International Journal of Research in Advent Technology, Vol.8, No.7, July 2020
E-ISSN: 2321-9637
Available online at www.ijrat.org

Construction of Physical Fitness Norms for Girl Students of Social Welfare Schools in Andhra Pradesh- A Pilot Study

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Abstract—Many students strive to attain excellence in sport. However, talent identification and development programs need uniformly accepted theoretical framework to guide current practices. Find the talent in pre-adolescents, more specific with students of social welfare schools. These norms can be used to grade the students based on physical fitness parameters. The constructed physical fitness norms for "Social Welfare schools in Andhra Pradesh" for sports talent identification and fitness development programmes. Researcher has conducted a battery tests for 339 students from 6th class to 10th class girl students of Social welfare Schools of Andhra Pradesh who attended the summer camp representing schools from urban and semi urban areas of Andhra Pradesh. Selected physical fitness variables i.e. Speed, strength, agility, flexibility. Test items were taken from AAPHER youth fitness battery. Mean, standard deviation and percentile were computed by using, "R-Program". The data indicates that the mean value 50mts run of the 9th class students was best i.e. 9.12 seconds. The result of the Bend & reach test indicates that the mean flexibility of 10th class students was recorded as highest followed by 8th class. Medicine ball put indicates that the improvement of performance among the classes was gradually progressive from lower class to higher class. Standing broad jump results indicate that there was positive increase in performance from lower class to higher class except the students of 10th standard. In the 6x10mts shuttle run, the data indicates that there was a gradual improvement of performance from 6th to 9th class. The performance of 10 students was less than the 9th students. The vertical jump results indicated that there was only a small improvement in the performance from 6th and 7th class students and the increment was gradually positive from 7th to 9th class and there was a decrease in performance in case of 10th class students. The percentiles were computed to provide a 10 point scale for each of the variable for each of the class i.e. 6th, 7th, 8th, 9th and 10th classes.

Index Terms—physical fitness norms, social welfare, talent identification, medicine ball put.

Manuscript revised July 30, 2020 and published on August 10, 2020
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I. INTRODUCTION

Talent is "an individual's potential for success in a domain". Talent identification and development processes are important components of many sports and games. Talent is difficult to define and its identification may rely on intuitive judgments. Many students strive to attain excellence in sport. However, talent identification and development programs need uniformly accepted theoretical framework to guide current practices. Further, there is a need to develop programs to grade the students on the basis of their physical fitness.

This study helps to find the talent in pre-adolescents, more specific with students of social welfare schools. Further, these norms can be used to grade the students based on physical fitness parameters.

II. STATEMENT OF THE PROBLEM

The purpose of the study was to construct physical fitness norms for "Social Welfare schools in Andhra Pradesh" for sports talent identification and fitness development programmes.

A. Delimitations

The study was delimited in the following aspects.

- Only the girl students of classes 6th to 10^{th} were taken as subjects.
- The study was conducted only for the students of social welfare schools in Andhra Pradesh.
- The study was confined to develop physical fitness norms.

B. Limitations

The study was limited in the following aspects.

- The parental back ground and socio-economic status of the subjects were not considered for this study.
- The factors like food habits, weather conditions, diet, life style and family back ground were beyond the control of the investigator.

C. Objective of the study

The objective of the study was Construction of physical fitness norms for girl students of social welfare schools in Andhra Pradesh.

D. Significance of the study

This study helps the physical education teachers of social welfare schools to assess the physical fitness level of the students. Further, it helps the physical education teacher to encourage the physically fit students to participate in

doi: 10.32622/ijrat.87202001

competitive sports. Talented students can be identified through these norms. Conduct of tests based on these batteries gives opportunity for the students to know their fitness levels and motivate them to improve their fitness levels.

III. METHODOLOGY

Researcher has conducted a battery tests for 339 students. Testers and the students were oriented before the conduct of tests.

A. Selection of subjects:

In the present study, the researcher has chosen 6th class to 10th class girl students of Social welfare Schools of Andhra Pradesh who attended the summer camp representing schools from urban and semi urban areas of Andhra Pradesh.

B. Selection of variables

The following test items were chosen to test the physical fitness variables i.e. Speed, strength, agility, flexibility. Test items were taken from AAPHER youth fitness battery.

S.No.	Physical Fitness test	Units
1	50mts run	Time (sec)
2	Bend & Reach	Centimeters (cm)
3	M Ball Throw	Centimeters (cm)
4	Standing Broad Jump	Centimeters (cm)
5	6x10 shuttle run	Time (sec)
6	Vertical Jump	Centimeters (cm)

C. Collection of Data

Researcher has conducted the tests with the assistance of physical education teachers and coaches. Researcher had given orientation to the testers to conduct the tests. Standard equipment was used to conduct the tests. The necessary formats to record the data were provided to the testers. Tester's reliability was established by conducting test re test method.

D. Instrument reliability

The equipment used was Stopwatches, Steel tapes, 1 kg medicine ball, marking cones and stool. All the equipment used was standard equipment.

E. Statistical procedure:

The raw data was collected by conducting the following tests i.e. 50mts run, bend and reach test, medicine ball put, standing broad jump, 6x10 shuttle run and vertical jump. The data was pooled separately for each class i.e.6th, 7th, 8th, 9th and 10th class.

Mean, standard deviation and percentile were computed by using, "R- Program".

IV. ANALYSIS OF THE DATA AND RESULT OF THE STUDY

The following tables and graphs explain the data.

Table-1: Result Of 50mts Run

Class	Variable	n	mean	sd	min	max
6th	50mts (in sec)	71	9.89	0.79	8.04	11.97
7th	50mts (in sec)	78	9.83	9.73	8.05	12.75
8th	50mts (in sec)	82	9.42	9.32	8.01	11.88
9th	50mts (in sec)	91	9.12	9.02	7.05	11.29
10th	50mts (in sec)	17	9.33	9.22	8.01	11.68

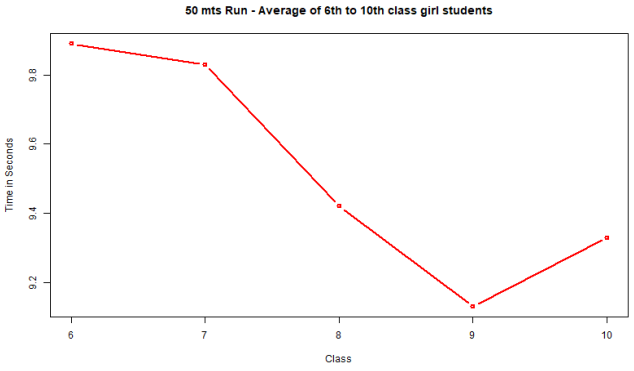

Fig. 1. 50mts Run - Average of 6th to 10th class girl students.

Table 2: Norms For 50mts Run Of All Classes

Marks	6th Class	7th Class	8th class	9th class	10th class
	Time in sec	Time in sec	Time in sec	Time in sec	Time in sec
10	8.04 - 8.43	8.05 - 8.52	8.01 - 8.40	7.05 - 7.47	8.01 - 8.38
9	8.44 - 8.83	8.53 - 8.99	8.41 - 8.78	7.48 - 7.90	8.39 - 8.74
8	8.84 - 9.22	9.00 - 9.46	8.79 - 9.17	7.91 - 8.32	8.75 - 9.11
7	9.23 - 9.61	9.47 - 9.93	9.18 - 9.56	8.33 - 8.75	9.12 - 9.48
6	9.62 - 10.01	9.94 - 10.40	9.57 - 9.95	8.76 - 9.17	9.49 - 9.85
5	10.02 - 10.40	10.41 - 10.87	9.96 - 10.33	9.18 - 9.59	9.86 - 10.21
4	10.41 - 10.79	10.88 - 11.34	10.34 - 10.72	9.60 - 10.02	10.22 - 10.58
3	10.80 - 11.18	11.35 - 11.81	10.73 - 11.11	10.03 - 10.44	10.59 - 10.95
2	11.19 - 11.58	11.82 - 12.28	11.12 - 11.49	10.45 - 10.87	10.96 - 11.31
1	11.59 - 11.97	12.29 - 12.75	11.50 - 11.88	10.88 - 11.29	11.32 - 11.68

Table-3: Result of Bend & Reach

Class	Variable	n	mean	sd	min	max
6th	Bend & Reach(cms)	71	4.775	3.59	0	14
7th	Bend & Reach(cms)	78	5.35	3.82	0	14
8th	Bend & Reach(cms)	82	7.549	4.48	0	18
9th	Bend & Reach(cms)	91	7.286	4.15	0	18
10th	Bend & Reach(cms)	17	8.059	3.85	1	16

doi: 10.32622/ijrat.87202001

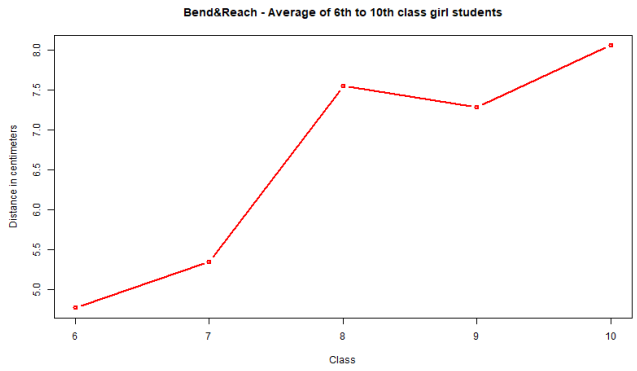

Fig. 2.Bend & Reach - Average of 6th to 10th class girl students.

Table-4: Norms for Bend and Reach

Marks	6th Class	7th Class	8th class	9th class	10th class
	Distance in cm	Distance in cm	Distance in cm	Distance in cm	Distance in cm
10	13-14	13-14	17-18	18 - 16.2	16 - 14.5
9	12	12	15-16	16.2 - 14.4	14.5 - 13
8	10-11	10-11	13-14	14.4 - 12.6	13 - 11.5
7	9	9	11-12	12.6 - 10.8	11.5 - 10
6	8	8	10	10.8 - 9	10 - 8.5
5	6-7	6-7	8-9	9 - 7.2	8.5 - 7
4	5	5	6-7	7.2 - 5.4	7 - 5.5
3	3-4	3-4	4-5	5.4 - 3.6	5.5 - 4
2	2	2	2-3	3.6 - 1.8	4 - 2.5
1	1	1	1	1.8 - 0	2.5 - 1

Table-5: Result of Medicine Ball Put

Class	Variable	n	mean	sd	min	max
6th	Medicine Ball put(cms)	71	281.5	57.18	105	435
7th	Medicine Ball put(cms)	78	337.1	72.43	210	575
8th	Medicine Ball put(cms)	82	376.2	67.45	222	535
9th	Medicine Ball put(cms)	91	403.5	68.26	226	564
10th	Medicine Ball put(cms)	17	438.8	60.3	326	580

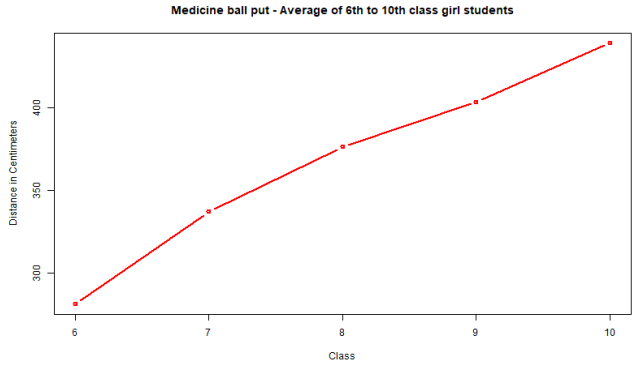

Fig. 3. Medicine ball put - Average of 6th to 10th class girl students.

Table-6: Norms for Medicine Ball Put

Marks	6th Class	7th Class	8th class	9th class	10th class
	Distance in cm	Distance in cm	Distance in cm	Distance in cm	Distance in cm
10	402-435	539-575	504-535	530-564	555-580
9	369-401	502-538	472-503	497-531	530-554
8	336-368	466-502	441-471	463-496	504-529
7	303-335	429-465	410-440	429-462	478-503
6	270-302	393-428	379-409	395-428	453-477
5	237-269	356-392	347-378	361-395	428-452
4	204-236	320-355	316-346	327-360	402-427
3	171-203	283-319	285-315	294-326	377-401
2	138-170	247-282	253-284	260-293	351-376
1	105-137	210-246	222-252	226-259	326-350

Table-7: Result of Standing Broad Jump

Class	Variable	n	mean	sd	min	max
6th	Standing Broad jump(cms)	71	141.4	19.78	105	185
7th	Standing Broad jump(cms)	78	147.8	24.25	100	220
8th	Standing Broad jump(cms)	82	154.8	20.98	100	200
9th	Standing Broad jump(cms)	91	160.3	20.29	115	210
10th	Standing Broad jump(cms)	17	157.4	24.27	100	195

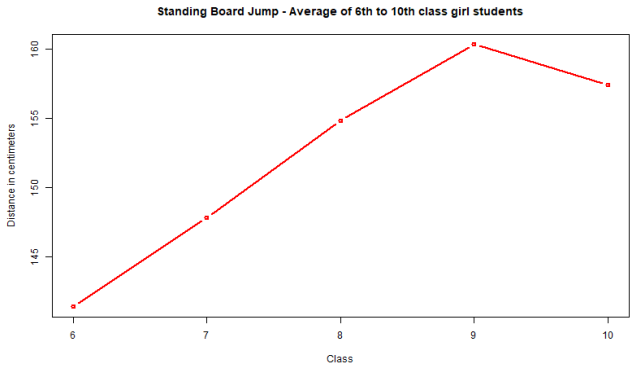

Fig. 4. Standing Broad Jump - Average of 6th to 10th class girl students.

Table-8: Norms for Standing Broad Jump

Marks	6th Class	7th Class	8th class	9th class	10th class
	Distance in cm	Distance in cm	Distance in cm	Distance in cm	Distance in cm
10	178-185	209-220	191-200	202-210	186-195
9	169-177	197-208	181-190	192-201	177-185
8	161-168	185-196	171-180	183-191	167-176
7	153-160	173-184	161-170	173-182	158-166
6	145-152	161-172	151-160	164-172	148-157
5	137-144	149-160	141-150	154-163	139-147
4	129-136	137-148	131-140	145-153	129-138
3	121-128	125-136	121-130	135-144	120-128
2	113-120	113-124	111-120	126-134	111-119

doi: 10.32622/ijrat.87202001

1	105-112	100-112	100-110	115-125	100-110

Table-9: 6 X 10 Shuttle Run

Class	Variable	n	mean	sd	min	max
6th	Shuttle run(in sec)	71	20.09	20.04	17.88	23.72
7th	Shuttle run(in sec)	78	19.79	19.74	17.78	22.77
8th	Shuttle run(in sec)	82	19.48	19.43	17.28	22.96
9th	Shuttle run(in sec)	91	19.09	19.04	16.94	24.5
10th	Shuttle run(in sec)	17	19.50	19.46	17.6	22.41

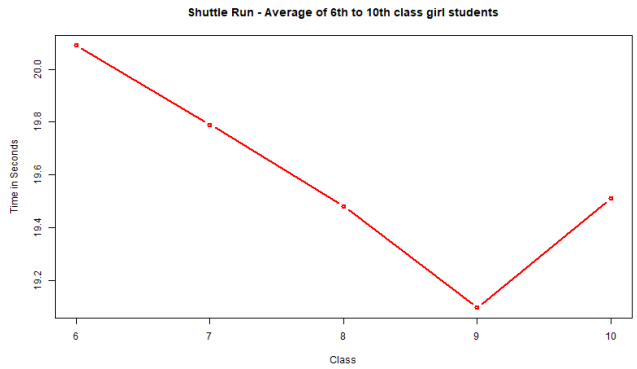

Fig. 5. Shuttle Run - Average of 6th to 10th class girls students.

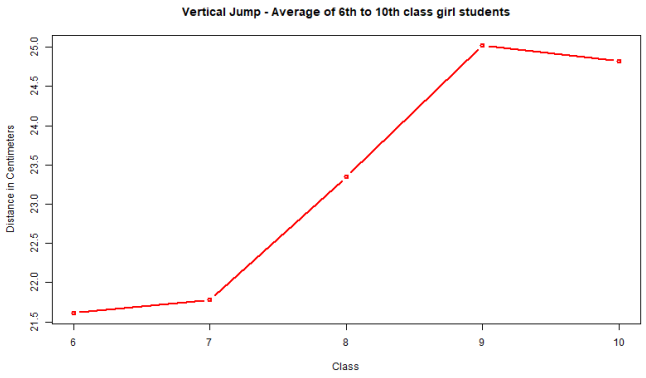

Fig. 6. Vertical Jump - Average of 6th to 10th class girls students.

Table-10: Norms For 6x10mts Shuttle Run

Marks	6th Class	7th Class	8th class	9th class	10th class
	Time in sec	Time in sec	Time in sec	Time in sec	Time in sec
10	17.88 - 18.46	17.78 - 18.28	17.28 - 17.85	16.94 - 17.70	17.6 - 18.08
9	18.47 - 19.05	18.29 - 18.78	17.86 - 18.42	17.71 - 18.45	18.09 - 18.56
8	19.06 - 19.63	18.79 - 19.28	18.43 - 18.98	18.46 - 19.21	18.57 - 19.04
7	19.64 - 20.22	19.29 - 19.78	18.99 - 19.55	19.22 - 19.96	19.05 - 19.52
6	20.23 - 20.80	19.79 - 20.27	19.56 - 20.12	19.97 - 20.72	19.53 - 20.01
5	20.81 - 21.38	20.28 - 20.77	20.13 - 20.69	20.73 - 21.48	20.02 - 20.49
4	21.39 - 21.97	20.78 - 21.27	20.70 - 21.26	21.49 - 22.23	20.50 - 20.97
3	21.98 - 22.55	21.28 - 21.77	21.27 - 21.82	22.24 - 22.99	20.98 - 21.45
2	22.56 - 23.14	21.78 - 22.27	21.83 - 22.39	23.00 - 23.74	21.46 - 21.93
1	23.15 - 23.72	22.28 - 22.77	22.40 - 22.96	23.75 - 24.5	21.94 - 22.41

Table-11: Result of Vertical Jump

Class	Variable	n	Mean	sd	min	max
6th	Vertical jump(cms)	71	21.61	5.3	2	33
7th	Vertical jump(cms)	78	21.78	5.12	11	35
8th	Vertical jump(cms)	82	23.35	5.7	10	40
9th	Vertical jump(cms)	91	25.02	4.76	13	41
10th	Vertical jump(cms)	17	24.82	7.5	12	45

Table-12: Norms for Vertical Jump

Marks	6th Class	7th Class	8th class	9th class	10th class
	Distance in cm	Distance in cm	Distance in cm	Distance in cm	Distance in cm
10	30- 33	32.7- 35	38-40	38.3 - 41.0	41.8 - 45.0
9	26.9 - 29.9	30.3 - 32.6	35-37	35.5 - 38.2	38.5 - 41.7
8	23.8 - 26.8	27.9 - 30.2	32-34	32.7 - 35.4	35.2 - 38.4
7	20.7 - 23.7	25.5 - 27.8	29-31	29.9 - 32.6	31.9 - 35.1
6	17.6 - 20.6	23.1 - 25.4	26-28	27.1 - 29.8	28.6 - 31.8
5	14.5 - 17.5	20.7 - 23	23-25	24.3 - 27.0	25.3 - 28.5
4	11.4 - 14.4	18.3 - 20.6	20-22	21.5 - 24.2	22.0 - 25.2
3	8.3 - 11.3	15.9 - 18.2	17-19	18.7 - 21.4	18.7- 21.9
2	5.2 - 8.2	13.5 - 15.8	14- 16	15.9 - 18.6	15.4 - 18.6
1	2 - 5.1	11 -13.4	10-13	13 - 15.8	12 - 15.3

V. Discussion And Conclusions

Literature indicates that the physical fitness level depends on lifestyle, food habits, culture, heredity and geographical conditions and other factors. Sports Authority of India has developed physical fitness norms to identify the sports talent. But when they are used for the normal students, very few students are reaching the norms and the remaining students are getting disappointed. For classification of general students, these norms are not conducive. Hence an attempt was made to conduct study on social welfare school students.

The data indicates that the mean value 50mts run of the 9th class student's was best i.e. 9.12 seconds. The result of the Bend & reach test indicates that the mean flexibility of 10th class students was recorded as highest followed by 8th class. The explosive strength of arms tested through medicine ball put indicates that the improvement of performance among the classes was gradually progressive from lower class to higher class. Standing broad jump results indicate that there was gradual variation with a positive increase in performance from lower class to higher class except the students of 10th standard.

In the 6x10mts shuttle run, the data indicates that there was a gradual improvement of performance from 6th to 9th class. The performance of 10 students was less than the 9th students. The explosive strength of legs was measured with vertical jump and the result indicated that there was only a small improvement in the performance from 6th and 7th class students and the increment was gradually positive from 7th to

doi: 10.32622/ijrat.87202001

9th class and there was a decrease in performance in case of 10th class students.The percentiles were computed to provide a 10 point scale for each of the variable for each of the class i.e. 6th, 7th, 8th, 9thand 10th classes.

CONFLICT OF INTEREST

Yes, Researcher done study with interest only. Last three years Andhra Pradesh government was conducted sports school admission entrance test. Through physical fitness selected students will join the sports schools. Sports Authority of India constructed some norms for selection purpose. Last three years no one can reach the norms. So I interested to know the present physical fitness level of Andhra Pradesh Children.

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doi: 10.32622/ijrat.87202001