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## Comparison on selected physiological variables among different age groups of tribal adolescents

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**Abstract**

The purpose of the study was to compare the selected physiological variables among different age groups of tribal adolescents. Total hundred (N=100) male adolescent students were randomly selected from Paschim Medinipur district of West Bengal. In this study the criterion measured was physiological variables viz. vital capacity, breath holding capacity and resting heart rate. The obtained data in the form digital scores were treated statistically to get result and to draw conclusion. The data on vital capacity, breath holding capacity and resting heart rate were compared for the differences existed among the subjects using statistical tool ANOVA. The study prove that though there seem to be differences on all the selected physiological variables the 18-19 years age group was more in vital capacity and breath holding capacity. On the other hand 14-15 years was more in resting heart rate. Hence it was concluded that the differences were noted in all the variables due to the daily vigorous work and age differences of the tribal adolescents.

**Keywords:** Vital capacity, resting heart rate, breath holding capacity

### 1. Introduction

Today sport has become inseparable phenomenon of our social life. It has made its own place of the apex of human civilization become of its tribal, competitive event and improving nature. In the past sports was regarded as an activity for leisure time pursuit, an activity for amusement of both participants and spectators. But with the emergence of competitive sports and introduction of professionalism the field becomes very competitive.

It is now know that preconditions for performance excellence in any sports are optimum physical fitness, physiological, psychological, technical and tactical efficiency and also intellectual development. The sports scientists are always on the lookout for other factors responsible for highest level of performance.

Therefore excepting training techniques the hereditary factor plays very important role in executing sports performance in India. In India tribal are seemed to be highly enriched with high physical potentialities, which are inborn in nature.

Sports science generally aims identifying and developing variables essential for competitive excellence. In addition to other indices like muscle endurance and power, muscle strength plays a cardinal role in achieving athletic excellence. The final common denominator in athletic events is what the muscle can do- what strength they can give when it is needed, what power they can achieve in the performance of work and how long they can continue in their activity.

In the past sports was regarded as an activity for leisure time pursuit, an activity for amusement of both participants and spectators. But with the emergence of competitive sports and introduction of professionalism the field became very competitive. Top performers are now highly paid the athlete, the coaches, the sports administrators are all involved in a craze for lifting the standard to a new height. They are striving very hard to produce best brand of athletes through selection of most talented persons, providing best facilities and resources, training regularly, systematically and scientifically.

Physical environment of the place of domicile, way of living, religious and cultural practices, play activities of different communities have a direct effect on their physical and mental makeup. The present study was a sincere effort on the investigator to find out whether tribal and non-tribal in compare of physiological variables.

**1.1 Purpose of the study**

The purpose of the study was to compare the selected physiological variables among different age groups of tribal adolescents.

**2. Methodology**

Hundred (100) tribal adolescent male students were selected randomly from large number of population from Paschim Medinipur district. Age of the subjects were 14 years to 19 years students. In this study the criterion measured was physiological variables viz. vital capacity, breath holding capacity and resting heart rate which were compared for the differences existed among the subjects using statistical tool ANOVA for interpretation, analysis and discussion. Level of significance was chosen at 0.05% level of confidence. For statistical calculation MS Excel was used.

**3. Results**

The descriptive statistics on vital capacity, breath holding capacity and resting heart rate, consisting, mean and standard deviation among three age groups are presented in Table I.

**Table 1**

Variables	Groups	Mean	S.D
V.C	14-15	259.72	51.74
	16-17	252.73	43.75
	18-19	296.61	41.54
B.H.C	14-15	27.69	8.38
	16-17	25.42	6.39
	18-19	30.87	7.70
R.H.R	14-15	65.31	4.02
	16-17	63.21	2.09
	18-19	65.16	3.84

V.C= Vital Capacity.  
 B.H.C= Breath Holding Capacity.  
 R.H.R= Resting Heart Rate.

The results presented in Table I proved that there were differences in vital capacity, breath holding capacity and resting heart rate of the 14-15, 16-17 and 17-18 years age groups. To find out the statistical significance of the differences among the selected groups, ANOVA was employed and the results presented in table II

**Table 2**

Variables	Source of Variance	Sum of Squares	df	Mean Square	F	Sig.
V.C	Between	35471.6	2	17735.8	8.32	0.05
	Within	206721	97	2131.15		
B.H.C	Between	477.33	2	238.66	4.18	0.05
	Within	5543.18	97	57.15		
R.H.R	Between	91.16	2	45.58	3.85	0.05
	Within	1147.35	97	11.83		

The results presented in Table II proved that there was significant differences among vital capacity, breath holding capacity and resting heart rate of the 14-15, 16-17 and 17-18 years age groups. Since significant F values were obtained on V.C, B.H.C and R.H.R the results were further subjected to post hoc analysis using Scheffe's post hoc test and the results presented in Table III.

**Table 3**

Variables	14-15 Years	16-17 Years	18-19 Years	Mean difference	CD at 5% level
V.C	259.72	252.73		6.99	27.66
	259.72		296.61	36.89*	28.12
		252.73	296.61	43.89*	28.71
B.H.C	27.69	25.42		2.27	4.53
	27.69		30.87	3.18	4.60
		25.42	30.87	5.45*	4.70
R.H.R	65.31	63.21		2.10*	2.06
	65.31		65.16	0.15	2.09
		63.21	65.16	1.95	2.14

\*Significant

The results presented in Table III proved that paired mean comparisons between 14-15 with 18-19 and also 16-17 with 18-19 were significant and other comparisons were not significant on V.C of the 14-15, 16-17 and 17-18 years age groups.

At the same time 16-17 years and 18-19 years were significant and other comparison were not significant on B.H.C of the 14-15, 16-17 and 17-18 years age groups. Meanwhile 14-15 years and 16-17 years age group were significant and other comparison were not significant on R.H.R of the 14-15, 16-17 and 17-18 years age groups.

**4. Discussion**

It is clearly observed that all the variables were significantly differ among different age group of tribal adolescents. This may be due to their difference in daily physical activity level, life style, food habits, environmental factors, genetic differences etc. we know that during growth and development the physiological capacity and capability also developed but for some limited period after that is slows down. It can be said that racial and socio economic conditions may have an impact on the physiological characteristics of school students.

**5. Conclusion**

The study prove that though there seem to be differences on all the selected physiological variables. The 18-19 years age group was more in vital capacity and breath holding capacity. On the other hand 14-15 years was more in resting heart rate. Hence it was concluded that the differences were noted in all the variables due to the daily vigorous work and age differences of the tribal adolescents.

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