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## ISOLATED AND COMBINED EFFECT OF PLYOMETRICS AND PAR COURSE TRAINING ON SELECTED PHYSICAL PHYSIOLOGICAL AND PERFORMANCE VARIABLES AMONG FOOTBALL PLAYERS

Santhosh J.

Assistant professor , Department of physical Education , Nirmala College Muvattupuzha , Kerala.

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### Abstract

*“Training is a programme of exercises designed to improve the skills and increase the energy capacities of an athlete for a particular event”. (Fox, 1984) “Training is a systematic athletic activity of a long duration, progressively and individually graded, aiming at modeling the human physiology and functions to meet the demanding tasks”. (Elango, 2008)*

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**Keywords:** Plyometrics , Physical Physiological and Performance Variables , Football Players.

### INTRODUCTION:

A phenomenal progress in the performance in the different sport disciplines are attributed to several factors. The most important of which include factors, such as better training methods, improved nutrition, better equipments, playfields and a better selection of athletes. Of these factors, training methods and procedures to select sportspersons for sport competitions have been markedly revolutionized. The rapid progress made in the understanding of the mechanism involved in the adaptation of sportspersons to different training procedures has significantly contributed to the development of interval training, continuous training, fartlek training, circuit training, parcourse training, yogic practices, plyometric training and resistance training. Variations in these training methods have been introduced to make them appropriate and to achieve specific performance objectives. Therefore, training methods are generally used according to the degree of the involvement of different elements of fitness in various sports competitions.

Today's sport competitions are very tough at all stages. In fact, it has become a prestige issue for all countries to win medals at an international level. This has resulted in countries not sparing any effort at all to achieve this goal. Multi-millions are being spent on research projects to invent new techniques and technology to attain excellence in sports.

### PLYOMETRIC TRAINING

It is the method of training to enhance the explosive reaction of individual through powerful muscular contractions as a result of rapid contraction.

### PARCOURSE TRAINING

Parcours is a French term and Par course in English mean mid way obstacle of in a course of training. Parcourse is a training technique that combines continuous training with exercise done at stations along the course (Williams, 1984). It involves jogging a short distance from station to station and performing a designed exercise at a station, according to guidance and direction on a board located at that station. It consists of series of stations set up over a 1 to 2.5 mile path and 18 to 24 stations (Padmanbhan,

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K. 2000).

### **STATEMENT OF THE PROBLEM**

The purpose of the study was to find out “the isolated and combined effect of plyometric and par course training on selected physical physiological and performance variables among football players”.

### **HYPOTHESES**

It has been scientifically accepted that any systematic training over a continuous period of time would lead to produce changes on the athletic qualities.

1. There will be significant improvement on the selected dependent variables due to the effects of different training.
2. There will be significant difference among the groups in improving the selected independent variables.

### **DELIMITATION**

**The study will be delimited on the following factors:**

- + 80 school football players from Terbiyth Higher Secondary School, Muvattupuzha, Govt. Higher Secondary School, Puliyalam, Govt Boys Higher Secondary School Aluva and SRV School Ernakulam, Ernakulam(Dist), Kerala (State) will be selected as subject for this study. The age of the subjects will be ranged from 15 – 17 years.
- + Isolated and combined plyometric and par course training were selected as independent variables.
- + Agility, cardiovascular endurance, strength, speed, explosive and power were selected as dependent variables and the same will be measured by the 4 x 10meters shuttle run, 12 minute run or walk test, bent knee sit ups, 50yard dash, and vertical jump tests’.
- + The training period will delimit to four months.

### **LIMITATION**

**The following limitations are not considered while interpreting the results of the study:**

- The previous experience of the subjects in the field of sports and games was not considered.
- Psychological factors, food habits, life style could not be controlled.
- No special motivation could be given for the subject during testing and instruction period.

The weather conditions such as atmospheric temperature, humidity and meteorological factors during testing period were also not considered.

- The subjects will be verbally motivated to increase the motivational level during the period of testing.

### **MEANING AND DEFINITION OF THE TERMS**

#### **AGILITY**

Agility is defined as the ability of the body or parts of the body to change directions rapidly and accurately (Barrow and Gee, 1979).

#### **CARDIOVASCULAR ENDURANCE**

Cardio respiratory endurance is the ability of the lungs to take in and transport adequate amounts of oxygen to the working muscles, which allows activities involving large muscle groups to be sustained for a long period of time (Fox, 1993).

#### **STRENGTH**

Strength is the force exerted by the important muscle group of the body in one maximal contraction (Judith, 1985).

#### **SPEED**

Speed is the capacity of moving a limb or part of the body’s lever system or a whole body with the greatest possible velocity (Robert, 1995).

**EXPLOSIVE POWER**

Explosive power is defined as the ability of the neuro muscular system to overcome resistance with a high speed of contraction (Dick, 1980).

**TRAINING**

Training is usually defined as a systemic process of respective progressive exercise or workout involving the learning process and acclimatization.

**METHODOLOGY****1) Selection of subjects**

The subjects for the present study will be from. Terbiyth Higher Secondary School, Muvattupuzha, Govt Higher Secondary School, Puliyalam , Govt Boys School Aluva and SRV School Ernakulam, Ernakulam(Dist), Kerala (State)The selected 80 football players were studying in the under Higher Secondary will be randomly selected as subjects by lot from three thousand, four hundred and twenty five students. In order to be qualified as a subject, each student was examined by a qualified physician and declared that they will be physically and mentally fit to participate in the training programme.

The age, height and weight of the subjects will be ranged from 15 to 17years, 140 to 180 centimetres and 46 to 70 kilograms. The mean age will be 15 years and 7 months, the average height 152 centimetres and the average weight 48.5 kilograms. The subjects will be randomly assigned equally into four groups, in which group I underwent isolated plyometric training (n= 20), group II underwent isolated par course training (n= 20), group III underwent combination of plyometric and par course training (n= 20) and group IV acted as a control group (n= 20). The subjects in the control group will not be engaged in any training other than the regular curriculum during this training period.

**2) Variables, Tools and Measurements****Motor ability components Variables**

| Sl. No. | Variable        | Test          | Tools                 | Measurements   |
|---------|-----------------|---------------|-----------------------|----------------|
| 1       | Agility         | Shuttle run   | Stopwatch             | In seconds     |
| 2       | Explosive power | Vertical jump | Wall & measuring tape | In centimeters |
| 3       | Speed           | 50 yard run   | Stopwatch             | In seconds     |
| 4       | Strength        | Sit up        | Mat & stopwatch       | In number      |

**Physiological Variables**

| Sl. No. | Variable                  | Test           | Tools                      | Measurements |
|---------|---------------------------|----------------|----------------------------|--------------|
| 1       | Cardio vascular endurance | 12 minutes run | 400 Mts. Track & Stopwatch | In Meters    |

**3) Training Schedule**

The control group was not exposed to any specific training or conditioning. The experimental group I, II and III were subjected for twelve weeks of training on isolated plyometric training, isolated par course training, and combination of plyometric and par course training respectively. Group I underwent isolated plyometric training at 4.30 – 6.00 P.M (Monday Wednesday and Friday) group II underwent isolated par course training at 6.30 – 8.00 A.M, and group III underwent combination plyometric training and par course training in alternate days. The training was given for six days in a week (except Sunday), the training consisting of two phases. The duration of each session in the 1st phase was fifty to fifty-five minutes, while the duration of each session in the 2nd phase was sixty to sixty five minutes every day for duration of four months.

#### 4) Statistical Analysis

The main purpose of the study was to assess the data collected from the four groups. The data collected from the four groups (three experimental groups and one control group) two days before and after the experimental treatment. The pre test data, mid test data after five weeks and post test data after ten weeks of training on agility, cardiovascular endurance, strength, speed, explosive power and flexibility, were examined for significant difference, by applying repeated measures of ANOVA and the analysis of co-variance (ANCOVA).

#### SIGNIFICANCE OF THE STUDY

1. The ultimate goal of the research in physical education will help the coaches and physical educators to train their sports persons based on new concept to improve their performance.
2. This training will be one of the impartment on training regimes to improve performance of athletes.
3. This study will add to the knowledge in the area of sports training and sports pedagogy.



**Santhosh J.**

Assistant professor , Department of physical Education ,  
Nirmala College Muvattupuzha , Kerala.

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