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Effects of yogic activities, weight training and fartlek training on selected physiological variables on 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 **(**Yogic Activities**),** Group B **(**Weight Training), Group C (Fartlek Training) and Group D (Control) having 30 subjects in each group. With administration of differential trainings for a period of 12 weeks, it was observed that weight training improved speed and agility and fartlek training helped to improve strength and endurance of tribal adolescents in a progressive manner. It seemed that fartlek training affected the physiological parameters and probably between levels of participation of subjects. The results pertaining to partitioning of variances among experimental groups revealed that, resting and working heart rate along with cardio respiratory endurance were significantly different in weight training group, compared with other groups. However, fartlek training group showed no significant difference with interval training group with regard to resting and working heart rate. No significant difference was obtained among four groups with reference to systolic and diastolic blood pressure. The specific scheduled yogic activities training in the present study helped improvement of the performance in the resting heart rate, working heart rate and cardio-respiratory endurance of the subjects.

Keywords: yogic activities, weight training, fartlek training, physiological variables, tribal boys

Introduction
Training is now universally recognized as a scientifically based and systematized programme which is fundamental to the pursuit of high level performance in sports. There are several different training methods that can be used to improve ability in different sports. The different types of training involve activities that last for different periods of time. Anaerobic exercise lasts for a brief duration while aerobic exercise lasts much longer. Anaerobic exercise usually last less than 60 seconds. Aerobic training improves the delivery of oxygen to the muscles. It increases how well the heart pumps the blood and how well the muscles extract oxygen from the blood. It also improves how well glucose is converted into energy. Physiological 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, psychological aspects continues to transform a young person to reach into adulthood. Ravi Kiran and Babu Mande (2017) undertook a study to analyze the effect of continuous running, fartlek and interval training on selected skill related performance variables (Kicking for distance) of male football players. Abraham (2000) [1] investigated the effect of 6 weeks training programme on selected physiological variables (haemoglobin, pulse-rate, vital capacity, cardio-vascular endurance and peak expiratory flow rate) of professional college students. The study concluded that cardio-vascular endurance and peak flow rate were improved due to training. There was a significant reduction in resting pulse-rate of the subjects and there were no significant changes in haemoglobin content and vital capacity after 6 weeks of training.
Keeping the past literature in back drop, the present study was aimed at finding out the comparative effect of three types training programmes i.e., yogic activities, weight training and fartlek training on selected physiological variables of school level adolescent tribal boys.

Selection of Variables

Keeping the feasibility criterion in mind, especially in the case of availability of instruments, the following variables were chosen: a) Cardio Respiratory Endurance b) Working Heart Rate c) Resting Heart Rate d) Blood Pressure (Systolic and Diastolic) e)Hemoglobin Content.

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 were also 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, were submitted to analysis of variance and are presented in Table 1.

Table 1: Pre and post test Mean ± SE of physiological parameters of subjects among all groups

Parameters		Control Group	Yogic activities group	Weight training Group	Fartlek Group	'F' ratio
Resting Heart rate	Pre-Test	71.37± 0.37	71.43^{x}± 0.20	71.03^{x}±0.15	70.50^{x}± 0.26	2.132
	Post-Test	71.40^{a}±0.35	70.37^{aby}±0.25	69.90^{by}±0.21	69.47^{by}±0.21	9.980**
Working heart rate	Pre-Test	169.43±10.00	161.70^{x}±1.17	151.87±1.38	154.03^{x}±1.81	2.394
	Post-Test	156.40^{a}±1.66	155.90^{aby}±0.76	151.90^{ab}±0.94	150.87^{by}±1.49	4.312**
Systolic B.P. (mmHG)	Pre-Test	121.93±1.12	119.07±1.29	119.83±0.99	118.87±1.18	1.489
	Post-Test	122.00±0.98	120.90±0.32	120.30±0.49	120.23±0.35	1.871
Diastolic B.P. (mmHG)	Pre-Test	79.30±0.87	78.07±0.88	79.10^{x}±0.65	79.23±0.59	0.583
	Post-Test	79.93±0.81	79.93±0.40	80.33^{y}±0.48	80.00±0.23	0.234
Hemoglobin	Pre-Test	13.80±0.13	13.66^{x}±0.07	13.62^{x}±0.07	13.70±0.06	0.857
	Post-Test	13.94^{a}±0.13	14.48^{by}±0.16	14.01^{aby}±0.13	13.80^{a}±0.08	9.564**
C.R. Endurance	Pre-Test	2311.52±22.39	2376.23±22.63	2324.21^{x}±17.95	2366.01±20.43	2.257
	Post-Test	2292.36^{a}±24.39	2390.56^{b}±16.58	2359.04^{aby}±14.13	2357.84^{ab}±17.93	3.630*

* 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 and different superscripts (x,y) differ significantly within a column for a particular parameter.

Discussion of Findings

The analysis of data revealed that there was no significant difference among pretest scores of all four groups under study denoting randomization of subjects assigned to different groups. However, the posttest scores of two experimental groups i.e., fartlek and weight training were found to be significantly different from that of control group with regard to resting heart rate. No significant difference was also observed between fartlek and weight training group, with regards to resting heart rate posttest scores of the subjects. Posttest scores of three experimental groups were significantly lower than the pretest scores, however no difference in control group was observed. With reference to pre and post test mean values revealed that, after administration of yogic activities schedule for twelve weeks, physiological parameters like resting and working heart rate and hemoglobin content were influenced significantly.

Physiological parameter like working heart rate was influenced by both yogic activities and fartlek training, administered for a period of twelve weeks. However, fartlek training posttest estimates on this parameter was significantly lower than that of control group. Only weight training could influence the diastolic blood pressure showing significant difference between pre and post test estimates on the trait along with cardio respiratory endurance.

The results pertaining to partitioning of variances among experimental groups revealed that, resting and working heart rate along with cardio respiratory endurance were significantly different in weight training group, compared with other groups. However, fartlek training group showed no significant difference with weight training group in resting and working heart rate. No significant difference was obtained among four groups with reference to systolic and diastolic blood pressure. The specific scheduled yogic activities training in the present study helped improvement of the performance in the resting heart rate, working heart rate and cardio-respiratory endurance of the subjects.

Conclusion

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. The fitness programmes of aerobic and anaerobic trainings as stated in the present study should be included in school physical education programmes which may lead the young tribal boys and girls towards their fullest growth.

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