school wise it was found that public school performed significantly well than government school boys, and when sub groups mean are analyzed, it was found that mean values are in following sequence 15 to 18 years public school boys > 12 to 15 public school boy > 12 to 15 government school boys > 15 to 18 years government school. But when significance was checked it was found that 15 to 18 yeas government school boys are significantly inferior than all the other three groups, where as no difference was found between other three groups.

The above findings might have according because the public school are having more sports facilities than government school, also regular physical education classes are in their curriculum where as government school boys are deprived of this. Also the 15 to 18 year government school boys mean is least and it might be due to their none – involvement in sports activities and involvement in other recreational activities of their study because of their adolescent age and their study load.

Push-up Test

The findings of the push-up test clearly indicates that no significant difference was found in age wise, school wise and sub group wise.

The above findings might be due to non involvement is any vigorous physical activity because The adolescence is the growing period and we don't gives an emphasize on weight training, gym etc.

Sit and Reach Test

The findings of the sit and reach test clearly indicates that no significant differences was found

in age and sub group wise, where as school wise significant difference was found. When means are compared school wise it was found that government school boys performed significantly well then public school boys.

The above findings might have occurred because school is would not give an emphasize on physical exercises and stretching's related to flexibility, mostly the boys of public school plays sophisticated games on the other side government school boys in rural sports, they belongs to middle class family and they do this house hold activity regularly and also their involvement in local games, yoga etc and this might have improved the flelixibility of government school boys.

The composite score of all the three variables i.e. 9 min run and walk, push-up and sit and reach test of government and public school student in two age categories indicates that there is no significant difference was found. It means that there was no difference of age (12 to 15) and (15 to 18)year and schools (public + government)all the above three variables.

IN 9 minute run and walk test , when means are compared school wise it was found that public school boys performed significantly wall than government school boys .

And in push-up test no significant difference was found in school. And in sit and reach test no significant difference was found in school wise it was found that government school boys performed significantly well than public school boys.

LIMITATIONS OF THE STUDY:

1.   Certain factors like, daily routine and socio-economic status, of the students might have affected the data of the study and it was considered the limitation of the study.

2.   The data were collected in different school in their ground and variation in the ground condition might have affected the data of the study and it was considered another limitation of the study.

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