



ISSN: 2456-4419

Impact Factor: (RJIF): 5.18

Yoga 2018; 3(1): 41-46

© 2018 Yoga

www.theyogicjournal.com

Received: 24-10-2017

Accepted: 04-12-2017

Dr. Usha S Nair

Associate Professor, SAI,
LNCPE, Trivandrum, Kerala,
India

Physical fitness status of tribal school children in Kerala

Dr. Usha S Nair

Abstract

The purpose of the research was to assess the physical fitness status of children tribal school children from Kerala. The participants were 1116 school children between the age group of 10-12 years from eighteen modern residential Tribal Schools from the state Kerala. Out of these 551 were boys and 565 were girls. The variables and test selected were Speed (20 m dash), Muscular Strength (Standing broad jump, medicine ball throw, vertical jump, sit ups) Flexibility (Sit and reach test), cardiovascular endurance (600 yards run/walk) and Body Mass Index (BMI). Descriptive statistics and Percentiles was computed for each of the selected variables for both boys and girls. In the case of BMI of 1 boys the mean BMI was 14.79 and for girls was 15.46. In 20 Meters sprint boys mean value was 4.05 and girls was 4.31. In vertical jump boys mean value was 30.33 and girls was 26.00. In standing broad jump boys the mean was 1.64 and for girls the value was 1.50. In the case of shuttle run boys mean value was 11 and girls was 12. In medicine ball throw boys the mean throw was 5.27 while the girls was 4.46. In the case of push-ups boys mean value was 16.68 and girls was 11. In sit ups boys mean value was 7.62 and girls was 5.28 In the case of flexibility boys mean value was 47.26 and girls was 44.18. In the case of 600 meters run boys mean value was 163.53 while in the case of girls the mean value was 191.09.

Keywords: Physical fitness, tribe, modern residential tribal school

Introduction

On the road to the top, talent identification and talent development play a crucial role. From a scientific perspective, the pursuit of excellence can be broken down into four key stages: 'talent detection', 'talent identification', 'talent development', and 'talent selection' Williams & Reilly, (2000) [7].

The place to reach all children from an early age and to stimulate their development is at school. Primary schools currently play a minimal role in the identification and development of talented athletes; similar to remedial teaching in academic programme these children should also get the chance for optimal development, ideally in preparation for a talent selection team when they are older. This could be given an important boost by developing and implementing educational programmes designed for young talented athletes to improve their movement and cognitive skills. A child always develops in and with his or her environment. The environment plays an important role in developing these personal performance characteristics, mainly in learning and training the necessary characteristics Bloom (1985) [2].

By mapping the environmental characteristics, valuable insight can be gained as to how talented athletes can best be identified and subsequently trained and guided in their development. Talent development is the result of the continuous interaction between person and environment. This means that parents, but above all teachers, trainers and coaches, should be aware of what children can and want to learn at each stage, and which behaviour relates to this particular phase of life.

Demographic and other general features of scheduled tribes

1. The Scheduled Tribe (ST) population of Kerala State is 364,189 as per 2001 census constituting only 1.14 percent of the total population of the State. The decadal growth of ST population has been 13.5 percent which is 4.1 percent higher than the growth of the total population in 1991-2001. The State has a total of thirty five (35) Scheduled Tribes

Corresponding Author:

Dr. Usha S Nair

Associate Professor, SAI,
LNCPE, Trivandrum, Kerala,
India

and all have been enumerated at 2001 census.

2. The Scheduled Tribes are overwhelmingly rural as 96.1 percent of them reside in villages. District wise distribution of ST population shows that Wayanad district has the highest proportion of STs (17.4 percent) followed by Idduki (14 percent). Alappuzha district has the lowest proportion of STs (0.1 percent) preceded by Thrissur, Kollam and Kozhikode (0.2 percent each).

Population - Size & Distribution

3. Out of thirty five (35) Scheduled Tribes notified for the state, Paniyan is the most populous tribe with a population of 81,940 forming 22.5 percent of the total tribal population of the State. Kurichchan is the second largest tribe having a number of 32,746 constituting 9 percent of the total ST population. Six other STs, namely, Muthuvan, Kanikaran, Irular, Kurumans, Marati and Malai Arayan having a population ranging from 21,000 to 32,000 along with Paniyan and Kurichchan constitute 73.6 percent of the total tribal population. Seven tribes, namely, Malayan, Malai Vedan, Mannan etc. having 5,000 -16,000 population account for another 20 percent and the remaining 20 tribes along with the generic tribes constitute the residual 6.4 percent of the State's tribal population. Tribes having below 500 population are eleven in number. Out of them, Kota, Kammara, Kochu Velan and Konda Kapus are the smallest groups each having less than 50 population.
4. At the district level, Paniyan have the highest percentage in the total ST population in Malappuram (56.3 percent) and Kannur (54.9 percent) districts whereas Kurichchan have their highest proportion in Kannur (40.2%). Among the other larger tribes, Kanikaran are primarily concentrated in Thiruvananthapuram (90.3 percent) and Malai Arayan in Kottayam (61.9 percent) districts.

Paniya Community The word 'Paniyan' is derived from 'pani' which is a Malayalam word, meaning work. Majority of this community works as agricultural labourers. Rajasenan (2013)^[6] Paniya community forms about 22 percent of the total tribal population in Kerala. The community as a whole does not fare well in terms of its health, education and income indicators. Balakrishnan (2004)^[1].

Kurichya Community Kurichya is a major tribal community in Wayanad constituting about 17.5 percent of the total tribal population in the district. Logan (1887)^[5] explains the archery skills of Kurichya community and notes the close link the community had with Pazhassi Raja. The community traditionally has been land owners and engages in cultivation of various cash crops. Balakrishnan, (2004)^[1].

Kuruman Community Kurumas are the one of the dominant tribal communities in Wayanad. The main occupation of the Kurumas was wood cutting and collection of minor forest products. Kurumas have different subdivisions: Mullu Kuruma, (Mullu means bamboo) who collects bamboo from forest. Then Kuruma (Who collects honey from forest) are also known as Cholanaikans. Urali Kuruma also Known as Bettu Kuruma (principally wood cutters and fish hunters). Mullu Kuruman is one of the adivasi communities in the state that has remarkably benefited from the welfare programs of the State.

Urali Community Urali community, forms 2.69 percent of the

total Adivasi population in Wayanad and are found mainly in Sultan Bathery and Mananthavady Blocks of the district. Traditionally they were artisans involved with basketry and pottery.

KattuNaika Community Kattunaikans are notified as 'primitive tribal communities' owing to their relative stage of development. They are found mainly Sultan Bathery Block of the Wayanad district. The community, also known as Thenu Kurumba, was traditionally hunters and gatherers.

Adiyan Community One of the prominent tribes in Wayanad is Adiya. They mainly reside in various parts of Mananthavady Taluk and Pulpally region of Bathery Taluk. It is believed that they were brought in from different regions of Mysore for work in fields of Brahmins, Chetties and Gounders. Kunhaman, (1982)^[4]; Iyer, (1937)^[3]. **Irula Community** Irulas are a major tribal community in Kerala. Majority of the Irula community reside in Attapadi village and in the Silent valley areas of Palakkad district; almost 99 percent of the Irula population live in Palakkad district. **Muthuvan Community** Muthuvan were believed to have migrated to the Western Ghats form the planins of Tamil Nadu. Half of the Muthuvan population of Kerala resides in Idukki district (51.85 percent).

The accessibility of facilities to tribal community is a major issue as majority of the tribal settlements is located in geographically challenged areas (hilly areas or rural areas where the roads are not 'Pucca').

Model Residential Schools (MRS) were started in Kerala in 1990-91 aimed at the educational development of STs. As the name indicates, these are residential schools requiring the students to stay in the school premises. The students are provided all the facilities free of cost such as accommodation, food, dress including uniform, books etc. There are a total of 18 Model Residential Schools in Kerala (table) established during the period 1991-2003, of which 6 are for Girls, 5 for Boys and 7 for both Girls and Boys (Mixed). Wayanad, the most tribal populated district, has the highest number of MRSs (five) and while Palakkad, Idukki and Thiruvananthapuram have two schools each, Malappuram, Pathanamthitta, Thrissur, Kannur, Kasargod, Kollam and Kottayam have one.

The purpose of this research was to assess the physical fitness status of 10-12 year old tribal school boys in Kerala.

Participants

The participants were 1116 school children between the age group of 10-12 years belonging to various tribal communities from the state Kerala. Out of these 551 were boys and 565 were girls. The variables and test selected were Speed (20 m dash), Muscular Strength (Standing broad jump, medicine ball throw, vertical jump, sit ups) Flexibility (Sit and reach test), cardiovascular endurance (600 yards run/walk) and Body Mass Index (BMI).

Results

Descriptive statistics such as mean, standard deviation, minimum and maximum values on the components and Percentiles of physical fitness was computed for 10-12 y old boys and girls separately.

Table 1: Distribution of model residential schools in the state

Sl. No.	MRS	Category type	Type	Year of start up	District
1	Kattela	HSS	Girls	1991	Thiruvananthapuram
2	Nalloomadu	HSS	Boys	1991	Wayanad
3	Manjeri	UP	Mixed	1993	Malappuram
4	Munnar	HS	boys	1997	Idukki
5	Attappady	HS	Girls	1997	Palakkad
6	Munderi	HS	Girls	1997	Wayanad
7	Pathanamthitta	HS	Boys	1998	Pathanamthitta
8	Chalakudy	HS	Girls	1998	Thrissur
9	Pattuvam	HS	Boys	1998	Kannur
10	Uduma	HS	1998	1998	Kasargod
11	Kulathupuzha	HS	Boys	2000	Kollam
12	Pinnakkanadu	HS	Girls	2000	Kottayam
13	Pookode	HS	Mixed	2000	Wayanad
14	Thirunelli	LP	Mixed	2000	Wayanad
15	Palakkad	UP	Mixed	2000	Palakkad
16	Thodupuzha	HS	Mixed	2001	Idukki
17	Noolpuzha	HS	Mixed	1991	Wayanad
18	Njaraneeli	LP	Mixed	2003	Thiruvananthapuram

Table 2: Descriptive statistics of BMI for 10-12 year old tribal school girls and boys in Kerala

BMI		Girls N-565	Std. error	Boys N-551	Std. error
	Mean	17.326	0.1563	14.7984	0.07269
	Std. Deviation	2.442		1.7062	
	Minimum	10.4		9.68	
	Maximum	26.48		22.61	
	Range	16.08		12.94	
	Skewness	0.564	0.156	1.69	0.104
Kurtosis	0.947	0.31	3.094	0.208	

Table 3: Descriptive statistics of 20 m run (sec) for 10-12 year old tribal school girls and boys in Kerala

20 MTRS RUN		Girls N- 565	Std. error	Boys N- 551	
	Mean	4.3459	0.01791	4.0536	0.01321
	Std. Deviation	0.4256		0.31015	
	Minimum	2.76		3.18	
	Maximum	6.62		5.21	
	Range	3.86		2.03	
	Skewness	1.472	0.103	0.364	0.104
Kurtosis	5.721	0.205	0.882	0.208	

Table 4: Descriptive statistics of vertical jump (cm) for 10-12 year old tribal school girls and boys in Kerala

VJ SCORE		Girls N- 565	Std. error	Boys N-551	Std. error
	Mean	26.009	0.28002	30.335	0.30508
	Std. Deviation	6.6559		7.16116	
	Minimum	12		13	
	Maximum	97		85	
	Range	85		72	
	Skewness	2.764	0.103	1.879	0.104
Kurtosis	25.141	0.205	12.681	0.208	

Table 5: Descriptive statistics of standing board jump (cm) for 10 -12 year old tribal school girls and boys in Kerala

SBJ SCORE		Girls N- 565	Std. error	Boys N-551	Std. error
	Mean	1.5018	0.01025	1.6404	0.00993
	Std. Deviation	0.2437		0.23303	
	Minimum	0.86		1.07	
	Maximum	4.45		2.37	
	Range	3.59		1.3	
	Skewness	3.053	0.103	0.174	0.104
Kurtosis	36.923	0.205	- 0.089	0.208	

Table 6: Descriptive statistics of shuttle 10×4 (sec) for 10-12 year old tribal school girls and boys in Kerala

SHUTTLE 10× 4 (sec)		Girls N- 565	Std. error	Boys N-551	Std. error
	Mean	12.362	0.04047	11.6813	0.04088
	Std. Deviation	0.9619		0.95952	
	Minimum	10.55		10.01	
	Maximum	16.43		15.85	
	Range	5.88		5.84	
	Skewness	1.267	0.103	1.062	0.104
Kurtosis	2.27	0.205	1.357	0.208	

Table 7: Descriptive statistics of medicine ball throw (cm) for 10-12 year old tribal school girls and boys in Kerala

		Girls N- 565	Std. error	Boys N-551	Std. error
MB THROW (mtrs)	Mean	4.46	0.90115	5.2761	0.05433
	Std. Deviation	21.42		1.27526	
	Minimum	2.16		2.49	
	Maximum	513		11.28	
	Range	510.84		8.79	
	Skewness	23.683	0.103	0.74	0.104
	Kurtosis	562.23	0.205	1.106	0.208

Table 8: Descriptive statistics of modified push-ups for 10-12 year old tribal school girls and boys in Kerala

		Girls N- 565	Std. error	Boys N-551	Std. error
Modified PUSH UPS	Mean	11.202	0.21359	16.6882	0.25769
	Std. Deviation	5.0769		6.04891	
	Minimum	0		0	
	Maximum	28		34	
	Range	28		34	
	Skewness	-0.027	0.103	- 0.392	0.104
	Kurtosis	-0.153	0.205	0.112	0.208

Table 9: Descriptive statistics of sit ups for 10-12 year old tribal school girls and boys in Kerala

		Girls N- 565	Std. error	Boys N- 551	Std. error
SIT UPS	Mean	5.885	0.19295	7.6259	0.22165
	Std. Deviation	4.5864		5.20289	
	Minimum	0		0	
	Maximum	19		30	
	Range	19		30	
	Skewness	0.168	0.103	0.356	0.104
	Kurtosis	-1.041	0.205	0.378	0.208

Table 10: Descriptive statistics of flexibility (cm) for 10-12 year old tribal school girls and boys in Kerala

		Girls N- 565	Std. error	Boys N-551	Std. error
FLEXIBILITY (CM)	Mean	44.189	0.71885	47.2605	0.53384
	Std. Deviation	17.087		12.53107	
	Minimum	2		4	
	Maximum	104		108	
	Range	102		104	
	Skewness	-0.18	0.103	0.254	0.104
	Kurtosis	0.105	0.205	1.353	0.208

Table 11: Descriptive statistics of 600 meters (sec) for 10-12 year old tribal school girls and boys in Kerala

		Girls N- 565	Std. error	Boys N-551	Std. error
600 MTRS	Mean	191.09	1.1105	163.5307	0.91442
	Std. Deviation	26.396		21.46443	
	Minimum	121.71		121.86	
	Maximum	318.95		258.58	
	Range	197.24		136.72	
	Skewness	0.918	0.103	0.988	0.104
	Kurtosis	2.102	0.205	1.607	0.208

Table 12: Percentile values of height, body weight, BMI, arm length and physical fitness components of 10-12 years old tribal school girls of Kerala

Statistics ^a														
		HT (cm)	WT (kg)	BMI	20 M RUN (sec)	VJ SCOR E	SBJ SCORE	SHUT TLE 10x4 (sec)	MB THRO W (mtrs)	ARM LENGT H (cm)	M PUSH UPS	SIT UPS	FLEXIB ILITY (cm)	600 MTRS
N	Valid	566	566	566	566	566	566	566	565	566	566	566	566	566
Percentiles	5	124.7	22.1	19.07	4.973	17	1.1635	14.29	2.966	50	2	0	11	233.49
	10	127	22.8	17.91	4.773	19	1.21	13.6	3.266	51	4	0	19	223.53
	15	129	23.8	17.31	4.6795	20.03	1.28	13.19	3.4	52	5	0	25	213
	20	130	24.5	16.84	4.61	21	1.31	12.98	3.54	53	7	0	31	208.71
	25	132	25.3	16.43	4.56	22	1.35	12.77	3.7	53.5	8	1	34	206.29
	30	133	25.91	16.19	4.49	23	1.39	12.6	3.848	54	9	2	37	201.92
	35	134	26.55	15.9	4.42	24	1.42	12.5	4	54.5	9	3	39.73	199
	40	135	27.2	15.67	4.37	25	1.45	12.39	4.194	55	10	4	42	196.38
	45	136	28	15.49	4.3385	25	1.47	12.28	4.287	55.5	11	5	44	193.69
	50	137	28.9	15.28	4.29	26	1.5	12.18	4.37	56	12	6	46	189.91
	55	138	29.5	15.07	4.26	26	1.53	12.09	4.48	56.5	12	7	47	185.53
	60	140	30.4	14.85	4.23	27	1.56	12	4.6	57.02	13	8	49	182.53
	65	141	31.3	14.66	4.17	28	1.59	11.91	4.7	58	13	8	52	179.59
	70	142	32.4	14.38	4.13	29	1.61	11.82	4.834	58.5	14	9	53.45	176.42
	75	143.3	33.3	14.16	4.1	29	1.65	11.73	5.055	59	15	9	56	172.61
	80	145	34.1	13.98	4.054	30	1.68	11.61	5.378	60	15	10	59	167.82
	85	146	35.4	13.7	4	31	1.7	11.48	5.6	60.5	16	11	61	165.54
90	148.7	37.03	13.34	3.897	33	1.75	11.37	5.844	61	18	12	63	160.02	
95	151	39.5	12.68	3.8035	35.33	1.85	11.14	6.447	63	19	13	69.65	155.3	

Table 13: Percentile values of height, body weight, BMI, arm length and physical fitness components of 10-12 years old tribal school boys of Kerala

Statistics ^a														
		HT (cm)	WT (kg)	BMI	20 M RUN (sec)	VJ SCOR E	SBJ SCORE	SHUTTL E 10x4 (sec)	MB THROW (mtrs)	ARM LENGTH (cm)	M PUSH UPS	SIT UPS	FLEXIB ILITY (cm)	600 MTRS
N	Valid	556	556	556	555	556	556	556	555	556	553	555	556	556
Percentiles	5	123.4	20.79	17.96	4.562	20	1.269	13.572	3.448	49.5	5	0	27	199
	10	126	21.8	16.77	4.46	22	1.33	12.92	3.8	51	9	0	32	190
	15	127	22.8	16.21	4.37	24	1.386	12.72	3.974	51.5	11	1	35	188
	20	129.2	23.6	15.82	4.29	25	1.43	12.5	4.152	52.5	12	2	37	184.5
	25	131	24.1	15.58	4.22	26	1.48	12.26	4.4	53	13	3	40	179.1
	30	132	24.6	15.32	4.182	27	1.51	12.02	4.54	53.55	14	5	41.05	174.3
	35	133	25	15.18	4.14	28	1.55	11.87	4.7	54	15	5.6	42.975	169.2
	40	134	25.58	14.96	4.11	28	1.56	11.72	4.83	54.5	16	6	44	165.4
	45	135	26.1	14.81	4.06	29	1.6	11.6	4.95	55	16	7	45	161.5
	50	135.5	26.6	14.62	4.03	30	1.635	11.495	5.16	55.5	17	8	46	159.1
	55	136	27.3	14.41	4.002	31	1.67	11.37	5.336	56	18	9	48	156.8
	60	137	27.9	14.22	3.97	32	1.7	11.28	5.466	56.5	18	10	50	154.8
	65	139	28.6	14.04	3.93	32	1.721	11.2	5.59	57	19	10	51.025	152.7
	70	140	29.29	13.87	3.9	33	1.77	11.11	5.81	57.5	20	11	53	150.1
	75	141	30.2	13.66	3.88	34	1.8	10.97	6	58	21	11	55	147.7
	80	143	31.62	13.54	3.82	35	1.84	10.894	6.268	59	22	12	57	145.1
	85	145	33.2	13.33	3.77	36	1.88	10.77	6.584	60	23	13	60	142.5
90	148	35.22	13.08	3.676	38	1.94	10.637	6.924	61.5	24	13	63	139.5	
95	152	38.9	12.64	3.548	41	2.03	10.44	7.524	64.075	26	15	67.15	136	

Discussion

This result revealed the physical fitness status of tribal girls and boys of Kerala. As there are no norms or reference for comparison the American association for health, physical education and recreation, youth fitness test (AAPHER) norms was used for the purpose of study.

While in the case of girls of 10-12 year old the mean height was 137.7 and that of 13-14 year old girls was 147.86. On an average the tribal boys and girls were not very tall. Boys were found to be taller as compared to girls. In the case of BMI of 10-12 year old boys the mean BMI was 14.79, While in the case of girls of 10-12 year old the mean BMI was 15.46 In the case of 20 Meters sprint of 10-12 year old boys the mean value was 4.05 While in the case of girls of 10-12 year old the mean value was 4.31. With regard to vertical jump of 10-12 year old boys the mean value was 30.33, While in the case of girls of 10-12 year old the mean value was 26.00. Boys had higher reach than girls. In the case of standing broad jump of 10-12 year old boys the mean jump was 1.64, while in the case of girls of 10-12 year old the mean value was 1.50. While boys had superior to girls in standing broad jump. When compared with the AAPHER norms these tribal children had higher mean value. Tribal boys and girls were found to be good in standing broad jump. In the case of shuttle run of 10-12 year old boys the mean value was 11. While in the case of girls of 10-12 year old the mean value was 12. While boys were found to possess better agility as compared to girls in shuttle run. In the case of medicine ball throw of 10-12 year old boys the mean throw was 5.27 while in the case of girls of 10-12 year old the mean value was 4.46 while boys were found to be superior to girls in medicine ball throw. Tribal children were found to be good in throw. In the case of push-ups of 10-12 year old boys the mean value was 16.68 while in the case of girls of 10-12 year old the mean value was 11. While boys had increased arm strength than the girls. Girls had poor arm strength. In the case of sit ups of 10-12 year old boys the mean value was 7.62 while in the case of girls of 10-12 year old the mean value was 5.28. overall the abdominal strength was poor for boys and girls. Some of them had attempted sit up for the first time. In the case of flexibility of 10-12 year old boys the mean value was 47.26, while in the case of girls of 10-12 year old the mean value was 44.18 Girls were had better hip and trunk flexibility than boys. In the case of 600meters run of 10-12 year old boys the mean value was 163.53 while in the case of girls of 10-12 year old the mean value was 191.09.

Key findings

Tribal children have talents, since these children come from remote villages, they are not aware about sports and its importance. Since the team visited each of these MRS Schools across the state of Kerala, and the same team testing these children in all the districts, it was very clear that Kerala has talents. Most of these children had undergone the test for the first time. All these children were ready to undertake any challenges.

Limitations

Cultural barriers was one of the limitations. The ground conditions were different across the state, could have been one of the limitations a number of children had to travel for more than 2 hours to reach the testing place, and is also one of the limitations.

References

1. Balakrishnan EP. Economies of Tribals and Their Transformation- A Study of Kerala. PhD thesis: Pondichery University, Mahe 2004.
2. Bloom Benjamin S, Sosnaik Lauren A. Developing talent in young people. New York: Ballantine Books 1985.
3. Iyer LAK. The Travancore Tribes and Castes, Government Press, Trivandrum 1937.
4. Kunhaman M. Bonded Labour in Kerala Among the Hill Tribes of Wayanad. State and Society 1982;3(2).
5. Logan W. Malabar Manual, Charithram Publications, Trivandrum, Kerala 1887;1.
6. Rajasenan D, George Abraham Bijith, Rajeev B. Health, Education and Employment in a Forward-Backward Dichotomy Based on Standard of Living Index for the Tribes in Kerala. Journal of Economics and Sustainable Development 2013;4(7). ISSN 2222-1700 (Paper) ISSN 2222-2855.
7. Williams AM, Reilly Triston. Talent identification and development in soccer. Journal of Sports Sciences 2000;18(9):657-67.
DOI:10.1080/02640410050120041