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Comparative Effect of Progressive Training with and Without Weights on Selected Parameters among Coastal Area Students

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Abstract:

Ninety boys in the age group of 15 to 18 years of Kunhali Marakkar Higher Secondary School, Coastal-Calicut were selected at random and were divided randomly into three equal groups namely Progressive training group –A with weights, Progressive training group –B without weights and control group -C. The experimental groups participated in the training programme for a period of 15 weeks. During this period, the control group was let off without any training. The data were collected on selected Physical Fitness variables of Abdominal muscular strength and endurance, Agility, Flexibility, Cardiovascular endurance and VO2 max respectively before training (pre-test) as well as after 15 weeks of training (post-test). Analysis of covariance was used to analyse the data. The results of the study clearly indicated that the weight training group (A) had shown a superior significant improvement in abdominal muscular endurance over others while experimental group without weights (B) showed significant improvement in flexibility, cardio vascular endurance and Vo2 max and control group made no progress at all. .

1. Introduction

Health and physical fitness have a vital role in the life of man from time immemorial. The marked detestation in the physical fitness of the people may be due to the present automation and sort of mechanized day – to – day life. Modern man leads a lazy life with restricted movements due to new scientific innovations and modern excited world resulting in sending wrong signal to young school children. Very acute stress and strain have considerably affected the health of the people. The progress of the nation lies in the hand of the young generation who need to be made aware of the need to be healthy and physically fit. What better place than the school platform to start the awareness programme? Hence the study involving school going boys.

Weight training is a use of resistance other than the weight of the body to develop specific areas of the body. Generally, it is used to develop muscular strength and power it also develops muscular endurance, elasticity and coordination. As its designation implies progressive resistance exercises (PRE), it consists of gradually increasing resistance against which a given muscle must work as the strength of the muscle improves in order to progressively maintain a high level of incremented tension. The principles of overload in muscle conditioning are systematically applied. In overloading, the individuals exercise is increased in intensity or is extended for a longer time than normally. However researchers all over the world have toiled to find out the comparative effect of exercises with and with-out weights on school going adolescent. This inquisitiveness led the researcher to embark on a study on his students hailing from predominant coastal areas in Kerala state in southern India.

2. Methodology

The methodology for the study was to determine the comparative effect of progressive training with and without weights on selected physical fitness components among students from coastal area. The subjects for the study were selected from the students of Kunhali-marakkar higher-secondary school, Calicut. The 90 subjects aged between fifteen to eighteen years were randomly assigned to three groups of thirty each, experimental groups A and B while group C acted as the control group. The experimental treatment of fifteen weeks of progressive weight training were given to experimental group A while training without weights were assigned to group B and control group was let off freely. . A pilot study was conducted before the experimentation. The pre and post tests for all groups were collected and resultant were analyzed

3. Results and Discussion

The Analysis of co-variance (ANCOVA) and Scheffe's post-hoc test on the data flexibility, cardio respiratory endurance and VO2 max of experimental and control have been analyzed and shown in the below tables.

	GROUP A	GROUP B	GROUP C	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F	P VALUE
Pre test Mean	28.1667	29.4333	28.2667	Between	29.756	2	14.878	.510	.602
				Within	2537.400	87	29.166		
Post test Mean	28.1667	33.0667	28.2667	Between	470.600	2	235.300	8.060	.001
				Within	2539.900	87	29.194		
Adjusted post Test Mean	28.619	32.261	28.620	Between	262.097	2	131.048	323.272	.0001
				Within	34.863	86	.405		

Table 1: Computation of Analysis of Covariance of pre-Test, Post Test And Adjusted post Test on Flexibility of Three Different Groups (scores in centimeters)
Table F ratio at 0.05 level of confidence for 2 and 87(df) = 3.05, 2 and 87(df) = 3.05

Weight Training Group	Non Weight Training Group	Control Group	MEAN DIFFERENCE	REQUIRED CI	P VALUE
28.1667	33.0667		4.90000	1.39509	.003
28.1667		28.2667	.10000	1.39509	.997
	33.0667	28.2667	4.80000	1.39509	.004

Table 2: Ordered Scheffe's Post hoc Test Mean Differences on Flexibility among Three Groups

	GROUP A	GROUP B	GROUP C	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F	P VALUE
Post test Mean	9.3190	7.6420	9.3400	Between	5.813	2	2.907	2.235	.113
				Within	113.128	87	1.300		
Adjusted post Test Mean	9.167	7.966	9.169	Between	56.960	2	28.480	24.999	.000
				Within	99.115	87	1.139		
Mean Off	0	-1.1487	0	Between	27.470	2	13.735	165.348	.0001
				Within	7.144	86	.083		

Table 3: Computation of Analysis of Covariance of pre-Test, Post Test and Adjusted post Test on cardio respiratory endurance of Three Different Groups (scores in meters)
Table F ratio at 0.05 level of confidence for 2 and 87(df) = 3.05, 2 and 87(df) = 3.05

Ordered Scheffe's Post hoc Test Mean Differences On among Cardio respiratory endurance Three Groups

GROUP A	GROUP B	GROUP C	MEAN DIFFERENCE	REQUIRED CI	P VALUE
9.3190	7.6420		1.67700	.27559	.000
9.3190		9.3400	.02100	.27559	.997
	7.6420	9.3400	1.69800	.27559	.000

Table 4

	GROUP A	GROUP B	GROUP C	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F	P VALUE
Pre test Mean	3.0733	3.0200	2.8267	Between	1.011	2	.505	1.326	.271
				Within	33.145	87	.381		
Post test Mean	3.0567	3.3767	2.7633	Between	5.646	2	2.823	6.347	.003
				Within	38.697	87	.445		
Adjusted post Test Mean	2.958	3.331	2.908	Between	3.181	2	1.590	21.639	.0001
				Within	6.320	86	.073		
Mean Off	-0.0166	0.3567	-0.0634	Between					
				Within					

Table 5: Computation of Analysis of Covariance of pre-Test, Post Test And Adjusted post Test on VO₂ max of Three Different Groups (Scores in ml/kg/min)

GROUP A	GROUP B	GROUP C	MEAN DIFFERENCE	REQUIRED CI	P VALUE
3.0567	3.3767		.32000	.17220	.184
3.0567		2.7633	.29333	.17220	.240
	3.3767	2.7633	.61333	.17220	.003

Table 6: Ordered Scheffe's Post hoc Test Mean Differences On among VO₂ max Three Groups

4. Discussion

4.1. Flexibility

The flexibility among coastal area boys students was examined with the sit and reach test. No significant variation was detected in the flexibility of the students selected for the weight training group – I(28.1667) and non weight training group II (29.4333) compared to control group (28.2667) during the pre test.

In post- test significant improvement was noticed in flexibility of the experimental group II. Non weight training group II showed highly significant improvement in the flexibility (33.0667), followed by weight training group-I (33.0667) with reference to control (28.2667) during post-test. The post- test was adjusted then similar results were obtained non weight training group II showed highly significant improvement in the flexibility (32.261), followed by weight training –I (28.619) with reference control (28.620).

4.2. Cardio Respiratory Endurance

The cardio respiratory endurance among coastal area boys students was examined with one mile run(1600M) test . No significant variation was detected in the cardio respiratory endurance of the students selected for the weight training group – I(9.3190) and non weight training group II (8.7907) compared to control group (9.3400) during the pre test.

In post- test significant improvement was noticed in flexibility of the experimental group II. Non weight training group II showed highly significant improvement in the cardio respiratory endurance (7.6420), followed by weight training group-I (9.3190) with reference to control (9.3400) during post-test. The post- test was adjusted then similar results were obtained non weight training group II showed highly significant improvement in the cardio respiratory endurance (7.966), followed by weight training –I (9.167) with reference control (9.169).

4.3. VO2 Max

The Vo2 max among coastal area boy students was examined with step test. No significant variation was detected in the Vo2 max of the students selected for the weight training group – I(3.0733) and non weight training group II (3.0200) compared to control group (2.8267) during the pre test.

In post- test significant improvement was noticed in Vo2 max of the experimental group II. Non weight training group II showed highly significant improvement in the Vo2 max (3.3767), followed by weight training group-I (3.0567) with reference to control (2.7633) during post-test. The post- test was adjusted then similar results were obtained non weight training group II showed highly significant improvement in the Vo2 max (3.331), followed by weight training –I (2.958) with reference control (2.908).

5. Conclusion

Hence it was concluded that non weight training exercise may improve flexibility, cardio respiratory endurance and Vo2 max of coastal area boys students.

6. References

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