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**Himangsu Poddar**  
Ph.D. Scholar Department of  
Physical Education & Sports,  
Pondicherry University, Tamil  
Nadu, India

**Dr. PK Subhramaniam**  
Senior Professor Department of  
Physical Education, Pondicherry  
University, Tamil Nadu, India

## Effect of different packages of physical activities programme on agility and lung volume of West Bengal tribal students

**Himangsu Poddar and Dr. PK Subhramaniam**

### Abstract

The study determined the "Effect of different packages of physical activities programme on Agility and Lung Volume of West Bengal Tribal school students. The purpose of the study eighty (N=80) school boys were selected randomly from 360 tribal students at Talturam high school and Thakur Panchanan Viddapith high school, Alipurduar District in West Bengal. The age range was between 12 to 15 years. All the selected subjects were divided in to four group, each group 20 subject were selected randomly. Group I calisthenics exercises group II yogic exercise, Group III Traditional and recreational activities and group IV was Control. The pre tests on selected variables were taken and recorded for all the groups. After divided three experimental groups further underwent calisthenics exercise, Yogic exercise and recreational and Traditional Activities schedules for 12 weeks. After 12 weeks the post test on all the variables were recorded. Agility was measure by  $10 \times 4$  yards shuttle run and lung volume was measure by the peak flow meter. Data was analyzed by paired 't' test and ANCOVA. The level of the confidence was fixed at 0.05. The result of the study showed that agility and lung volume significantly improve due to 12 week different packages of physical activities of West Bengal Tribal students.

**Keywords:** Tribal students, calisthenics exercise, yogic activities, recreational and traditional activities, agility, lung volume

### Introduction

Physical activity is required for the all-round development of a child which would depend upon the opportunities provided for while some development of the mental, physical, social and spiritual. Through the medium of physical activity can hardly be underestimated in the modern times, especially when the lifestyle is changing fast as a consequence of pursuit of materialistic philosophy. The world health organization (WHO) has send a target that every person in the world should become health conscious by 2000 AD and it is a right step in the attainment of health for all. The International Olympic Committee has signed an agreement with W.H.O. for furthering the cause of health for all and sports for all by 2000 AD. Tribal's in India constitute one of the most backward communities with regard to education. Poor literacy rate since independence has resulted in the lower ratio of tribal's in academic and higher education but they are found to maintain a good quality when it comes to the aspect of physical fitness. India is home for many tribal community spread in different states. Most of the tribes are concentrated in forest and rural area their food habit, social culture and economic status are different from other people. Generally tribal people are engaged in agriculture, forestry and food gathering. They are very strong and fit to do their work actively for the purpose of survival

### Objective of the Study

- The study was to find out the status of motor fitness and physiological variables of West Bengal Tribal students.
- This study will bring awareness about physical activities programme namely Calisthenics exercise, Yogic activities, Recreational and traditional activities.
- To find out the influence of different packages of physical activities programme on agility and lung volume of West Bengal tribal students.

**Correspondence**  
**Himangsu Poddar**  
Ph.D. Scholar Department of  
Physical Education & Sports,  
Pondicherry University, Tamil  
Nadu, India

**Hypotheses**

It is hypothesized that there would be significant differences on agility due to different packages of physical activities programme of West Bengal Tribal students.

It is hypothesized that there would be significant differences on Lung volume due to different packages of physical activities programme of West Bengal Tribal students.

**Methodology**

The study determined the "Effect of different packages of physical activities programme on selected agility and lung volume of West Bengal tribal students. For the study eighty (N=80) school boys were selected randomly from 360 tribal students at Lalturam high school and Thakur Panchanan Viddapith High School, Alipurduar District in West Bengal.

The age range was between 12 to 15 years. All the selected subjects were divided in to four group, each group 20 subject were selected randomly. Group I calisthenics exercises group II yogic exercise, Group III Traditional and recreational activities and group IV was Control. The pretests on selected variables were taken and recorded for all the groups. After divided three experimental groups further underwent calisthenics exercise, Yogic exercise and recreational and Traditional Activities schedules for 12 weeks. After 12 weeks the post test on all the variables were recorded. Data was analyzed by paired't' test and ANCOVA. The level of the confidence was fixed at 0.05. The result of the study showed that agility and lung volume significantly improve due to 12 week different packages of physical activities of West Bengal Tribal students.

**Table I:** Paired't' Ratio for Agility for All the Four Groups

Variables	Groups	Pre test		Post test		MD	't' Ratio
		Mean	SD	Mean	SD		
Agility	Calisthenics group	10.68	0.56	9.68	0.33	0.99	6.07*
	Yogic exercise group	10.45	0.53	10.04	0.41	0.42	7.41*
	RTA group	10.48	0.62	9.98	0.62	0.50	6.24*
	Control Group	10.46	0.77	10.12	0.61	0.34	5.11*

\*Significant at 0.05 level, 't' 0.05 (19) df = 2.09

The table I shows that the Agility of all the three experimental groups namely Calisthenics exercise group, Yogic Exercise group, Recreational activities groups and control group improve significantly, yielding 't' value 6.07, 7.41, 6.24 and 5.11, respectively, The 't' value needed for significance at 0.05 level with (19) df is 2.09.

For finding the significance of differences between the means of Calisthenics exercise group, Yogic Exercise group, Recreational activities groups and control group analysis of covariance was applied for Agility. The value of 'F' ratio and means of three experimental groups and one control group are presented in table – II

**Table II:** Analysis of Covariance for the Pre, Post And Adjusted Pos-Tests Data On Agility Of Experimental And Control Group (in seconds)

Test		Callisthenic group	Yogic group	Traditional and recreational	Control Group	SOV	SS	df	MS	'F'
Pre Test	Mean	10.68	10.45	10.48	10.46	B	0.70	3	0.23	0.59
	SD	0.55	.54	.62	0.77	W	30.08	76	0.40	
Post Test	Mean	9.68	10.04	9.98	10.12	B	2.15	3	0.72	3.12*
	SD	0.33	0.41	0.51	0.61	W	17.46	76	0.23	
Adjusted Post test		7.84	9.60	10.07	10	B	3.53	3	1.17	9.88*
						W	8.94	75	0.12	

\* Significant at 0.05 level of confidence.

\*(Table value required for significance 0.05 level of confidence for 3 & 76 and 3 & 75 are 2.73 and 2.73 respectively).

The table II shows that the pre-test mean value of Callisthenic Exercise group, Yogic Exercise Group, Recreational and Traditional activities group and Control group are 10.68, 10.45, 10.48 and 10.46 respectively. The obtain 'F' ratio 0.59 for pre-test score was less than the table value, 2.73 for degrees of freedom 3, 76 required for significance at 0.05 level of confidence on Agility. The pre-test mean value of Callisthenic Exercise group, Yogic Exercise Group, Recreational and Traditional activities group and Control group are 9.68, 10.04, 9.98, and 10.12 respectively. The obtain 'F' ratio 3.12 for post-test score was greater than the table value, 2.73 for degrees of freedom 3,76 required for significance at

0.05 level of confidence on Agility. The adjusted post- test mean of Experimental and control group are 7.84, 9.60, 10.07, and 10 respectively. The obtain 'F' ratio of 9.88 for adjusted post-test means were greater than the table value of 2.73 for 3 & 75 required for significance at 0.05 level of confidence on Agility. The result of the study indicates that there was a significant difference among the adjusted post-test means and experimental groups and control group on Agility. Since the obtained 'F' ratio value was significant, farther to find out the paired mean difference, the scheffe's test was employed and presented in table III.

**Table III:** Scheffe's Post Hoc Test for Mean Difference between Groups on Agility

Callisthenic group	Yogic group	Traditional and recreational group	Control Group	Mean Difference	C.I.
9.60	10.07			0.47*	0.31
9.60		9.997		0.37*	
9.60			10.15	0.55*	
	10.07	9.997		0.07	
	10.07		10.15	0.08	
		9.10	10.15	0.15	

\*Significant at 0.05 level

Table III Shows the paired mean differences among the three experimental groups namely calisthenics exercise, Yogic exercise group, recreational and traditional group. The confidence interval value at 0.05 levels is 0.31. The mean differences between calisthenics exercise group and yogic group is 0.47, which is higher than the C.I. value. Therefore there is a significant difference between the callisthenic group and yogic exercise group. The mean difference between Calisthenics group and recreational and Traditional group is 0.37, which is higher than the C.I. value. Therefore there is significant difference between the calisthenics exercise and recreational group. The mean difference between calisthenics exercise group and control group is 0.55, which is higher than the C.I. value. Therefore there is significant difference between the calisthenics exercise and control group. The mean

difference between yogic exercise group and recreational and Traditional group is 0.07, which is lower than C.I. value. Therefore there is no significant difference between yogic exercise group and recreational and Traditional group. The mean difference between yogic exercise group and control group is 0.08, which is lower than the C.I. value. Therefore there is no significant difference between yogic exercise group and control group. The mean difference between recreational and traditional group and control group is 0.15, which is lower than the C.I. value. Therefore there is no significant difference between the recreational and traditional group and control group.

The graphical illustration of the adjusted post mean values of the experimental groups and control group on agility.

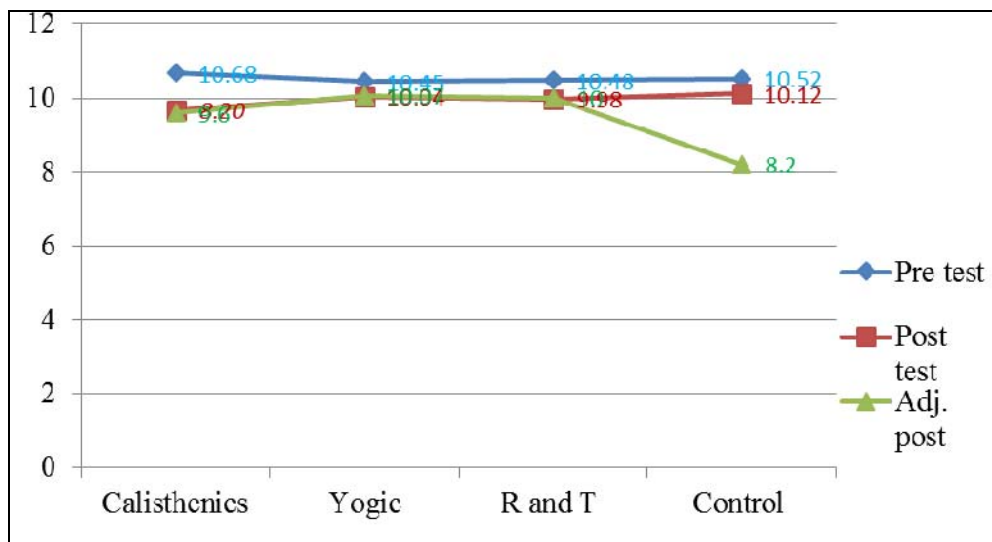


Fig I: Graphical Illustration of Pre Test, Post Test and Adjusted Post Test Mean of Experimental And Control Groups On Agility

Table IV: Paired't' Ratio for Lung Volume for All the Four Groups

Variables	Groups	Pre test		Post test		MD	't' Ratio
		Mean	SD	Mean	SD		
Lung Volume	Calisthenics group	235.50	59.87	250.50	56.61	15.00	13.08*
	Yogic exercise group	240.50	59.78	257.00	56.11	16.50	12.57*
	RTA group	239.50	59.33	251.00	58.39	11.50	2.26*
	Control Group	241.00	60.86	247.50	56.93	6.50	4.95*

\*Significant at 0.05 level, 't' 0.05 (19) df=2.09

The table IV shows that the lung volume of all the three experimental groups namely Calisthenics exercise group, Yogic Exercise group, Recreational activities groups and control group improve significantly, yielding 't' value 13.08, 12.57, 2.26, and 4.95 respectively, The 't' value needed for significance at 0.05 level with (19) df is 2.09. For finding the

significance of differences between the means of Calisthenics exercise group, Yogic Exercise group, Recreational activities groups and control group analysis of covariance was applied for lung volume. The value of 'F' ratio and means of three experimental groups and one control group are presented in table -V

Table V: Analysis of Covariance for the Pre, Post and Adjusted Post-Tests Data on Lung Volume of Experimental and Control Group (L/M)

Test	Callisthenic group	Yogic group	Traditional and recreational	Control Group	Some of variance	SS	df	MS	F ratio
Pre test	Mean	235.50	240.50	241.50	241.00	B	463.75	3	154.58
	SD	59.87	59.78	61.41	60.86	W	27801500.00	76	3658.22
Post Test	Mean	250.50	257.00	248.00	249.00	B	983.75	3	327.91
	SD	56.61	56.11	58.35	58.39	W	252415.00	76	3321.30
Adjusted Post test		254.3	256.2	246.3	247.7	B	1425.88	3	475.296
						W	10662.80	75	142.17

\* Significant at 0.05 level of confidence.

\*(The table value required for significance at 0.05 level of confidence for 3 & 76 and 3 & 75 are 2.73 and 2.73 respectively).

The table V shows that the pre-test mean value of Callisthenic Exercise group, Yogic Exercise Group, Recreational and Traditional activities group and Control group are 235.50, 240.50, 241.50 and 241.00 respectively. The obtain 'F' ratio 0.04 for pre-test score was less than the table value, 2.73 for degrees of freedom 3, 76 required for significance at 0.05 level of confidence on Coordination. The post-test mean value of Callisthenic Exercise group, Yogic Exercise Group, Recreational and Traditional activities group and Control group are 250.50, 257.00, 248.00 and 249.00 respectively. The obtain 'F' ratio 0.99 for post-test score was lesser than the table value, 2.73 for degrees of freedom 3,76 required for

significance at 0.05 level of confidence on lung volume. The adjusted post- test mean of Experimental and control group are 254.3, 256.2, 246.3 and 247.7 respectively. The obtain 'F' ratio of 3.34 for adjusted post-test means were greater than the table value of 2.73 for 3 & 75 required for significance at 0.05 level of confidence on lung volume. The result of the study indicates that there was a significant difference among the adjusted post-test means and experimental groups and control group on lung volume. Since the obtained 'F' ratio value was significant, farther to find out the paired mean difference, the scheffe's test was employed and presented in table VI.

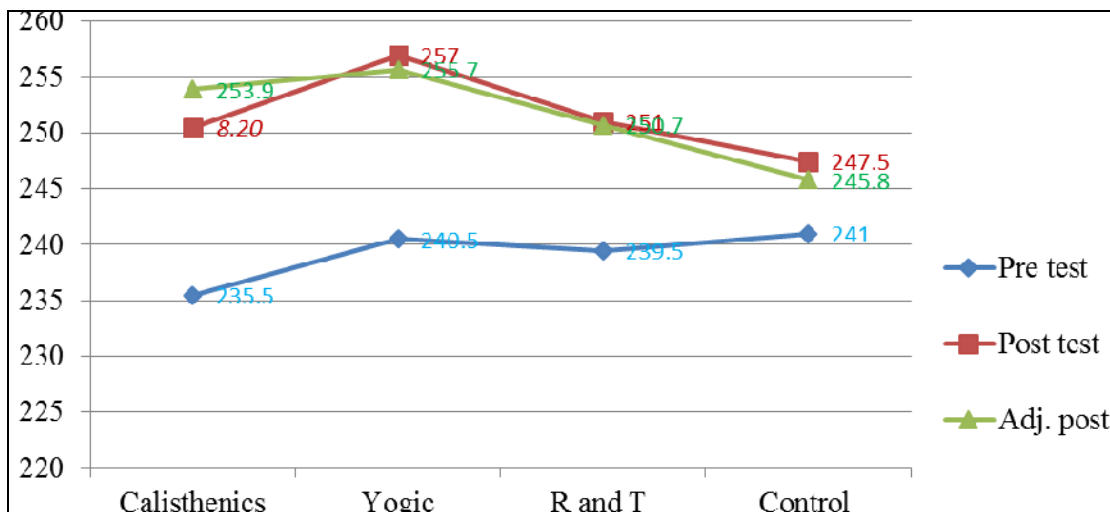
**Table VI:** Scheffe's Post Hoc Test for Mean Difference between Groups on Lung Volume

Calisthenics exercise group	Yogic exercise group	Traditional exercise group	Control Group	Mean Difference	C.I.
254.3	256.2			1.9	10.76
254.3		246.3		8	
254.3			247.7	6.6	
	256.2	246.3		9.9	
	256.2		247.7	8.5	
		246.3	247.7	1.4	

\*Significant at 0.05 level

Table VI Shows the paired mean differences among the three experimental groups namely calisthenics exercise, Yogic exercise group, recreational and traditional group. The confidence interval value at 0.05 levels is 10.76. The mean differences between calisthenics exercise group and yogic group is 1.90, which is lower than the C.I. value. Therefore there is a no significant difference between the callisthenic group and yogic exercise group. The mean difference between Calisthenics group and recreational and Traditional group is 8, which is lower than the C.I. value. Therefore there is no significant difference between the calisthenics exercise and recreational group. The mean difference between calisthenics exercise group and control group is 6.60, which is lower than

the C.I. value. Therefore there is no significant difference between the calisthenics exercise and control group. The mean difference between yogic exercise group and recreational and Traditional group is 9.90, which is lower than C.I. value. Therefore there is no significant difference between yogic exercise group and recreational and Traditional group. The mean difference between yogic exercise group and control group is 8.50, which is lower than the C.I. value. Therefore there is no significant difference between yogic exercise group and control group. The mean difference between recreational and traditional group and control group is 1.40, which is lower than the C.I. value. Therefore there is significant difference between the calisthenics group and combined group.



**Fig II:** Graphical Illustration of Pre Test, Post Test and Adjusted Post Test Mean Of Control and Experimental Groups on Lung Volume

**Discussion**

The discussion of the present study, the Effect of different packages of physical activities programmes on agility and lung Volume were significantly improved after the experimental treatments, Further the analysis of data revealed that there were significant difference among the four groups, such as Calisthenics exercise group, yogic activities group,

Recreational and traditional activities groups, and control group. The result of study indicated that 12 weeks of different packages of physical activities programmes such as Calisthenics exercise group, yogic activities group, Recreational and traditional activities had significantly improved on agility and lung volume.

### Conclusion

In summary, the result of this investigator indicates that the entire three experimental groups significantly improve on agility and lung volume. More specifically yogic activities group is better in lunge volume from other groups. Another Calisthenics exercise group is better agility compare to yogic exercise, recreational and traditional activities group and control group.

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