

**2008**

**Kerala**

**Total Physical Fitness**

**Programme**

**Test Results**

**Report to the Government**

**Prepared by**  
**Kerala State Sports Council**  
**May 2009**

Available on the Total Physical Fitness Programme Web site at <http://www.tfpf.org>

# EXECUTIVE SUMMARY

Our state's young people are, in large measure, inactive, unfit, and increasingly overweight. In the long run, this physical inactivity threatens to reverse the decades-long progress we have made in reducing death from cardiovascular diseases and to devastate our state health care budget. Enhancing efforts to promote participation in physical activity and sports among young people is a critical state priority. By identifying effective new steps and strengthening public-private partnerships, we should advance our efforts to prepare the state's young people for lifelong physical fitness."

1. In the academic year 2008-2009, as part of the "Total Physical Fitness Programme" health related physical fitness testing was conducted in Kerala state schools in classes' five to nine.

2. A total of 16,28,943 students enrolled in classes five to nine, were administered the Total Physical Fitness Programme: Health Related Physical Fitness Test (HRPFT) in 2008, from 4315 schools representing approximately 73 percent of Kerala State schools.

3. Only 19.61 percent of state school population from classes' five to nine was found within the minimum recommended standard on all the test items.

3. Among the total, 4.10 percent (66,800) obtained more than 75 points in all fitness test items and qualified for 2nd phase testing intended for talent identification.

4. Only 13,938 students participated in the 2nd phase testing, among them 6625 students (9.1 percent) met the required standard of 75 point on all the test items in direct testing conducted by the state testing authority.

5. According to the 2nd phase results state wide 474 students obtained "A" Grade and 1430 and 6257 obtained "B" grade and "C" grade respectively.

4. Considering state averages on girls' performance, only age 10 students met the recommended fitness standards on abdominal strength and all the other fitness variable state averages are below than the recommended standard.

5. The data revealed that 53.69% of girl students failed to meet the recommended standard in abdominal strength and the percentage of failed students increased by their age (13=54.12%, 14= 64.62%, 15=68.3%).

6. The data also shows that, the performance on physical fitness variables of girls' students is far below in comparison with their Asian counter parts In Japan and US. The poor abdominal strength will lead to poor posture and pot belly and it may be the root cause for the lower back pain in later life.
7. 64.82 percent girl's students failed to meet the recommended standard in flexibility and failed students' percentage increased by their age (13=59.73%, 14= 62.97%, 15=73.11%).
8. The low performance in one mile run indicates low level cardio-respiratory capacity, 42.05% of the girls students did not meet the recommended standard, failed students percentage increased by their age (13=41.95%, 14= 47.23%, 15=49.89%).
9. 7% of girls students were found to be under weight severely (BMI less than 13) and 54% of girls students were under weight when compared with WHO standard of 18.50 (normal range). Only 3.2% girls' students were found over weight. In the case of children under 16 those who scored below 13 in BMI required clinical examination to prove the condition of severe thinness.
10. Percentage of boys students who failed to meet the recommended standards also increased by their age.
12. The state wide averages on physical fitness of boy students showed that boys of 10, 11 and 12 years age met recommended criteria equal to grade D.
12. The age group 13, 14 and 15 among boys, the mean scores did not meet the required zone of health standard recommended for the respective age groups in abdominal strength, flexibility and cardio respiratory endurance.
13. In the case of cardio respiratory endurance of boys, the performance of age group of 14 and 15 is below than the age group of 13.
14. Aerobic Capacity: 65.48 percent of boys and 57.94 percent girls students were in the recommended zone.
15. Abdominal Strength: 53.99 percent of boys' students and 46.30 percent of girls were in the recommended zone.

16. Upper Body Strength: 78.64 percent of boys' students and 70.42 girls' students were in the recommended zone.

17. Flexibility: 39.53 percent of boys' students and 35.17 percent of girls' students were in the recommended zone.

18. Of the five fitness areas tested, overall scores for upper body strength in 2008 were the highest (average percent in the HFZ = 61.71 percent), while overall scores for flexibility were the lowest (average percent in the HFZ = 37.35 percent).

19. The prime reasons for the above findings which is alarming and lead to a potential health disaster is as follows:

A) Lack of physical activity.

B) Even if physical activity is there it is either inadequate or improper.

C) As the students reach higher standards emphasis on academics becomes greater and contributes to the lack of time for physical activity.

## Introduction

In the academic year 2008-2009, as part of the "Total Physical Fitness Programme" health related physical fitness testing was conducted in Kerala state schools in classes' five to nine. The test used for physical fitness testing is the TPFH Health Related Physical Fitness Test (TPFP HRPFT), designated for this purpose by the Government of Kerala. This report summarizes results of the 2008-2009 test administration and provides a summary comparison.

## Background

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G.O.(M.S) No: 10/08/Gen. Edn Dated: Thiruvananthapuram, 07.01.2008, Govt. of Kerala accorded administrative sanction for implementation of the Total Physical Fitness Program (TPFP), is a comprehensive project launched as a joint initiative of Departments of Education, Sports, Health and LSG through Kerala State Sports Council for boosting of physical fitness status of Kerala school children. Assessment of health related physical fitness of entire school population is the primary work envisaged under this project which was formally launched on 1<sup>st</sup> Nov 2008 by Her Excellency Smt. Prathibha Sing Pattil, President of India.

## Description of the Test

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The TPFH Health Related Physical Fitness Test was developed by Directorate of Sports & Youth Affairs, GOK and Kerala State Sports Council with the primary goal of assisting students in establishing physical activity as part of their daily lives.

Physical fitness testing consists of three broad components of fitness: 1) aerobic capacity, 2) body composition, and 3) muscular strength, endurance, and flexibility. The third component is further divided into three areas: abdominal strength and endurance, upper body strength and endurance, and flexibility. To ensure comprehensive measurement of all components, the **TPFP HRPFT** is comprised of the following five fitness areas:

- Aerobic Capacity** – One-Mile Run / Walk Test
- Body Composition** – Body Mass Index
- Abdominal Strength and Endurance** – Sit-Ups (60 sec)
- Upper Body Strength and Endurance** – Modified Pull-Up
- Flexibility** – Sit and Reach

More detailed information regarding the **TPFP HRPFT**, the five fitness areas, and the performance criteria can be found on the Total Physical Fitness Programme Web site at <http://www.tpfp.org>

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## Fitness Criteria

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The *TPFP HRPFT* uses norm reference standards to evaluate fitness performance. These standards represent a level of fitness that offers a degree of protection against diseases resulting from physical inactivity. Performance on each of the fitness-area tests is classified into five categories. Performances are then compared to a chart and the grades from A to F for each test item. A constitutes excellent performance and E constitutes barely passing. An F grade is an alternate term that the participant has failed that section.

The awards are:

### **Minimum Proficiency Requirements (Grade - D)**

- At least an D grade performance in all 4 test items AND
- Between the recommended score in BMI

### **Silver Proficiency Requirements (Grade- C)**

- At least a C grade performance in all 4 test items AND
- Between the recommended score in BMI

### **Gold Proficiency Requirements (Grade - B)**

- At least a B grade performance in all 4 test items AND
- Between the recommended score in BMI

### **Champ Proficiency Requirements (Grade - A)**

- At least a "A" grade performance in all 4 test items AND
- Between the recommended score in BMI

## Results of 2008 Testing

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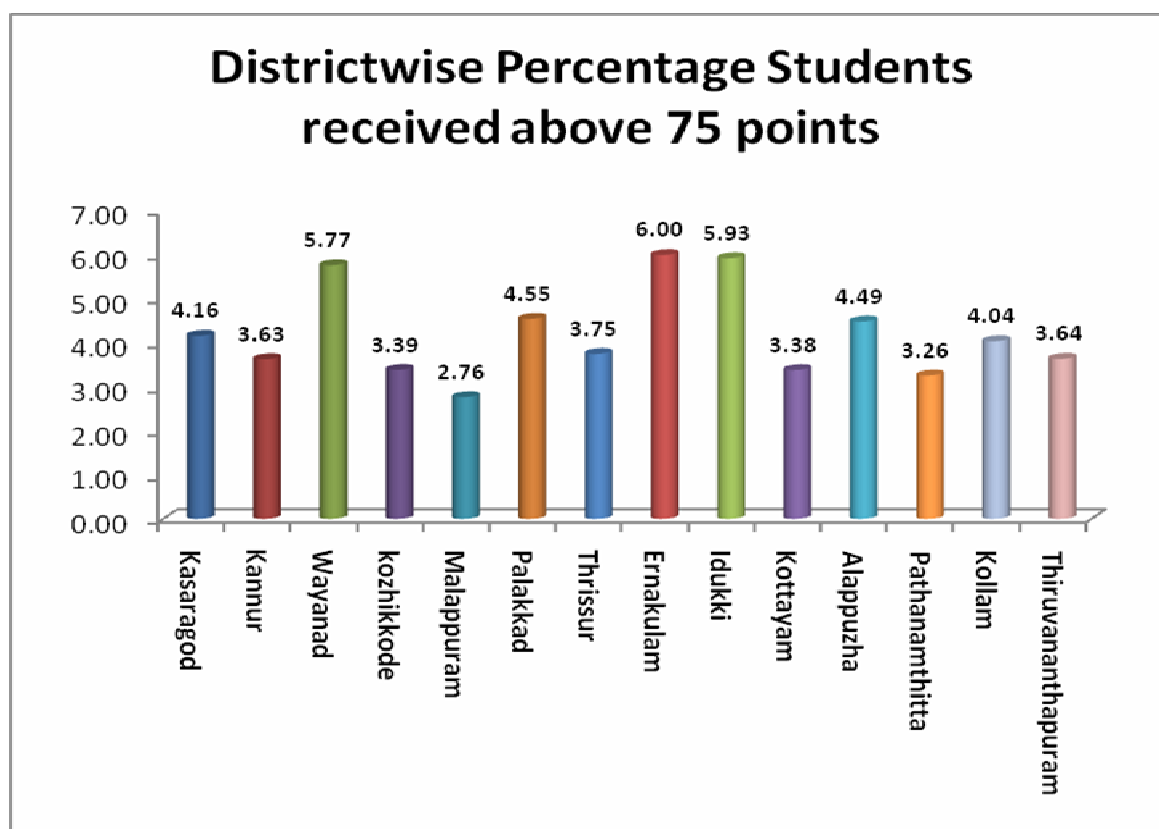
A total of 16,28,943 students enrolled in classes five to nine, were administered the Total Physical Fitness Programme: Health Related Physical Fitness Test (HRPFT) in 2008, from 4315 schools representing approximately 73 percent of Kerala State schools.

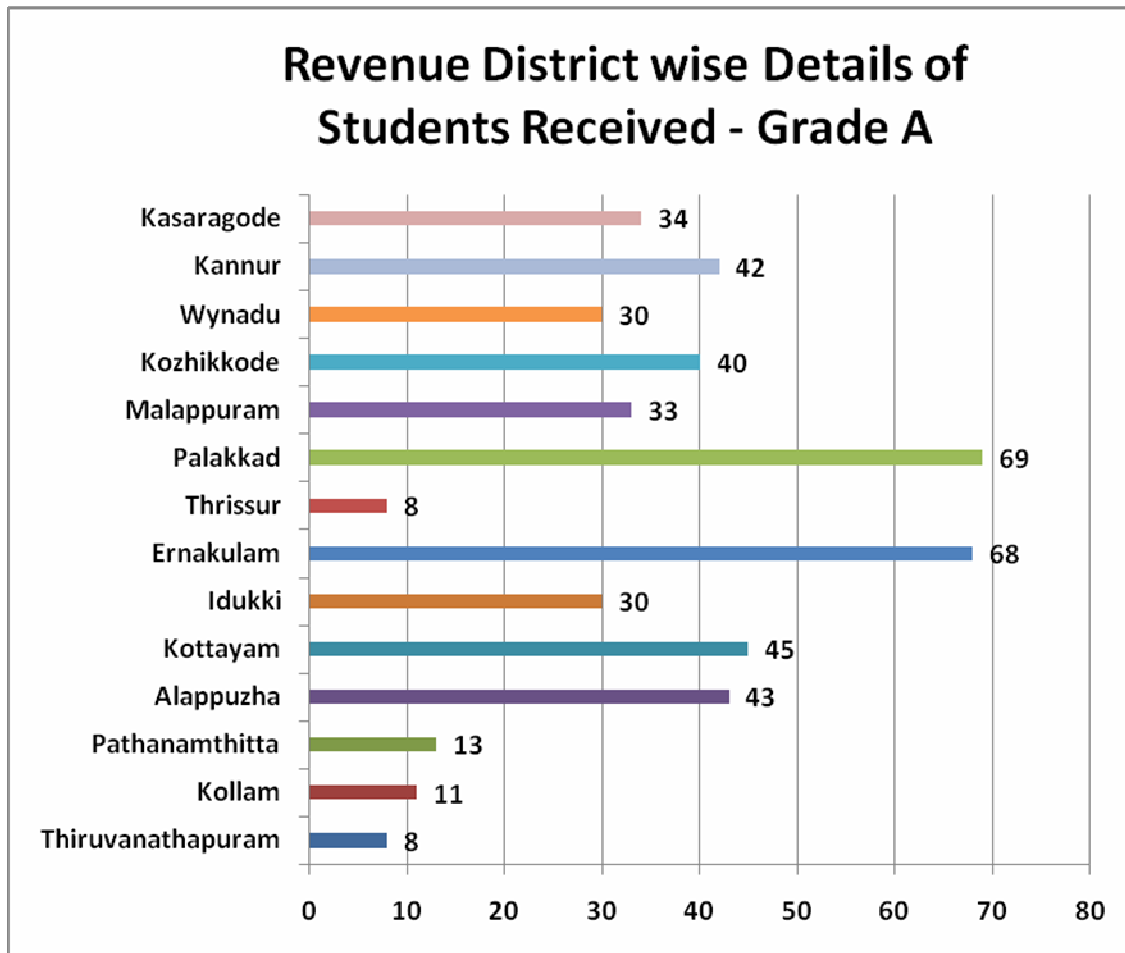
Tables 1 provide an overall summary of schools and number of students participated from each district.

**TABLE 1: OVERALL SUMMARY OF SCHOOLS**

Sl. No	Name of District	Total number of schools	Number of schools participated	% of schools participated	Total Number of Students tested
1	Thiruvananthapuram	480	229	47.71	78920
2	Kollam	400	229	57.25	88312
3	Pathanamthitta	341	276	80.94	60915
4	Alappuzha	387	276	71.32	105520
5	Kottayam	482	482	100	124674
6	Idukki	251	250	99.6	70151
7	Eranakulam	530	511	96.42	188996
8	Thrissur	486	361	74.28	181408
9	Palakkad	370	278	75.14	152126
10	Malappuram	616	316	51.3	192019
11	Kozhikkode	602	270	44.85	105392
12	Wayanad	159	150	94.34	60815
13	Kannur	521	434	83.3	136518
14	Kasaragod	284	253	89.08	83177
	<b>Total</b>	<b>5909</b>	<b>4315</b>	<b>73.0242</b>	<b>1628943</b>

Figure 1 and 2 provide the district wise details of students cored above 75 points and number students received the Grade -A





Tables 2 a & b provide state averages of girls students participated in the TFPF test during the year 2008-09.

**Table 2a: State Averages of Girls Students in TFPF Fitness Test (2008-09)**

Physical Fitness Area	10 years			11 years			12 years		
	Kerala	Japan	US	Kerala	Japan	US	Kerala	Japan	US
Sit-Ups (nos)	18.76	22.50	31.0	19.77	26.40	32.0	20.7	26.80	33.0
Sit & Reach (cm)	21.31	32.90	36.81	21.98	31.30	38.80	22.75	34.30	39.35
M. Pull-Ups (nos)	10.56			11.06			11.33		
1 Mile Run (min: sec)	12:32	9:17	11:06	12:23	9:07	10:27	12:05	9:48	9:47
BMI	18.06	17.5	19.3	21.11	18.0	20.7	18.45	18.9	21.2
Height (m)	1.34	1.39	1.43	1.40	1.45	1.51	1.46	1.51	1.56
Weight (kg)	28.27	34.1	40.0	31.82	38.5	47.9	36.17	43.4	52.0



**Table 2b: State Averages of Girls Students in TFP Fitness Test (2008-09)**

Physical Fitness Area	13 years			14 years			15 years		
	Kerala	Japan	US	Kerala	Japan	US	Kerala	Japan	US
Sit-Ups (nos)	21.02	27.60	33.0	20.93	28.70	35.0	19.81	33.80	35.0
Sit & Reach (cm)	23.45	36.60	40.62	23.78	37.40	43.16	23.37	37.50	43.18
M. Pull-Ups (nos)	11.55			11.53			11.17		
1 Mile Run (min:sec)	12:07	9:55	9:27	12:31	9:24	9:35	13:01	9:52	10:05
BMI	21.76	19.5	22.6	20.23	19.8	22.9	22.1		23.2
Height (m)	1.50	1.54	1.59	1.51	1.55	1.61	1.51		1.62
Weight (kg)	40.32	46.7	57.7	41.9	48.2	59.9	42.44		61.1

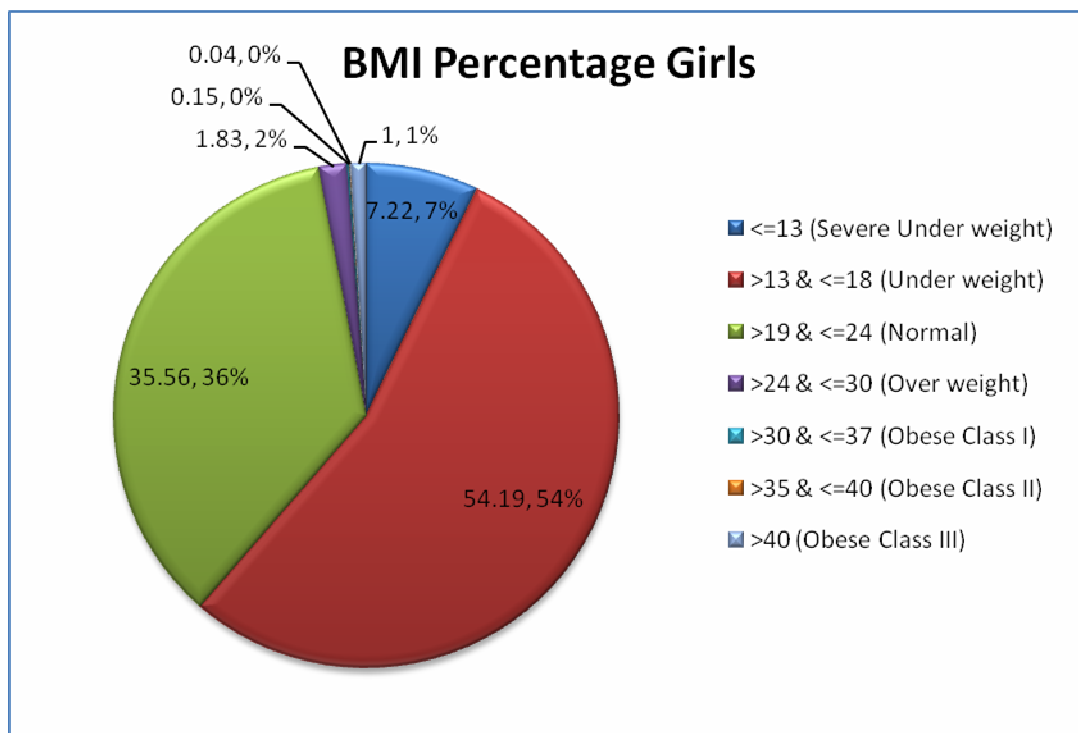
US data from: NHANES 1999-2002 and Japan data from: National Nutrition Survey, Japan

The data in Table 2a and 2b indicates average performance of girls' students, around 65 percent of 10 to 12 age girl students met the recommended fitness standards i.e. equalling to grade D in all the test items, but from age 13 onwards girl students performance on sit-ups and one mile run shows decreasing trend. Moreover, the sit and reach test and modified pull-up test results also shows stability. This means that age 13 onwards, the physical fitness of girls' students is decreasing as their age advances. The data also shows that, the performance on physical fitness variables of girls' students is far below in comparison to their Asian and American counterparts.

The poor abdominal strength will lead to poor posture and pot belly and can become the root cause for the lower back pain in later life. The low performance in one mile run indicates that, the cardio-respiratory capacity of girls of 13 years of age is very low. Regular physical activity reduces people's risk for heart attack, colon cancer, diabetes and high blood pressure and may reduce their risk for stroke. It also helps to control weight; contributes to healthy bones, muscles, and joints; reduces falls among older adults; helps to relieve the pain of arthritis; reduces symptoms of anxiety and depression; and is associated with fewer hospitalizations, physician visits, and medications. Activity decreases with age, and sufficient activity is less common among girls than boys.

Physical activity can also help people avoid developing functional limitations, can improve physical function, and can provide therapeutic benefits for people with heart disease, high blood pressure, high cholesterol, osteoporosis, arthritis, lung disease, and other chronic diseases. Moreover, physical activity need not be strenuous to be beneficial; people of all ages benefit from moderate-intensity activity, such as 30 minutes of brisk most days of the week.

**Figure 3**



The further analysis of Body Mass Index (MBI) on girls students shows that, 7% of girls students are severe under weight (BMI less than 13 ) and 54% of girls students are under weight when compare with WHO standard of 18.50 (normal range). Only 3.2% girls' students are found over weight. The average height and weight of the girls students found at par with Indian Council of Medical Research norms for their age.

Although the BMI number is calculated in the same way for children and adults, the criteria used to interpret the meaning of the BMI number for children and teens are different from those used for adults. For children and teens, BMI age- and sex-specific percentiles are used for two reasons:

- The amount of body fat changes with age.
- The amount of body fat differs between girls and boys.

CDC and the American Academy of Pediatrics (AAP) recommend the use of Body Mass Index (BMI) to screen for overweight and obesity in children and teens aged 2 through 19 years. Although BMI is used to screen for overweight and obesity in children and teens, BMI is not a diagnostic tool. So, those who scored below 13 in BMI required clinical examination for prove the condition of severe thinness.

Tables 3 a & b provide state averages of girls students participated in the TPF test during the year 2008-09.

**Table 3a: State Averages of Boys Students in TPF Fitness Test (2008-09)**

Physical Fitness Area	10 years			11 years			12 years		
	Kerala	Japan	US	Kerala	Japan	US	Kerala	Japan	US
Sit-Ups (nos)	22.34	25.50	32.00	24.04	27.20	34.00	25.83	34.20	37.00
Sit & Reach (cm)	21.89	29.50	34.28	22.36	29.10	33.00	22.97	29.90	33.00
M. Pull-Ups (nos)	13.63			14.36			15.19		
1 Mile Run (min:sec)	11:07	8:42	9:19	10:83	8:60	9:06	10:53	7:13	8:20
BMI	20.8	17.9		18.08	18.1		20.47	18.7	
Height (m)	1.34	1.38		1.39	1.44		1.44	1.51	
Weight (kg)	27.08	34.5		30.46	37.9		34.08	43.1	

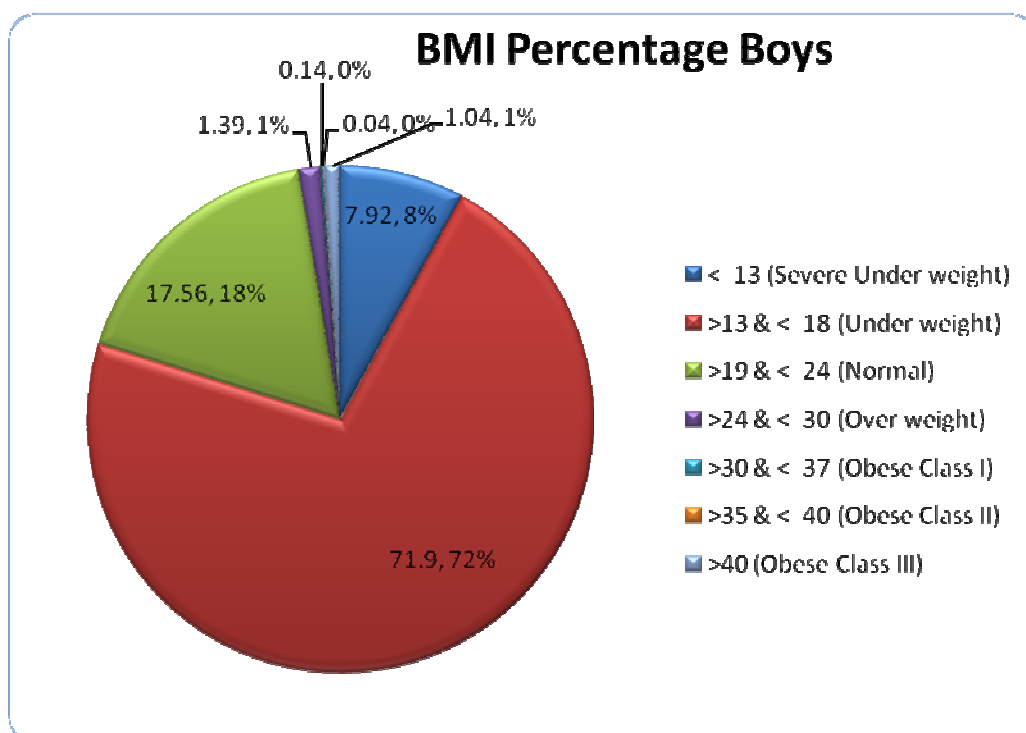
**Table 3b: State Averages of Boys Students in TPF Fitness Test (2008-09)**

Physical Fitness Area	13 years			14 years			15 years		
	Kerala	Japan	US	Kerala	Japan	US	Kerala	Japan	US
Sit-Ups (nos)	27.7	38.10	39.00	28.82	38.30	41.00	28.67	38.90	43.00
Sit & Reach (cm)	23.82	30.05	33.00	24.59	33.10	34.27	25.01	31.80	35.54
M. Pull-Ups (nos)	16.31			17.19			17.74		
1 Mile Run (min:sec)	10:26	8:25	7:27	11:00	8:14	7:10	11:02	7:54	7:14
BMI	19.03	19.01	22.6	18.54	19.70	22.9	20.29		23.2
Height (m)	1.50	1.58	1.59	1.55	1.64	1.61	1.58		1.62
Weight (kg)	38.54	48.30	57.7	42.30	53.40	59.9	44.97		61.1

US data from: NHANES 1999-2002 and Japan data from: National Nutrition Survey, Japan

The state wide averages on physical fitness of boys students shows that, around 65 percent boys age group 10, 11 and 12 years meeting recommended criteria equal to grade D standard. In the case of boys' age group 13, 14 and 15, the averages are not meeting required healthy zone standard recommended for the respective age groups in abdominal strength, flexibility and cardio respiratory endurance. Which means that, said age groups are not acquired the desired level according to their age. When compare to girls group, boys shows increase in the performance in abdominal strength, flexibility but In the case of cardio respiratory endurance, the performance age group 14 and 15 is below than the age group of 13. This very clearly indicate the lack or decreasing level of physical activity when they reaching to the higher classes. When compare with national averages of Japan and US, very wide difference has been seen in all the fitness variables.

**Figure 2**



The further analysis of Body Mass Index (MBI) on boys students shows that, 7.92% of boys students are severe under weight (BMI less than 13 ) and 71.9% of boys students are under weight when compare with WHO standard of 18.50 (normal range). Only 2.61% bpys' students are found over weight. The average height and weight of the boys students found at par with Indian Council of Medical Research norms for their age.

**Table 4: GRADE WISE PERFORMANCE OF GIRLS STUDENTS ON ABDOMINAL STRENGTH (SIT-UPS)**

Physical fitness area- Abdominal Strength (Sit-Ups)	Total tested	% in Grade A	% in Grade B	% in Grade C	% in Grade D	% in Grade E	% in Grade F
Female - Age 10	139112	6.57	3.11	4.89	42.49	12.28	30.66
Female - Age 11	154937	4.2	2.36	4.35	41.07	9.62	38.4
Female - Age 12	161582	5.71	2.95	4.99	42.2	9.2	34.96
Female - Age 13	162597	6.9	3.1	4.69	31.18	20.04	34.08
Female - Age 14	90083	4.78	1.79	3.94	24.88	29.84	34.78
Female - Age 15	23572	4.26	1.5	3.35	22.59	28.81	39.49

The above table clearly shows that, more than 53.69% of girls students failed meet the recommended standard in abdominal strength and the percentage of failed students increasing by their age.

**Table 5: GRADE WISE PERFORMANCE OF BOYS STUDENTS ON ABDOMINAL STRENGTH (SIT-UPS)**

Physical fitness area- Abdominal Strength (Sit-Ups)	Total tested	% in Grade A	% in Grade B	% in Grade C	% in Grade D	% in Grade E	% in Grade F
Male - Age 10	133945	32.03	12.94	4.27	22.26	20.85	7.65
Male - Age 11	154062	23.87	12.79	19.98	0	29.83	13.52
Male - Age 12	161793	11.21	6.12	14.14	20.43	29.17	18.92
Male - Age 13	161796	8.42	6.2	12.37	18.31	30.44	24.26
Male - Age 14	107126	8.25	4.27	18.54	18.6	21.14	29.2
Male - Age 15	42084	7.13	4.15	19.53	18.13	21.08	29.98

The table also shows that, overall 46 percentages of boys' students failed to reach the recommended standards and it is increasing by their age; it is very clear indicator of decreasing level of physical activity among the students but scenario not verse like the case of girls.

**Table 6: GRADE WISE PERFORMANCE OF GIRLS STUDENTS ON FLEXIBILITY (SIT & REACH)**

Physical fitness area- Flexibility (Sit& Reach)	Total tested	% in Grade A	% in Grade B	% in Grade C	% in Grade D	% in Grade E	% in Grade F
Female - Age 10	139112	5	3.55	10.09	14.39	48.27	18.7
Female - Age 11	154937	3.01	7.82	11.27	15.21	38.82	23.86
Female - Age 12	161582	3.06	10.89	4.73	17.84	42.09	21.38
Female - Age 13	162597	3.53	10.75	7.98	18.01	40.1	19.63
Female - Age 14	90083	3.28	9.81	5.99	17.94	37.1	25.87
Female - Age 15	23572	2.32	6.67	6.57	11.34	45.57	27.54

The table shows the performance of girls on flexibility. Overall 64% girls students failed to meet the recommended standards but this variable also shows the decreasing trend when they reaching to the higher classes i.e. the percentage of students not meeting required criteria is more than 70 % for age group of 15.

**Table 7: GRADE WISE PERFORMANCE OF BOYS STUDENTS ON FLEXIBILITY (SIT & REACH)**

Physical fitness area- Flexibility (Sit& Reach)	Total tested	% in Grade A	% in Grade B	% in Grade C	% in Grade D	% in Grade E	% in Grade F
Male- Age 10	133945	5.51	4.12	38.63	6.33	34.78	10.62
Male- Age 11	154062	5.55	3.77	29.6	6.56	44.51	10.01
Male- Age 12	161793	7.23	4.29	15.34	10.26	53.43	9.45
Male- Age 13	161796	8.35	4.09	10.65	13.58	55.05	8.27
Male- Age 14	107126	8.92	4.34	8.89	9.87	60.17	7.81
Male- Age 15	42084	7.33	3.31	11.1	9.6	56.78	11.87

The above table shows that 64 percent of students failed to meet the required standard on flexibility. This fitness component can be easily brought to the desired level by giving very simple flexibility exercise at least thrice in a week.

**Table 8: GRADE WISE PERFORMANCE OF GIRLS STUDENTS ON UPPER BODY STRENGTH (MODIFIED PULL-UPS)**

Physical fitness area- Upper Body Strength (M. Pull-Up)	Total tested	% in Grade A	% in Grade B	% in Grade C	% in Grade D	% in Grade E	% in Grade F
Female - Age 10	139112	27.19	9.38	19.35	24.49	14.84	4.75
Female - Age 11	154937	26.08	8.29	19.23	22.55	19.13	4.71
Female - Age 12	161582	27.99	8.04	19.27	16.56	26.28	1.86
Female - Age 13	162597	25.68	11.89	18.37	11.54	30.52	2.00
Female - Age 14	90083	26.08	8.32	21.73	11.25	30.37	2.26
Female - Age 15	23572	21.82	11.25	12.23	13.97	37.49	3.24

**Table 9: GRADE WISE PERFORMANCE OF BOYS STUDENTS ON UPPER BODY STRENGTH (MODIFIED PULL-UPS)**

Physical fitness area- Upper Body Strength (M. Pull-Up)	Total tested	% in Grade A	% in Grade B	% in Grade C	% in Grade D	% in Grade E	% in Grade F
Male- Age 10	133945	23.96	35.31	23.28	8.19	7.17	2.08
Male- Age 11	154062	24.29	18.87	20.49	17.87	15.05	3.43
Male- Age 12	161793	22.57	15.63	24.86	16.63	17.28	3.02
Male- Age 13	161796	17.34	7.37	33.95	14.54	24.19	2.62
Male- Age 14	107126	17.33	11.06	34.9	13.32	19.73	3.66
Male- Age 15	42084	16.95	8.65	30.55	13.94	25.75	4.17

The performance of boys and girls on the test to measure the upper body strength shows that (21.35% boys and 29.57% girls) overall 25 percentage students failed to meet the recommended criteria. This test results are contrary to the results obtained in abdominal and flexibility tests. The five selected components of the health related physical fitness variables are interrelated and dependant to each other. Under the circumstances, the results of this test items are under doubt. The conduct of the modified pull up test required specific equipment, the details of the equipment has been given in the test manual and the videos provided to all schools also clearly shows the procedure should be adopted for conduct of this test. The faulty or non standard equipment will definitely influence the results. The height of bar should be adjusted according the extended hand length of the students and keeping the body in straight position and hand should be made straight In each pull-up and the heel of foot only in contact with ground. A primary survey done on this matter, reveal that, 95% of the schools are not acquired the equipment suggested in the handbook. Moreover, many testers are not particular in the instructions given regarding conduct of the test item. It seems that action may taken to ensure the availability of the equipment in each school and instructions to follow the correct procedure while conduct of the test item.

**Table 9: GRADE WISE PERFORMANCE OF GIRLS STUDENTS ON CARDIO RESPIRATORY ENDURANCE (ONE MILE RUN)**

Physical fitness area- Cardio Respiratory endurance (one mile run)	Total tested	% in Grade A	% in Grade B	% in Grade C	% in Grade D	% in Grade E	% in Grade F
Female - Age 10	139112	20.45	11.43	12.26	19.72	15.87	20.28
Female - Age 11	154937	22.3	12.51	12.72	15.25	13.46	23.76
Female - Age 12	161582	22.5	8.82	9.15	19.63	16.53	23.37
Female - Age 13	162597	17.09	11.91	9.37	19.67	12.82	29.13
Female - Age 14	90083	14.91	11.75	6.6	19.5	10.66	36.57
Female - Age 15	23572	9.1	5.47	6.47	29.08	11.14	38.75

The above table shows that, the cardio respiratory endurance of the girls' students. Data reveals that the percentage of students are not meeting the required criteria on one mile run is increasing by age. The percentage of students not meeting the recommended standard was only 36.15 percentages in age group 10, which were reaching up to the alarming level of 49.81 in the case of age group of 15 year girls. These figures once again remind the need of introducing physical activity programs for the high school girls' students.

**Table 10: GRADE WISE PERFORMANCE OF BOYS STUDENTS ON CARDIO RESPIRATORY ENDURANCE (ONE MILE RUN)**

Physical fitness area- Cardio Respiratory endurance (one mile run)	Total tested	% in Grade A	% in Grade B	% in Grade C	% in Grade D	% in Grade E	% in Grade F
Male- Age 10	133945	13.66	10.76	15.17	32.75	10.24	17.41
Male- Age 11	154062	12.44	2.99	19.96	35.07	10.92	18.63
Male- Age 12	161793	11.61	3.61	14.39	36.72	13.26	20.4
Male- Age 13	161796	7.42	3.8	13.05	38.29	15.33	22.11
Male- Age 14	107126	8.86	4.28	10.92	40.83	14.3	20.79
Male- Age 15	42084	6.14	8.11	11.28	30.81	16.06	27.61

The percentage of students not meeting the recommended standard was only 27.65 percentages in age group 10, which were reaching up to the alarming level of 43.67 in the case of age group of 15 year boys. The boys' data on cardio respiratory endurance also shows that, percentage of students failed to meet the recommended standard on one mile test is increasing by age. This figures once again remind as decreasing level of physical activity when they reaching to the higher standards for our total students population.



- ❑ Aerobic Capacity: 65.48 percent of boys and 57.94 percent girls students were in the recommended zone.
- ❑ Abdominal Strength: 53.99 percent of boys' students and 46.30 percent of girls were in the recommended zone.
- ❑ Upper Body Strength: 78.64 percent of boys' students and 70.42 girls' students were in the recommended zone.
- ❑ Flexibility: 39.53 percent of boys' students and 35.17 percent of girls' students were in the recommended zone.

Of the five fitness areas tested, overall scores for upper body strength in 2008 were the highest (average percent in the HFZ = 96.85 percent), while overall scores for Aerobic Capacity were the lowest (average percent in the HFZ = 75 percent).

## Summary and Implications

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This is the first year that data about the fitness of Kerala state school students has been reported. Full and complete public access to the summary data is available the IT@School TFPF Physical Fitness Testing Web page at <http://www.tfpf.org>

Current data show that a minority of Kerala students at the grades five to nine tested are meeting the performance goal established for the TPFT. There remains much work to do to ensure high levels of fitness for students in Kerala. All students could benefit from a greater emphasis on areas of physical fitness, especially aerobic capacity, body composition, upper body strength, and flexibility.

School and district administrators, teachers, parents, and guardians can examine the data to get a more complete picture of the yearly fitness levels of their students and children. Educational districts and schools are encouraged to use the data they receive from this test to examine and make important changes to their physical education programs. Schools and parents and guardians have the opportunity to work together to use this information to inform plans and strategies to improve the physical activity opportunities offered to students during and outside of the regular school day. Collaboration among educators and families is the key to effectively increasing the health-related physical fitness of all Kerala students.