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Physical Education

DIFFERENTIAL EFFECT OF AEROBIC TRAINING VARIANTS ON SELECTED ANTHROPOMETRIC VARIABLES OF TRIBAL BOYS

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ABSTRACT

Present study was conducted with 120 adolescent tribal boys as subjects, randomly divided into four groups namely Group A (Continuous Training), Group B (Interval Training), Group C (Fartlek Training) and Group D (Control) having 30 subjects in each group. With administration of differential aerobic trainings for a period of 12 weeks, it was observed that, the anthropometric parameters like upper arm circumference was increased significantly differently in interval training group, compared with control and continuous training group. Fartlek training group was not different from all other groups. No difference among groups was obtained in chest and waist circumference. Continuous training group proved to be different from other groups in hip and thigh circumference. However in calf circumference, both fartlek and interval training groups were found to be significantly different from control and continuous training groups. Continuous and fartlek training showed significant decrease in biceps and sub scapular skinfold measurement, compared with other two groups without any significant difference between the two. Triceps skinfold measurement was significantly lowered in continuous training group. None of the experimental groups including control differed with regard to suprailiac skinfold measurement under present study.

INTRODUCTION

Sports training aims at improvement of performance. It is formulated in such a way that the sportsman is able to win or at least successfully participate in a competition. Anthropo metrical parameters are pre - requisite traits for every individual especially for the tribal school students. During the schooling years tribal students exhibit tremendous changes on anthropometrical, physiological and psychological aspects, that continue to transform a young person to reach in to adulthood.

The effect of training on anthropometric, physiological and biochemical variables of Indian male volleyball players under 19 years was aimed in the study of Manna et al. (2012). A significant increase ($P<0.05$) in anaerobic power, back and grip strength, serum urea and HDL-C; and significant decrease ($P<0.05$) in body fat, recovery heart rate, haemoglobin, triglyceride and LDL-C were noted after training. No significant change was observed in stature, body mass, LBM, HR_{max}, VO_{2max}, uric acid and total cholesterol level of the players after the training. This would enable the coaches to assess the current status of an athlete and the degree of training adaptability and provide an opportunity to modify the training schedule accordingly to achieve the desired performance.

Keeping the past literature in back drop, the present study was aimed at finding out the comparative effect of three variants of aerobic training programmes i.e., Continuous running, Fartlek training and Interval training on selected anthropometric variables of school level tribal boys.

Selection of Variables

Keeping the feasibility criterion in mind, especially in the case of availability of instruments, the following Anthropometric variables were chosen: a) Upper Arm Circumference, b) Waist Circumference, c) Chest Circumference d) Thigh Circumference, e) Calf Circumference f) Hip Circumference, g) Skin folds Measurements. (i) Biceps skinfold, ii) Triceps skinfold, iii) Sub scapula skinfold, iv) Suprailiac skinfold.

Experimental Design

Random group design was adopted for the study as all the subjects (120 nos.) were randomly selected and divided into four groups. Further the experimental treatments also were assigned at random to all three experimental groups and the fourth group served as the control group. The experimental groups participated in three training programmes i.e. Group A (Continuous Training), Group B (Interval Training) and Group C (Fartlek Training). The study was conducted for a period of 12 weeks in the month of February.

Findings

For each of the chosen variables, the results pertaining to significant difference, if any, between the pre test and post test means for the four groups after twelve weeks of training, which were submitted to analysis of variance, are given in following Table.

Pre and post test Mean ± SE of anthropometrical parameters of subjects among all groups

Parameters		Control Group	Continuous Group	Fartlek Group	Interval Group	'F' ratio
upper arm circumference (cm)	Pre-Test	19.59±0.49	20.36±0.51	20.51±0.41	20.06±0.44	0.756
	Post-Test	20.17[a]±0.46	20.77[a]±0.52	20.13[a]±0.45	19.39[b]±0.43	2.817*
Waist Circumference	Pre-Test	66.67±2.67	66.20±2.63	67.14±0.82	67.85±1.56	0.115

	Post-Test	63.18±2.47	62.63±0.59	65.57±0.70	66.43±1.34	1.544
Chest Circumference.	Pre-Test	63.10±2.26	62.35±2.22	67.78±0.97	66.30±1.50	2.019
	Post-Test	61.00±2.38	59.93±0.64	63.43±0.71	64.55±1.37	2.147
Thigh Circumference	Pre-Test	39.21±0.78	37.60±0.92	38.36±0.75	37.24±1.29	0.823
	Post-Test	33.27^{a}±1.53	33.25^{a}±0.72	37.33^{b}±0.66	36.32^{ab}±1.12	3.862*
Calf Circumference	Pre-Test	26.63±0.61	27.18±0.50	27.74±0.53	26.63±0.61	0.892
	Post-Test	24.15^{a}±0.83	26.16^{ab}±0.30	28.27^{b}±0.53	27.38^{b}±0.56	9.179**
Hip Circumference	Pre-Test	73.74±1.17	68.75±2.33	73.48±1.16	72.87±1.60	2.035
	Post-Test	66.90^{ab}±2.40	62.61^{a}±1.74	68.00^{ab}±0.70	69.67^{b}±1.49	3.166*
Biceps skinfold	Pre-Test	6.50±0.13	6.54±0.13	6.39±0.10	6.50±0.13	0.302
	Post-Test	6.46^{a}±0.14	6.10^{b}±0.08	6.03^{b}±0.05	6.27^{ab}±0.06	4.741**
Triceps skinfold	Pre-Test	11.38±0.23	11.76±0.15	11.57±0.12	11.38±0.23	0.906
	Post-Test	11.28^{a}±0.28	11.83^{b}±0.13	11.24^{a}±0.13	11.81^{b}±0.17	3.005*
Subscapula skinfold	Pre-Test	12.62±0.15	12.56±0.16	12.53±0.15	12.62±0.15	0.964
	Post-Test	12.60^{a}±0.13	11.73^{b}±0.36	12.15^{ab}±0.12	12.42^{a}±0.11	3.110*
Suprailiac skinfold	Pre-Test	13.17±0.18	13.48±0.15	13.54±0.14	13.17±0.18	1.382
	Post-Test	12.78±0.15	12.89±0.12	13.18±0.11	13.06±0.11	2.088

* Significant ($p<0.05$), ** Significant ($p<0.01$), df= 3, 116

Means with different superscripts (a,b) differ significantly (P<0.05) within a row for a particular parameter.

DISCUSSION OF FINDINGS

The analysis of data reveals that there was no significant difference among pretest scores of all four groups under study denoting randomization of subjects assigned to different groups. With reference to pre and post test mean values revealed that, after administration of continuous training schedule for twelve weeks, the anthropometric components like hip, thigh and calf circumference along with biceps and suprailiac skinfold measurement were affected positively. Anthropometric parameters like upper arm, chest, waist, hip, thigh and calf circumference along with biceps, triceps, sub scapular and suprailiac skinfold measurements were influenced positively by fartlek training for a period of twelve weeks.

None of the anthropometric parameters was affected with scheduled interval training under the study. None of the parameters under the study showed significant difference before and after the test period of 12 weeks in control group.

The results pertaining to partitioning of variances among four experimental groups revealed that, the anthropometric parameters like upper arm circumference was influenced significantly in interval training group, compared with control and continuous training group. Fartlek training group was not found to be different from all other groups. No difference among groups was obtained in chest and waist circumference. Continuous training group proved to be different from other groups in hip and thigh circumference. However in calf circumference, both fartlek and interval training groups were found to be significantly different from both control and continuous training groups. Continuous and fartlek training showed significant decrease in biceps and sub scapular skinfold measurement, compared with other two groups having no significant difference between the two. Triceps skinfold measurement was significantly lowered in continuous training group. None of the experimental groups including control differed with regard to suprailiac skinfold measurement under present study.

The adolescent period is a phase of life where the youths in general and tribal youth in particular require maintenance of physical and mental fitness to facilitate proper growth. Inclusion of fitness programmes of aerobic trainings as in the present study in school physical education programmes may lead the young tribal boys towards their fullest growth.

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