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Growth and norms of sports motor ability (power) capacity of Delhi rural boys

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Abstract
The study was investigated on 389 Jat boys of Delhi rural population. It was a cross sectional study ranging in age from 10 to 20 years. The subjects were belonged to a single endogamous genetic group of Jat boys of Delhi (rural area). All were studying in educations institutions of Delhi rural areas. For growth pattern and norms of sports motor ability, 30 meters test related to fast running capacity (un-aerobic) was taken for data collection. Descriptive statistical calculation was used for tabulation work. The mean value of the samples depicts the growth patterns of Jat boys in tables. Age wise of 11 groups were made to view the growth and norms to show the motor ability. The study of of Delhi Jat boys has been made on Mean and 'V' (velocity) values given in tables. Hence, the comparison of 'V' values computed and describes the percentage differences between from age to age. Findings proved the pattern of changes continuous in all ages from 10 to 20 years. Big changes were noticed in the motor ability at the age of 15 years and followed in 13 years. Percentiles were calculated as norms to be used for standardization the data. The norms may be used to compare the motor ability of other population.

Keywords: Cross sectional, 'V' value, growth patterns, motor ability, Delhi Jat Boys, percentile norms

Introductions
Scientific and systematic approach in sports requires a lot of information and knowledge. The present study is to collect the data on sports performance with other variables. It proves in review literature that alone single area is not sufficient for good results in sports. In competition, sport is required to adopt very scientific and systematic approach. Body and demographic variables play greater role for improving the sports performance. Kin anthropometrics' body of knowledge has played a very important role in understanding of sports. New aspects of knowledge regarding demographic size of body have been made. Human population living under different environmental conditions varies considerably in their body size, shape and composition (Tanner 1978; Verma 1988) [15, 16]. Experts claim that sports activities are helpful to increase the growth rate. Consequently, demographic and endogamous aspects give a pave to new insights in research studies. In adult, muscles are affected with training and regressed soon to the pre-existing level when exercise is stopped (Tanner, 1962) [13].

The persons gifted with talent generally excel very much. The regular exercise results to increasing of lean body mass and decreasing of body mass. When, these changes are taking place in various body compartments. The body mass is generally regulated and maintained at a constant level (Parizkova, 1963, 1973) [6, 7]. During the growth, no affect of exercise was found on stature. However, it increases the lean body mass and decreases fat mass contrary. Some bilateral differences do exist in the growth of bones of the arms used in training (Singh, 1970) [11]. It is quite clear that more the physical exercises, the immense role of psychological and neuron-muscular parameters results in less regular pattern of age changes of the concerned variable (Giri, 1990) [1]. The motor performance has limitations due to innate biological, mechanical and psychological factors. The genetic aspects of motor performance affect (Malina & Bouchard, 1986) [4]. The physiological factors influencing motor performance too have been reported (Pugh, 1960) [8].

The present study of motor performance in 30 meter dash has been carried out with other variables. There is very close relation of anthropometric variables with motor abilities. It was also found in review of literature as discussed above. The pace of growth in motor abilities was shown in study. The norms were also drawn on the data collection to standardize the motor abilities. The results ar e much related to Delhi jat boys of rural areas and may be helpful to others.

Methodology

In this research work, 389 boys were selected from Delhi rural population. They were selected randomly from educational institutions of rural area. They were ranging in age from 10 to 20 years. They were belonging to a single endogamous genetic group of Jat population. In the present study, they were measured with 30 meter dash run. This component measures the un-aerobic capacity of the subjects based on body power. Other anthropometric variables were measured for PhD thesis. But, now only this measurement is being analyzed. The total strength of sample was classified in eleven groups. Their physical and mental health was checked and assured. The statistical calculation of mean and other related formulas were used for presentation the data. The presentation shows the growth patterns of Jat boys in ages. The results have been presented in tables 1&2 on data. The V values of as velocity in changes per age group has been shown. The V values calculated are shown as growth patterns of the 30 meters run dash. The norms were calculated in percentiles from the raw data. The percentiles indicate the values as standardization of achievement for comparison. Both values are being presented from age to age in eleven intervals.

Table 1: Mean, Standard error of Mean (S.E.M.), Standard Deviation (S.D.) and Year Velocity (V) of Delhi Jat boys from 10 to 20 years.

30 meter dash

Age	No.	Mean	S.E.M.	S.D	V
10	41	5.97	0.09	0.56	
11	35	5.76	0.08	0.46	-0.21
12	34	5.53	0.06	0.37	-0.23
13	36	5.23	0.08	0.56	-0.30
14	38	5.17	0.07	0.45	-0.06
15	37	4.82	0.08	0.46	-0.35
16	35	4.68	0.08	0.16	-0.14
17	37	4.49	0.06	0.38	-0.19
18	35	4.47	0.06	0.38	-0.02
19	31	4.41	0.13	0.75	-0.06
20	30	4.38	0.05	0.30	-0.03

According to table (1); the mean of 30 meter run decreases as the age gradually advances. The decreasing the time is the increasing of motor ability in this variable. Maximum increasing of the capacity is at age of 15 years with mean of 4.82 and 'V' value -0.35. Later is the velocity indicating V at this age. And minimum velocity was found at the age of 18 and 20 years. The range of the values is from 5.97 to 4.38 from 11 to 20 years. The power capacity increases gradually with advancing of age. At the age of adolescent, the peak velocity was observed at age 15 year. Then the velocity is followed from 4.68 to 4.38 as mean values from 16 to 20 years. At every age interval, there is increasing of the motor capacity. The changes indicate the increasing of body power especially leg as age advances. Minimum changes with V value of -0.02 and -0.03 were observed at age of 18 and 20 years respectively.

Table 2: Percentiles of 30 meter dash for Delhi Jat boys from 10 to 20 years.

Age	3^{rd}	10^{th}	25^{th}	50^{th}	75^{th}	90^{th}	97^{th}
10	5.00	5.21	5.47	6.00	6.32	6.50	7.14
11	5.00	5.20	5.43	5.66	6.00	6.60	6.77
12	4.68	5.07	5.29	5.53	5.72	6.12	6.29
13	4.62	4.73	4.93	5.14	5.50	5.82	6.54
14	4.43	4.48	4.83	5.24	5.43	5.84	6.10
15	4.09	4.13	4.41	4.86	5.14	5.35	5.89
16	4.01	4.23	4.33	4.50	4.96	5.53	5.74
17	3.89	4.01	4.19	4.50	4.78	4.95	5.50
18	4.00	4.00	4.16	4.48	4.75	5.10	5.24
19		4.00	4.22	4.36	4.68	4.99	
20		3.41	3.98	4.27	4.53	5.97	

Observation of table (2); proves that the data has been calculated to prepare the percentiles. Total data has been shown in 3^{rd} to 97^{th} percentile in all ages from 10 to 20 years. At age of 10, the percentile range is from 5.00 to 7.14 as 3^{rd} and 97^{th} respectively. At age of 20 years it is 10^{th} percentile to 90^{th} as 3.41 to 5.97 respectively. So in age of 19 and 20 years, absence the 3^{rd} and 9^{th} percentile shows the missing of values. The percentiles may be used to measure the normative value in given instance.

Discussion

Moderate velocity has been observed just after the adolescent during 16 to 20 yrs. Prominent accelerated velocity was found from 11 to 15 years. At age of 15 it is maximum peak velocity. It indicates the pattern of changes in 30 meter dash. This is the attribute of strength and power of legs. This motor ability is un-aerobic in nature. The marked improvement in before adolescent is due to the fact that there is more linearity. Psychological variable is also relevant. The children before adolescent are more motivated for performance as in adolescent. The present results in 30 meter dash are in agreement with (Haywood 1968 & Kirkendall, 1987) [2, 3]. The absence of velocity at age of 19 and 20 yrs may be attributed to extremely slow rate of growth as sampling error. Singh and Malhotra (1989) [12], generalize "it is quite interesting to note that during adolescent period, the boys and girls can be in all stages of their development". In the study, growth norms with the

help of percentile have been analyzed. Marshal (1977) [5] suggested that the variability in observations during the growth period is conveniently describes in terms of percentiles. In general the students fall outside the 10th and 90th percentile may be taken with suspicion and those outside of 3rd and 97th may be treated as unhealthy unless proved otherwise (tanner, 1976) [14]. The present percentiles are the norms to be used to compare the standing of particular measurement of an individual. Specific standards in table 1 & 2 have been constructed for 30 meter run. The applicability of the present study would be very useful to spot the talent in the un-aerobic capacity.

Conclusion

Such work may be done in other population group. It is very helpful in sports to spot the talent. The percentiles may be used to standardize the other results in light of present data. The advances in the variable with ages prove the regular improvement in the motor ability. With more study, the refinement may be made in results. it may be helpful to identify the talent at early ages. Motor ability of 30 meter run goes on gradually with growth of a youngster. In this cross sectional study, the Delhi Jat boy's growth is smooth and suitable to sports. The velocity presented in table (1) is in normative. The sampling population of rural boys has potential for sports. The research work is window to identify the talent in Delhi rural population.

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