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Study on effects of combined training on selected physiological parameters

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Abstract

The purpose of this study was the effect of combined training on selected Physiological parameters on normal and overweight school boys. 10 boys studying in 9th and 10th classes of S.G.V.P. Inter National secondary school were selected for the purpose of the study. The age group was between 14 to 15 years. Before executing the tests, the subjects were taken into the laboratory and were made understand the aim of these tests. For the conduction of the tests the services of the expert physical education lecturers were taken. Two equally groups were divided between the subjects. One group was Strength, Ladder and Plyometric Training Group and another was Control Group. All these combined training period was 2 weeks.

Keywords: Combined training, physiological, boys, ANCOVA

Introduction

In the ancient time the need for physical activities of an ancient man was largely satisfied by their daily hard work. Now as a result of developments in today's science and social system, many of us earn and perform our daily work without expending physical strength. However, for proper growth and health maintenance, everyone needs physical activity. As a person exercises his body and mind, they acquire new ideas and skills and develop as they make effective use of knowledge and skills.

The basic training procedures will serve better when utilized with modifications suited to the individual. The best training Programme is that which increase the desired quality at a higher rate without causing unwanted effects. Training represents a long –term endeavor. Athletes are not developed overnight and coach cannot create miracles by cutting corners through overlooking scientific and methodical theories. Sport training is a process of athletic improvement, which is conducted on the basis of scientific principles and which, through systematic development of mental and physical efficiency, capacity and motivation, enables the athletes to produce outstanding and record breaking athletic performance. Physical training is one of the most important ingredients in training to achieve high performance. The objectives of physical training are to increase the athlete's physiological potential and to develop bio motor abilities to the highest standards. Sports training are a scientifically based pedagogically organized process which through planned and systematic effect on performance ability and performance readiness aims at sports perfection and performance improvement as well as the contest in sports competition.

Training is an effective antidote against weakness. In the vast play field of life, the sports galaxy of players rests entirely on the base foundation called training. It is a programme of exercise designed to improve the skill and increase the energy capacities of an athlete for a particular event. Well trained body remains in good condition. Training is the total process of preparation of a sportsman, through different means and forms for better performance. The physical training brings about local changes in the muscles, improved, neuromuscular co-ordination of activities and a series of more general cardio – respiratory changes.

Apart from these principles one has to give due attention to the individuality. Individuality means factors such as age, sex, maturity, current fitness level, and years of training, body size,

so many types and psychological characteristics should be considered by the coach in designing each athlete's training regimen. Ladder training by forcing your neurological system to send recruitment information to the muscles at a higher rate of speed recruiting more motor units. This will create quicker, faster, and more agile athletes. Plyometric training or bounding exercises, are excellent for building power, coordination, and explosiveness. Boxes are sometimes used to capitalize on the effect of gravity for additional resistances. Strength Training requires athletes to use resistances to build strength, endurance, and size. Barbells, resistance bands, machines, and other types of equipment that offer resistance can be used to build strength even the athlete's own body weight. Altitude training (AQA only) is aerobic training high above sea level, where oxygen levels are lower. It is used to increase aerobic fitness quickly. Strength, or resistance, training for young athletes has become one of the most popular and rapidly evolving modes of enhancing athletic performance. Early studies questioned both the safety and the effectiveness of strength training for young athletes, but current evidence indicates that both children and adolescents can increase muscular strength as a consequence of strength training. This increase in strength is largely related to the intensity and volume of loading and appears to be the result of increased neuromuscular activation and coordination, rather than muscle hypertrophy. Training induced strength gains are largely reversible when the training is discontinued. There is no current evidence to support the misconceptions that children need androgen for strength gain or lose flexibility with training.

The Traditional Ladder has rungs which are permanently affixed to the webbing. It features a flat bottom with a rounded top. It is important that athletes keep their heels off of the ground while using the ladder and the rounded top helps to remind athletes to stay on the balls of their feet. There is also a Flat style Ladder with rungs that are perfectly flat to the ground. This style generally has adjustable rungs so the coach can change their settings. We also offer a Ladder that is basically half of a Ladder. The Ladder Junior is about 15 feet long, and is perfect for most court sports since they do

not need to train to the distances of field sports. This manual will apply equally to all styles of Ladders, and all of the drills will work regardless of your particular Ladder type. Training on a ladder is simple. We run through the ladder in a specified pattern as fast as possible. If we step on a rung or fall out of the pattern, we have to start over. Ladder training will improve our speed, coordination, timing and balance and also it will set our calves on fire. We are not a muscle isolationist, but it is seriously effective calf training because this engages the fast twitch muscles. The training guidance should be provided according to their age groups. The performance of plyometric training in mp and speed was found better among boys. In physical fitness, body composition is used to describe the Percentages of fat, bone and muscle in human bodies. Because muscular tissue takes up less space in our body than fat tissue, our body composition, as well as our weight, determines leanness. Two people of equal height and body weight may look completely different from each other because they have a different body composition. Health practitioners universally agree that too much body fat is a serious health risk. Problems such as hypertension, elevated blood lipids (fats and cholesterol), diabetes mellitus, cardiovascular disease, respiratory dysfunction, gall bladder disease, and some joint diseases are all related to obesity. Also, some research suggests that excessive accumulation of fat at specific body sites may be an important health risk factor.

Purpose of the study

The purpose of this Pilot study was the effects of combined training on selected physiological parameters on normal and overweight school boys.

Selection of the Subjects

In this research study 10 boys of 9th and 10th classes of S.G.V.P. Inter National secondary school were selected as a subject, their age from 14 to 15 years. Two equally groups were divided between the subjects. One group was Strength, Ladder and Plyometric Training Group and another was Control Group.

Criterion of measurement

	Variables	Test	Unit of Measurements
Physiological	Aerobic Capacity	Cooper's 12 minutes run and walk	In meters
	Anaerobic Capacity	Margaria Kalamen Power test	Kilogram meter/Seconds
	Breath holding time	Nose clip method	In seconds
	Resting pulse rate	Radial artery method	Number of beats per minutes

Design of the Study

A total two groups were formed by selecting 10 boys. The experimental group was given Plyometric, Ladder and Strength training and the controlled group was kept free from experimental training. Statistics were aggregated by the pre-test before the start of the 12 week combined training programme and the final test after the completion of the training programme.

Statistical Procedure

The following statistical procedures were adopted to find out the Effect of Varied Combination of Strength, Ladder and Plyometric training programme on Selected Physiological Parameters on normal and overweight school boys. The concept of analysis of covariance (ANCOVA) was used to

find out the significant difference among the experimental group and control group after the training programmes. Since the groups were compared whenever the obtained F-ratio for the adjusted post test was found to be significant, the scheffe's test was used as a post hoc test to study the paired mean differences. The level of significance was 0.05 level.

Result of the Study

It is observed from table•1 that the F value of both group; pre test is 0.761, post test mean is 1.625 and adjusted mean is 25.285. The calculated 'F' value of pre test means of all the groups is not significant, calculated 'F' value of post test means of all the groups is significant and calculated 'F' value of adjusted means of all the groups is significant.

Table 1: Means and Analysis of Covariance of Aerobic Capacity Test for Strength Training, Ladder Training, Plyometric Training Group and Controlled group.

Test	Group		Sum Square	Degree of Freedom	Mean Sum of Square	F
	A	B				
Pre-Test Mean	2315.500	2286.500	B	4205.000	1	4205.000
			W	99517.000	18	5528.722
Post-Test Mean	2328.300	2286.700	B	8652.800	1	8652.800
			W	95870.200	18	5326.122
Adjusted mean	2314.110	2300.890	B	838.430	1	838.430
			W	563.696	17	33.159

*Sig. Level at 0.05 F (1, 18) = 4.413 & (1, 17) = 4.451

Table 2: Means and Analysis of Covariance of Anaerobic Capacity Test for Strength Training, Ladder Training, Plyometric Training Group and Controlled group.

Test	Group		Sum Square	Degree of Freedom	Mean Sum of Square	F
	A	B				
Pre-Test Mean	10.600	9.900	B	2.450	1	2.450
			W	37.300	18	2.072
Post-Test Mean	9.800	10.500	B	2.450	1	2.450
			W	30.100	18	1.672
Adjusted mean	9.512	10.788	B	7.641	1	7.641
			W	4.832	17	2.084

*Sig. Level at 0.05 F (1, 18) = 4.413 & (1, 17) = 4.451

It is observed from table•1 that the F value of both groups pre test is 1.182, post test mean is 1.465 and adjusted mean is 26.881. The calculated 'F' value of pre test means of all the

groups is not significant, calculated 'F' value of post test means of all the groups is significant and calculated 'F' value of adjusted means of all the groups is significant.

Table 3: Means and Analysis of Covariance of Breath Holding Time Test for Strength Training, Ladder Training, Plyometric Training Group and Controlled group.

Test	Group		Sum Square	Degree of Freedom	Mean Sum of Square	F
	A	B				
Pre-Test Mean	35.000	33.300	B	14.450	1	14.450
			W	136.100	18	7.561
Post-Test Mean	33.600	32.800	B	3.200	1	3.200
			W	148.1000	18	8.222
Adjusted mean	32.734	33.666	B	3.920	1	3.920
			W	6.854	17	0.403

*Sig. Level at 0.05 F (1, 18) = 4.413 & (1, 17) = 4.451

It is observed from table-3 that the F value of both group; pre test is 1.911, post test mean is 0.389 and adjusted mean is 9.722. The calculated 'F' value of pre test means of all the

groups is not significant, calculated 'F' value of post test means of all the groups is significant and calculated 'F' value of adjusted means of all the groups is significant.

Table 4: Means and Analysis of Covariance of Resting Pulse Rate Test for Strength Training, Ladder Training, Plyometric Training Group and Controlled group.

Test	Group		Sum Square	Degree of Freedom	Mean Sum of Square	F
	A	B				
Pre-Test Mean	66.300	66.100	B	0.200	1	0.200
			W	167.000	18	9.278
Post-Test Mean	64.800	66.700	B	18.50	1	18.050
			W	167.700	18	9.317
Adjusted mean	64.708	66.792	B	21.671	1	21.671
			W	27.710	17	1.630

*Sig. Level at 0.05 F (1, 18) = 4.413 & (1, 17) = 4.451

It is observed from table-4 that the F value of both groups pre test is 0.022, post test mean is 1.937 and adjusted mean is 13.295. The calculated 'F' value of pre test means of all the groups is not significant, calculated 'F' value of post test means of all the groups is significant and calculated 'F' value of adjusted means of all the groups is significant.

Conclusions

The 2 week combined training programme saw a significant improvement on physiological parameters of the selected subjects.

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