

A study on impact of physical education and health status of selected adolescents in two different states of South India

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Abstract

Health is more important for all human beings. Sincere care is needed to give perfect health to children because they constitute the most precious resource for a country. The focus should be to improve the quality of life by giving the needed importance to the children to promote their health and protect them from diseases. Kraus-Weber floor test and lung function test of adolescent showed no significant difference between the boys and girls groups. Overall performance for flexibility was assessed; it was observed that the mean of lung function test was higher in Chennai as compared to Vijayawada. When compared gender wise boys performed better than girls. Lifestyle of most of the adolescent was graded as "active" as they were aware of the importance of exercise, games for weight management and good health. Along with the complete nutritional education, physical education is also equally important for healthy life. Hence as part of this, much awareness has been created to the selected adolescents mainly to resolve the health issues.

Key words: Kraus-Weber floor test, lung capacity, physical education, exercise frequency etc.

Introduction

Physical activity and psychological development

Well-nourished children tend to develop anxiety about food and physical activity. Good nutrition acts as a catalyzing agent on the child's physical growth, child's capacity to make use of his intellectual endowment, emotional unfolding and healthy personality development. Kaur *et al.*, (2003) conducted a research to test the hypothesis that the poor body image would be strongly correlated (positively) with depression in case of female adolescents than male

adolescents. In addition, physical attractiveness sociable and outgoing than less attractiveness has consistently been reported as the most important factor in a person's desirability as a dating partner. In addition to a possible link between self-perceived attractiveness and depression, physical appearance, as perceived by others may contribute to depression.

Singh *et al.*, (2012) conducted a study on physical activity and performance at school during childhood or adolescence. They identified 10 observational and 4 intervention studies. Based on the results of the best-evidence synthesis, they found a significant longitudinal positive relationship between physical activity and academic performance in children. It was found that lack of physical activity, watching television or video for more than one hour daily and a positive family history of obesity all contributed significantly to child obesity. Several authors have noted the role of physical activity in the obese children. Exercise showed beneficial effects when added to a reduced energy intake program (Klesges *et al.*, 1983). Robinson, (1999) in his research work on school-based trial targeted the reduction of physical activity as a way of influencing adiposity, physical activity and dietary intake. The results showed that although increased activity may not be as effective in weight reduction as diet modifications, physical activity patterns seem to play a crucial role in weight maintenance. Anuradha Shekhar, (2005) studied the effect of iron status on physical fitness. Lorraine Cale and Jo Harris, (2006) explains in the article there has been increased interest in the development and implementation of physical activity interventions designed to increase young people's physical activity participation in recent years.

Materials and Methods

Assessment of physical activity of the subjects:

The Physical fitness tests were conducted using simple tests.

- Krause Weber floor touch test to measure flexibility.
- Lung Function test.

Krause Weber floor touch test

Dr. Hans Kraus and Dr. Sonja Weber developed the Kraus-Weber Minimum Test in 1954. Muscular Strength fitness status was measured by using Kraus-Weber test as adopted in India. It is used to check over all fitness and measures the strength and flexibility of children muscles, include 6 types of exercise each one was performed considering the correct postures with no prior warm ups and stretches. The children have to hold the positions for 10 seconds. It determines minimum core strength and flexibility of an individual. If the individual fails to

perform even one exercise is considered as fail in the whole test.

Peak expiratory flow rate

Lung function in children was largely overlooked because of the difficulties in measuring them at clinical setups, especially in developing countries like India. In this study pocket sized peak flow meter was used for Lung function test in school going children. The list of steps followed were –Place the marker at the bottom of the scale, Stand up or sit up, Take a deep breath, Put the meter in the mouth and close the lips around the mouthpiece. Do not put the tongue inside the hole. Do not cover the hole on the back end of the peak flow meter when holding it. Blow out as hard and as fast as possible. Don't cough or huff into the peak flow meter, as this will give a false reading. Write down the number from the meter.

Results and Discussion

Physical Fitness - Kraus-Weber floor test

The data related to Kraus-Weber floor test of adolescents are shown in Table 1 and Fig 1. This test indicated to the flexibility of the children. In this test, 46.66% of boys and 46% of girls from Vijayawada schools had passed whereas the percent of passing was more in Chennai being 60.33% of boys and 49.33% of girls from schools. Children from normal weight category and underweight category were more flexible than overweight children, except for the underweight boys from Vijayawada.

Statistical test chi-square was applied thus degree of freedom was shown for all the groups, it shows no significance between normal weight and overweight boys of Vijayawada and Chennai as ($p>0.05$) even in girls-girls of all the groups there was no significant difference observed in flexibility as the probability ($p>0.05$).

The significant differences were only observed between underweight boys of Vijayawada and Chennai ($p<0.05$). The results proved that the Chennai underweight boys were more flexible than those of Vijayawada.

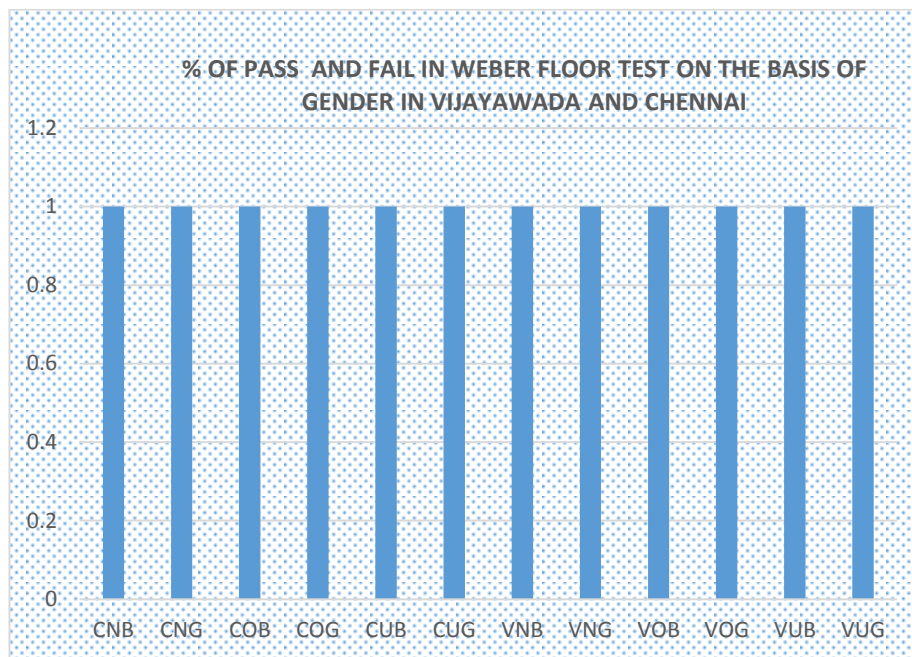
Table: 1 Percentages of Weber floor test of adolescents in Vijayawada and Chennai

S.	Place	Gender	Pass	Fail	X ²
Boys					
1	Vijayawada	VNB	39 (56.52)	30(43.47)	0.91
	Chennai	CNB	52(64.19)	29 (35.80)	
2	Vijayawada	VOB	11 (44.00)	14 (56.00)	1.21
	Chennai	COB	16(59.25)	IS (40.74)	

3	Vijayawada	VUB	20(33.71)	36 (64.28)	4.45
	Chennai	CUB	24(57.14)	18(42.85)	
Girls					
1	Vijayawada	VNG	45 (50.56)	44 (49.43)	0.05
	Chennai	CNG	41 (48.50)	43(51.50)	
2	Vijayawada	VOG	11(37.93)	18 (62.06)	0.18
	Chennai	COG	16(43.24)	21 (56.75)	
3	Vijayawada	VUG	13 (40.62)	19(59.37)	1.97
	Chennai	CUG	17 (58.62)	12(41.37)	
Grand Total			305 (50.83)	295 (49.16)	

Note: Figures in parenthesis indicate percentages Table values for 2 x 2 contingency are ($p < 0.05 - 3.841$)

Fig: 1 Percentages of boys and girls pass and fail in Weber Floor test



Lung function test

The data depicted on lung capacity of adolescents are shown in Table 2 and Fig 2. Peak Flow Master was used to assess the peak expiratory flow rate and functioning of the lung. The lung capacity of the children according to normal values was 400 - 500 ml/stroke. The average value of lung capacity in all categories was observed less than the normal values for both the places. The highest lung capacity was observed in normal weight boys (271.80ml/stroke) of Chennai followed by underweight boys (266.19 ml/stroke) of Chennai.

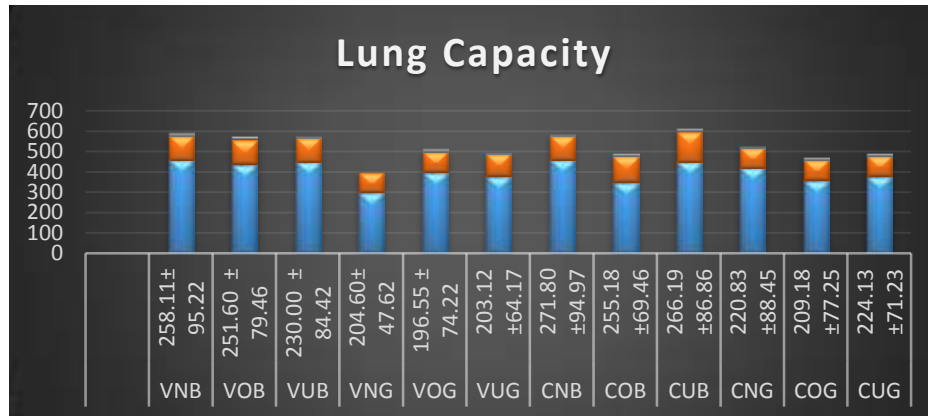
From Vijayawada, the highest value was normal weight boys (258.11 ml/stroke) followed by overweight and underweight boys.

Statistical test showed insignificant differences between boys-boys and girls- girls of all the groups of schools going children of Vijayawada and Chennai ($p < 0.05$). Significant differences were observed between underweight boys ($p < 0.05$) of Vijayawada and Chennai. The lung capacity of Chennai underweight boys was more than Vijayawada underweight boys. Hypothesis (H_2) for physical fitness was accepted for all the groups except in case of underweight boys of Vijayawada and Chennai.

Table: 2 Mean values of lung capacity of adolescents in Vijayawada and Chennai

S. N	Category	Lung Capacity				
		Mean \pm SD	Range	SE	Safe Zone # (mg/dl)	
VIJAYAWADA						
1	VNB	258.11 \pm 95.22	460	120	11.46	400-500
2	VOB	251.60 \pm 79.46	440	120	15.89	400-500
3	VUB	230.00 \pm 84.42	450	120	11.28	400-500
1	VNG	204.60 \pm 47.62	300	100	5.04	400-500
2	VOG	196.55 \pm 74.22	400	100	13.78	400-500
3	VUG	203.12 \pm 64.17	380	110	5.65	400-500
	Total	224.63 \pm 77.85	460	100	4.49	400-500
CHENNAI						
1	CNB	271.80 \pm 94.97	460	120	10.55	400-500
2	COB	255.18 \pm 69.46	350	130	13.36	400-500
3	CUB	266.19 \pm 86.86	450	150	13.40	400-500
1	CNG	220.83 \pm 88.45	420	100	9.65	400-500
2	COG	209.18 \pm 77.25	360	100	12.70	400-500
3	CUG	224.13 \pm 71.23	380	100	13.22	400-500
	Total	242.92 \pm 88.66	460	100	5.11	400-500

Fig: 2 Mean values for lung capacity for adolescent boys and girls in Vijayawada and Chennai



Type of physical activity

The type of physical activity of subjects in percentages is shown in Table 3. From the data it was clear that 4.66% of boys and girls from Vijayawada and only girls from Chennai have sedentary lifestyle. Most of the students were moderately active i.e 30% boys and 47.33% girls from Vijayawada and 32% boys and 60.66% girls from Chennai. Adolescents reported to be highly active were 51.33% of boys and 31.33% of girls from Vijayawada, 52.33% boys and 19.33% girls from Chennai. Overall, 14.33% of students stated that their life is mostly sedentary.

Table: 3 Data on the current life of adolescents in Vijayawada and Chennai

S. No	Category	Current life Style			
		Sedentary	Mostly sedentary	Moderately active	Highly active
Vijayawada					
1	VNB	4.(5.79)	4 (5.79)	25 (36.23)	36(52.17)
2	VOB	1(4.00)	6(24.00)	7(28.00)	11(44.00)
3	VUB	2 (3.57)	11(19.64)	13(23.21)	30(53.57)
	Total	7 (4.66)	21(14.00)	45(30.00)	77(51.33)
1	VNG	3(3.37)	17(19.10)	47(52.80)	22(24.71)
2	VOG	2(6.89)	1(3.44)	14(48.27)	12(41.37)
3	VUG	2(6.25)	7(21.87)	10(31.25)	13(40.62)
	Total	7(4.66)	25(16.66)	71(47.33)	47(31.33)
Chennai					

1	CNB	4 (4.93)	7(8.64)	22(27.16)	48(59.25)
2	COB	0 (0.00)	5 (18.51)	10(37.03)	12(44.44)
3	CUB	2(4.76)	5(11.09)	16(38.09)	19(45.23)
	Total	6(4.00)	17(11.33)	48(32.00)	79(52.66)
1	CNG	3 (3.57)	11(13.09)	52(61.90)	18(21.42)
2	COG	3(8.10)	8 (21.62)	22(59.45)	4(10.81)
3	CUG	1(3.44)	4(13.79)	17(58.62)	7 (24.13)
	Total	7(4.66)	23(15.33)	91(60.66)	29(19.33)
	Grand Total	27 (4.50)	86(14.33)	255(42.50)	232(38.66)

Note: Figures in parenthesis indicate percentages

Time spend on regular activities, playing and watching TV

The overall 69.83% of students participated in regular physical activity (Table 4). From the data it was showed that maximum percentage of boys (73.21% and 74.66%) from both the cities participated in regular physical activities respectively. Vijayawada girls (70%) participation in regular physical activity was more as compared to Chennai girls (60.33%).

Chennai children were more addicted to TV and video games as compared to Vijayawada. The results were 87.33% of boys and 80% girls from Chennai and 78% boys and 59.33% girls from Vijayawada. Thus, it was also observed that boys from both the places spend more time on electronic gadgets than girls.

Table: 4 Percentages of subjects participated in regular physical activities, watching TV and playing video games

S. No	Place	Category	Regular physical activity		Time spent >2 hours for TV and computers	
			Boys	Yes	No	Yes
1	Vijayawada	VNB	48 (69.56)	21(30.43)	56 (81.15)	13(18.84)
2		VOB	21(84.00)	4(16.00)	19(76.00)	6(24.00)
3		VUB	41(73.21)	15(26.78)	42(75.00)	14(25.00)
		Total	110(73.21)	40(26.66)	40117(78.0 0)	33(22.00)

1	Chennai	CNB	53(65.43)	28(34.56)	68(83.95)	13(16.04)
2		COB	22(81.48)	5(18.51)	25(92.59)	2(7.40)
3		CUB	37(88.09)	5(11.90)	38(90.47)	4(9.52)
		Total	112(74.66)	38(25.33)	131(87.33)	19(12.66)
		Girls				
1	Vijayawada	VNG	67(75.28)	22(24.71)	50(56.17)	39(43.82)
2		VOG	20(68.96)	9(31.03)	17(58.62)	12(41.37)
3		VUG	18(56.25)	14(43.75)	22(68.75)	10(31.25)
		Total	105(70.00)	45(30.00)	89(59.33)	61(40.66)
1	Chennai	CNG	59(70.23)	25(29.76)	66(78.57)	18(21.42)
2		COG	20(54.05)	17(45.94)	32(86.48)	5(13.51)
3		CUG	13(44.82)	16(55.17)	22(75.86)	7(24.13)
		Total	92(61.33)	58(38.66)	120(80.00)	30(20.00)
		Grand Total	419 (69.83)	181(30.1 6)	457(76.16)	143(23.83)

Note: figures in parenthesis indicate percentages

Physical education provided and the duration sports class:

In all the schools, there were no physical education in classroom was given (theory of exercise) it was just a games period provided and a PT class or yoga class in a week. The results shown in Table 5 there were 99.33% boys and girls from Vijayawada and Chennai reports that they had a separate period of physical education in school. Only 2.66% of girls from Vijayawada claim that they did not have physical education classes in school.

Table: 5 Physical educations provided and the duration of class for adolescents in Vijayawada and Chennai

S. No	Place	Category	Participation		Duration of sports class					
			Boys	Yes	No	Weekly				Daily 40min
						Once 40 min	Twice 40min	Once 60 min	Twice 60 min	
1	Vijayawada	VNB	69(100.00)	0 (0.00)	0 (0.00)	66(95.65)	0 (0.00)	1 (1.44)	2 (2.89)	
2		VOB	25(100.00)	0 (0.00)	0 (0.00)	23(92.00)	0 (0.00)	2(8.00)	0 (0.00)	
3		VUB	55(98.21)	1 (1.78)	0 (0.00)	54(96.42)	0 (0.00)	2(3.57)	0 (0.00)	
		Total	149(99.33)	1(0.66)	0 (0.00)	143(95.33)	0 (0.00)	5(3.33)	2(1.33)	
1	Chennai	CNB	81(100.00)	1(1.23)	75(92.59)	6(7.40)	0 (0.00)	0 (0.00)	0 (0.00)	
2		COB	26(96.29)	0 (0.00)	27(100.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	
3		CUB	42(100.00)	0 (0.00)	41(97.61)	0 (0.00)	0 (0.00)	0 (0.00)	1(2.38)	
		Total	149(99.3)	1(0.66)	143(95.33)	0 (0.00)	0 (0.00)	0 (0.00)	1(0.66)	
Girls										

1	Vijaya wada	VNG	86(96.62)	3(3.37)	0 (0.00)	88(98.87)	0 (0.00)	0 (0.00)	1(1.12)
2		VOG	29(100.00)	0 (0.00)	0 (0.00)	29(100.00)	0 (0.00)	0 (0.00)	0 (0.00)
3		VUG	31(96.87)	1(3.12)	0 (0.00)	32(100.00)	0 (0.00)	0 (0.00)	0 (0.00)
		Total	146(97.33)	4(2.66)	0 (0.00)	149(99.33)	0 (0.00)	0 (0.00)	1(0.66)
1	Chenn ai	CNG	84(100.00)	0 (0.00)	84(100.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
2		COG	37(100.00)	0 (0.00)	37(100.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
3		CUG	28(96.55)	1(3.44)	2(100.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
		Total	149(99.33)	1(0.66)	150(100.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
		Grand Total	593(98.83)	7(1.16)	293(48.83)	298(49.66)	0 (0.00)	5(0.83)	4(0.66)

Note: Figures in parenthesis indicate percentages

Table 5 clearly differentiates that schools of Chennai give one sports class of 40 min in a week whereas in Vijayawada twice games period of 40 min was given in a week. 3.33% of boys stated that they get twice 60 min break in a week for sports. 1.33% of boys get 40min daily for their sports practice 0.66% girls from Vijayawada and the same percentage of boys from Chennai get daily 40min for sports.

Type of sports played

Types of sports children played in school or outside the school are shown in Table 6. Foot ball and cricket were more commonly played by boys (66.66% and 62.66%) from both the places. The second preferred game was volleyball or basketball and then badminton the least played was kho-kho and other games kabaddi, lock and key.

Among girls badminton, basketball and kho-kho were more commonly played. The results show from Vijayawada 54.66% play badminton, 52.66% basketball, 11.33% kho-kho and least was foot ball and other games, from Chennai the number of girls playing sports was very less 31.33% play badminton, 28% basketball, 19.33% khokho and 11.33% play cricket least was the football and other games.

Table: 6 Percentage of adolescents played different types of sports in Vijayawada and Chennai

S. No	Place	Category	Volley ball / Basket ball	Foot ball	Badminton	Cricket	Kho Kho	Other games
Boys								
1	Vijayawada	VNB	29 (42.02)	42(60.86)	18(26.08)	46(66.66)	0 (0.00)	0 (0.00)
2		VOB	10(40.00)	19(76.00)	5(20.00)	14(56.00)	0 (0.00)	0 (0.00)
3		VUB	28(50.00)	39(69.64)	12(21.42)	34(60.71)	0 (0.00)	0 (0.00)
		Total	67(44.66)	100(66.66)	35(23.33)	94(62.66)	0 (0.00)	0 (0.00)
1	Chennai	CNB	6(7.40)	61(75.30)	6(7.40)	47(58.02)	0 (0.00)	8(9.87)
2		COB	3(11.11)	21(77.7)	4(14.81)	16(59.25)	0	0

				7))	(0.00)	(0.00)
3		CUB	8(19.04)	37(88.09)	1(2.38)	29(69.04)	0(0.00)	4(9.52)
		Total	17(11.33)	119(79.33)	11(7.33)	92(61.33)	0(0.00)	12(8.00)
		Girls						
1	Vijaya wada	VNG	51(57.30)	7(7.86)	49(55.05)	7(7.86)	15(16.85)	5(5.61)
2		VOG	10(34.48)	1(3.44)	15(51.72)	0(0.00)	2(6.89)	0(0.00)
3		VUG	18(56.25)	2(6.25)	18(56.25)	8(25.00)	0(0.00)	3(9.37)
		Total	79(52.66)	10(6.66)	82(54.66)	15(10.00)	17(11.33)	8(5.33)
1	Chennai	CNG	17(20.23)	2(2.38)	28(33.33)	7(8.33)	21(25.00)	3(3.57)
2		COG	16(43.24)	0(0.00)	11(29.72)	2(5.40)	4(10.81)	1(2.70)
3		CUG	9(31.03)	0(0.00)	8(27.58)	8(27.58)	4(13.79)	2(6.89)
		Total	42(28.00)	2(1.33)	47(31.33)	17(11.33)	29(19.33)	6(4.00)
		Grand Total	205(34.16)	231(38.50)	175(29.16)	218(36.33)	46(7.66)	26(4.33)

Note: Figures in parenthesis indicate percentages

Play after school

From Table 7 it was observed that maximum number of boys play outside after school get over. Thus, it was interpreted that in Vijayawada more students play outside as compared to Chennai. And underweight category boys and girls and majorly play outside after school.

Table: 7 Percentage of adolescents in Vijayawada and Chennai play outside after school get over

S. No	Play outside after school	N		O		U	
		Vijayawada	Chennai	Vijayawada	Chennai	Vijayawada	Chennai
1	Girls						
	Yes	34(49.27)	57(70.37)	15(60.00)	22(81.48)	30(53.57)	37(88.09)
	No	35(50.72)	24(29.62)	10(40.00)	5(18.51)	26(46.42)	5(11.90)
	Total	69(46.00)	81(54.00)	25 (16.66)	27(18.00)	56(37.33)	42 (28.00)
2	Boys						
	Yes	15 (16.85)	22 (26.19)	9 (31.03)	10(27.02)	13(40.62)	12(41.37)
	No	74(83.14)	62 (73.80)	20(68.96)	20(68.96)	19(59.37)	17(58.62)
	Total	89(59.33)	84 (56.00)	29(19.33)	29(19.33)	32 (21.33)	29 (19.33)

Note Figures in parenthesis indicate percentages

Feeling of tiredness

Table 8 reveals that feeling of tiredness while climbing stairs was more in Chennai boys 44.66% and 55.33% girls as compared to Vijayawada. Maximum overweight students get tired from both the places. Underweight students of Chennai get the frequent feeling of tiredness as compared to those of Vijayawada.

Table: 8 Percentage of feeling tiredness after walking fast or climbing stairs in adolescents in Vijayawada and Chennai

S. No	Play outside after school	N		O		U	
		Vijayawada	Chennai	Vijayawada	Chennai	Vijayawada	Chennai
Boys							

1	Yes	20(28.98)	29(35.80)	10(40.00)	15(55.5 5)	20(35.71)	23 (54.76)
2	No	40(46.00)	52(64.19)	15(60.00)	12 (44.44)	35 (22.45)	19(45. 23)
	Total	69(46.00)	81(54.00)	25(16.66)	27(18.0 0)	56(37.33)	42(28. 00)
Girls							
1	Yes	15 (16.85)	22(26.19)	9(31.03)	10(27.0 2)	13 (40.62)	12(41. 37)
2	No	74 (83.14)	62(73.80)	20 (68.96)	20(68.9 6)	19 (59.37)	17 (58.62)
	Total	89(59.33)	84(56.00)	29(19.33)	29(19.3 3)	32 (21.33)	29 (19.33)

Note: Figures in parenthesis indicate percentages

Exercise performance

Few children take out time for exercise the percentage was given in Table 9. From Vijayawada 10% boys and 12.66% girls perform exercise thrice in a week, 26.66% boys and 34% girls workout twice in a week. In Chennai percentage of children performing exercise exceed form Vijayawada 33.33% boys and 17.33% girls perform exercise thrice in a week, 22% boys and 45.33% girl's workout twice in a week

Table: 9 Percentage of adolescents exercise performed in Vijayawada and Chennai

S. N o	Place	Categor y	Exercise			NO
			Yes			
			Boys	Once in a week	Twice in a week	
1	Vijayawad a	VNB	0 (0.00)	23 (33.33)	8 (11.59)	3855.07)
2		VOB	0 (0.00)	3(12.00)	4(16.00)	18(72.00)
3		VUB	0 (0.00)	14(25.00)	3(5.35)	39(69.64)
		Total	0 (0.00)	40(26.66)	15(10.00)	95(63.33)
1	Chennai	CNB	0 (0.00)	18(22.22)	29 (35.80)	34(41.97)
2		COB	0 (0.00)	6(22.22)	11(40.74)	10(37.03)
3		CUB	0 (0.00)	9(21.42)	10(23.80)	23(54.76)
		Total	0 (0.00)	33(22.00)	50(33.33)	67(44.66)

Girls						
1	Vijayawad	VNG	0 (0.00)	36(40.44)	9(10.11)	44 (49.43)
2		VOG	0 (0.00)	7(24.13)	7(24.13)	15(51.72)
3		VUG	0 (0.00)	8(25.00)	3(9.37)	21(65.62)
		Total	0 (0.00)	51(34.00)	19(12.66)	80(53.33)
1	Chennai	CNG	0 (0.00)	46(54.76)	13(15.47)	25(26.76)
2		COG	0 (0.00)	12(32.43)	10(27.02)	15(40.54)
3		CUG	4(13.79)	10(34.48)	3(10.34)	12(41.37)
		Total	4(2.66)	68(45.33)	26(17.33)	52(34.66)
		Grand Total	4(0.66)	192(32.00)	110(18.33)	294(49.00)

Note: Figures in parenthesis indicate percentages

Nature of exercise

For children of adolescent age, heavy exercises and weight training is not much suggested as their body is still developing. But in the current study, it was observed that some children follow a particular exercise routine to be in shape or maybe because they are not involved in more of the sports activity in the daily schedule.

In the Table 10, it was clear that maximum children perform yoga than cardio or weight training. From Vijayawada 20% boys and 30.66% girls perform yoga, 8.66% boys and 12.66% girls perform cardio exercise 4.66% and 3.33% of boys perform weight training and cardio plus weight training respectively.

Table: 10 Nature of exercise performed by adolescents in Vijayawada and Chennai

S. No	Category	Nature of exercise				
		Yoga	Cardio	Weight Training	Cardio + weight Training	Others
Vijayawada						
1	VNB	19 (27.53)	6(8.69)	3(4.34)	3(4.34)	0 (0.00)
2	VOB	1(4.00)	4(16.00)	1(4.00)	1(4.00)	0 (0.00)
3	VUB	10(17.85)	3(5.35)	3(5.35)	1(1.78)	0 (0.00)
	Total	30(20.00)	13(8.66)	7(4.66)	5(3.33)	0 (0.00)
1	VNG	33(37.07)	9(10.11)	0 (0.00)	0 (0.00)	3(3.37)

2	VOG	5(17.24)	7(24.13)	0 (0.00)	0 (0.00)	2(6.89)
3	VUG	8(25.00)	3(9.37)	0 (0.00)	0 (0.00)	0 (0.00)
	Total	46(30.66)	19(12.66)	0 (0.00)	0 (0.00)	5(3.33)
Chennai						
1	CNB	14(17.28)	22(27.16)	4(4.93)	7(8.64)	0 (0.00)
2	COB	3(11.11)	9(33.33)	3(11.11)	2(7.40)	0 (0.00)
3	CBU	6(14.28)	10(23.80)	3(7.14)	0 (0.00)	0 (0.00)
	Total	23(15.33)	41(27.33)	10(6.66)	9(6.00)	0 (0.00)
1	CNG	34(40.47)	13(15.47)	1(1.19)	0 (0.00)	11(13.09)
2	COG	10(27.02)	7(18.91)	1(2.70)	2(5.40)	2(5.40)
3	CUG	10(34.48)	3(10.34)	0 (0.00)	0 (0.00)	4(13.79)
	Total	54(36.00)	23(15.33)	2(1.33)	2(1.33)	17(11.33)
	Grand Total	153(25.50)	96(16.00)	19(3.16)	16(2.66)	22(3.66)

Note: Figures in parenthesis indicate percentages

From Chennai 15.33% boys and 36% girls perform yoga, 27.33% boys and 15.33% girls perform cardio exercise 6.66% and 6% of boys perform weight training and cardio plus weight training respectively. Whereas, 1.33% of girls perform same exercises. Other types of exercises include stretches, warm-ups and PT activities in school. In both the cities girls were only involved in other exercises 3.33% from Vijayawada and 11.33% from Chennai.

Swimming as sport

From the Table 11 it showed that, out of 600 students from Vijayawada and Chennai, only 153 were going for swimming classes. That means, 74.33% students did not know this sport. Those children who know swimming their frequency of classes were reported as daily, irregular and twice in a week.

From Vijayawada 13.33% boys were going daily, 14% were irregular and only 0.66% was going twice in a week. In girls, the frequency was very low as 6% daily and 12.66% irregular. None were going twice in a week. In Chennai 1.33% girls and 6%, boys were going twice in a week for swimming classes. 5.33% boys and 2.66% girls was going daily. 26% boys and 14% girls were irregular.

The percentage in irregular was more because children do not get much time post the school gets over. All the children who knew swimming explained that during summer

vacation they all are regular with classes.

Table: 11 Swimming sport and the frequency of going for swimming among adolescents in Vijayawada and Chennai

S. No	Place	Category	Swimming sport			NO
			Boys	Daily	Irregular	
Boys						
1	Vijayawada	VNB	11(15.94)	10(14.49)	0(0.00)	48 (69.56)
2		VOB	5(20.00)	4(16.00)	1(4.00)	15(60.00)
3		VUB	4(7.14)	7(12.5)	0(0.00)	45(80.35)
		Total	20(13.33)	21(14.00)	1(0.66)	108(72.00)
1	Chennai	CNB	4(4.93)	19(23.45)	6(7.40)	52(64.19)
2		COB	2(7.40)	7(25.92)	1(3.70)	17(62.96)
3		CUB	2(4.76)	13(30.95)	2(4.76)	25(59.52)
		Total	8(5.33)	39(26.00)	9(6.00)	94(62.66)
Girls						
1	Vijayawada	VNG	5(5.61)	16(17.97)	0(0.00)	68(76.40)
2		VOG	1(3.44)	3(10.34)	0(0.00)	25(86.20)
3		VUG	3(9.37)	0(0.00)	0(0.00)	29(90.62)
		Total	9(6.00)	19 (12.66)	0(0.00)	122(81.33)
1	Chennai	CNG	1(1.19)	12(14.28)	2(2.38)	68(80.95)
2		COG	0(0.00)	7(8.91)	0(0.00)	30(81.08)
3		CUG	3(10.34)	2(6.89)	0(0.00)	24(82.75)
		Total	4(2.66)	21(14.00)	2(1.33)	122(81.33)
		Grand Total	41(6.83)	100(16.66)	12(2.00)	446(74.33)

Note: Figures in parenthesis indicate percentages

Conclusion

The prevalence ratios confirmed the strong trend toward the decrease in physical fitness among individuals with overweight and obesity. This result means that participants with reduced levels of physical fitness are overweight and obese. Nonetheless, this analysis

identified a higher relevance of the nutritional status for low cardio respiratory fitness levels, when compared to other physical capacities.

With regard to the physical fitness, males had higher performance in 20 m-SRT, curl ups and pushups tests. Females had higher performance in back arch test. The results are consistent with other study finding that generally males exhibit better results, in the most physical activity tests, than females. The differences found between genders in physical fitness tests may be explained in part by differences in body composition. The level of physical activity among the students was low and they admitted that it was a difficult and time-taking process, though they showed a passion for playing sports.

Overall 4% to 5% of boys and girls were having sedentary lifestyle, more boys were highly active than girls who were moderately active from both cities. None of the overweight boys from Chennai had sedentary lifestyle. When compared within cities more boys were active from Chennai while more girls were active from Vijayawada. It was observed that the percentage of underweight and overweight boys participation in physical activity was more as compared to normal weight boys, whereas in girls just opposite was observed. It was observed that in most of the schools, no physical education is included as a school curriculum but just a games period or physical activity class or yoga class in a week for 40 minutes as per the choice of students was provided. Feeling of tiredness while climbing stairs was more among overweight adolescents from both the cities.

Finally children need to be educated on physical activities, selection of sports, weight related health issues, balanced diet etc.. It is recommended that the physical education should be imparted in a way that children are also involved in an activity, take interest in learning and in future apply it in daily life. This as a result definitely makes life attractive and healthy. Moreover, attractive people are perceived to be happier, more successful, popular, more sensitive, kind, interesting, strong, poised, modest, sociable and outgoing than less attractive people.

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