International Journal of Current Science Research
www.drbgrpublications.in

IP Indexing - Impact factor – 3.5
Volume: 3; Issue: 10; October-2017; pp 1410-1416. ISSN: 2454-5422

# Effect of Cardio Respiratory Training and Core Strength Training Among Football Players

Mr. P. Natarajan

Physical Director, DMI-St John the Baptist University, Mangochi, Malawi.

Corresponding author email: marathonsports1989@gmail.com

## Abstract

Every human being wants the physiological activity. Without the physiological activities they cannot lives and flexible level of physiological activity mainly determines the fitness of human being for their life. The purpose of this study is to investigate the effect of cardio respiratory training and core strength training among football players. The present study, 30 male students were selected as samples ranged between 18 to 25 years. The selected subjects were divided in to three equal groups namely group I (Cardio Respiratory Training group n=10), group II (Core Strength Training group n=10) and group III (control n=10). The group I, and group II, Training for three days per week for six weeks, whereas the group III, acted as control who maintained their daily routine activities and no special training was given to them. The following physical variables namely Speed, Arm Power and Cardio Respiratory Endurance were selected as criterion variables. The measured by using 50 Yards Dash, Push-Ups and Cooper's Test is used. The data were analyzed by using statistical tools. The results were tested at 0.05 level of confidence. It was concluded that there was a significant improvement on cardio respiratory endurance due to and core strength training when compared to the control group among college football players.

**Keywords:** Cardio Respiratory Training, Core Strength Training, Speed, Arm Power and Cardio Respiratory Endurance.

## Introduction

### Cardio Respiratory Training

'Cardio' refers to the heart and 'Respiratory' refers to the lungs. The referent is the circulatory system for oxygen that is taken into the blood through the lungs. Cardio-respiratory fitness measurehelps to your body's circulatory and respiratory system how well it is able to transport oxygen to your muscles during prolonged exercise and also of how well your muscles are able to absorb and use the oxygen, once it has been delivered, to generate adenosine triphosphate (ATP) energy via cellular respiration (cellular respiration is a chemical process in your body's cells that converts the energy stored in the food you eat into the ATP form of energy that is recruited for use by your muscles). Essentially, your cardio respiratory fitness level is a measure of the strength of your aerobic energy system. If you haven't already read the Exercise Energy Systems (EES) article you can do so to get a better understanding of what ATP is, what cellular respiration and what the aerobic energy system.

### Core Strength Training

The core region consists of far more than just the abdominal muscles. In fact core strength training aims to target all the muscles groups that stabilize the spine and pelvis. It's these muscle groups that are critical for the transfer of energy from large to small body parts during sports activities. There isn't really a technical definition for core strength training, but I consider it to be a program that includes components of balance, stability, abdominal, lower back work and all the muscles of the trunk. A true core strength training program not only uses your abs but also activates all the muscles stabilizing the spine, hips and pelvis.

### The Objectives of the Study

The main objective of this study is to analyze the effect of cardio respiratory training and core strength training among football players.

## Methodology

The researcher selected, thirty male football players from Ayya Nadar Janaki Ammal College, Sivakasi, Virudhunagar, Tamilnadu, India, were selected as subjects at ranged between18 to 25 years. These subject were divided in to three equal groups namely Cardio Respiratory Training group I (n=10), Core Strength Training group II (n=10) and control group III (n=10). The group

I, Cardio Respiratory Training and group II, Core Strength Training for three days per week for six weeks, whereas the group III, acted as control who maintained their daily routine activities and no special training was given to them. All the subjects involved in this study were carefully monitored throughout the training programme to be away from injuries. The scientific method was used to assess the dependent variable is Speed, Arm Power and Cardio Respiratory Endurance test it was recorded as a pre-test and posttest. The collected data were analyzed by using analysis of covariance to find the significant difference among the experimental and control groups. In all the cases 0.05 levels was fixed as confidence level.

**Table – 1 Difference among the football players based on speed**

| Test | Cardio Respiratory Training Group | Core Strength Training Group | Control Group | Source of Variance | Sum of square | df | Mean Square | 'F' ratio | Table Value |
|---|---|---|---|---|---|---|---|---|---|
| **Pre Test Mean** | 7.64 | 7.54 | 7.73 | Between | 0.19 | 2 | 0.10 | 1.47 | 3.35 |
| | | | | Within | 1.77 | 27 | 0.07 | | |
| **Post Test Mean** | 7.35 | 7.43 | 7.74 | Between | 0.86 | 2 | 0.43 | 4.93* | 3.35 |
| | | | | Within | 2.34 | 27 | 0.09 | | |
| **Adj Post Test Mean** | 7.35 | 7.41 | 7.75 | Between | 0.89 | 2 | 0.44 | 5.00* | 3.37 |
| | | | | Within | 2.31 | 26 | 0.04 | | |

*Significant at 0.05 level of confidence

The table - 1 showed that the pre-test mean values on Speed of cardio respiratory training group, core strength training group and control group are 7.64, 7.54 and 7.73 respectively. The obtained 'F' ratio 1.47 for pre-test mean value was less than the table value 3.35 for df 2 and 27 required for significance at 0.05 level of confidence on speed. The post-test mean values on speed of cardio respiratory training group, core strength training group and control group are 7.35, 7.43 and 7.74 respectively.

The obtained 'F' ratio 4.93 for post-test mean value was greater than the table value 3.35 for df 2 and 27 required for significance at 0.05 level of confidence on speed. The Adjusted post-test

means of cardio respiratory training group, core strength training group and control group are 7.35, 7.41 and 7.75 respectively. The obtained 'F' ratio 5.00 for adjusted post-test mean value was greater than the table value 3.37 for df 2 and 26 required for significance at 0.05 level of confidence on speed.

**Table – 2 Difference among the football players based on Arm Power**

| Test | Cardio Respiratory Training Group | Core Strength Training Group | Control Group | Source of Variance | Sum of square | df | Mean Square | 'F' ratio | Table Value |
|---|---|---|---|---|---|---|---|---|---|
| **Pre Test Mean** | 25.50 | 23.90 | 27.00 | Between | 48.07 | 2 | 24.03 | 1.14 | 3.35 |
| | | | | Within | 571.40 | 27 | 21.16 | | |
| **Post Test Mean** | 30.10 | 31.10 | 25.80 | Between | 158.60 | 2 | 79.30 | 5.42* | 3.35 |
| | | | | Within | 395.40 | 27 | 14.64 | | |
| **Adj Post Test Mean** | 30.08 | 31.93 | 24.99 | Between | 239.66 | 2 | 119.83 | 13.19* | 3.37 |
| | | | | Within | 236.21 | 26 | 9.09 | | |

*Significant at 0.05 level of confidence

The table- 2 showed that the pre-test mean values on arm power of cardio respiratory training group, core strength training group and control group are 25.50, 23.90 and 27.00 respectively. The obtained 'F' ratio 1.14 for pre-test mean value was less than the table value 3.35 for df 2 and 27 required for significance at 0.05 level of confidence on arm power. The post-test mean values on arm power of cardio respiratory training group, core strength training group and control group are 30.10, 31.10 and 25.80 respectively.

The obtained 'F' ratio 5.42 for post-test mean value was greater than the table value 3.35 for df 2 and 27 required for significance at 0.05 level of confidence on arm power. The Adjusted post-test means of cardio respiratory training group, core strength training group and control group are 30.08, 31.93 and 24.99 respectively. The obtained 'F' ratio 13.19 for adjusted post-test mean value was greater than the table value 3.37 for df 2 and 26 required for significance at 0.05 level of confidence on arm power.

**Table – 3 Difference among the football players based on Cardio Respiratory Endurance**

| Test | Cardio Respiratory Training Group | Core Strength Training Group | Control Group | Source of Variance | Sum of square | df | Mean Square | 'F' ratio |
|---|---|---|---|---|---|---|---|---|
| **Pre Test Mean** | 2207.50 | 2212.00 | 2172.00 | Between | 9601.67 | 2 | 4800.83 | 0.41 |
| | | | | Within | 319782.50 | 27 | 11843.80 | |
| **Post Test Mean** | 2261.50 | 2274.00 | 2152.00 | Between | 90101.67 | 2 | 45050.83 | 4.32* |
| | | | | Within | 281902.50 | 27 | 10440.83 | |
| **Adj Post Test Mean** | 2254.00 | 2264.00 | 2169.00 | Between | 52842.18 | 2 | 26421.09 | 5.17* |
| | | | | Within | 132958.17 | 26 | 5113.78 | |

*Significant at 0.05 level of confidence

The table- 3 showed that the pre-test mean values on cardio respiratory endurance of cardio respiratory training group, core strength training group and control group are 2207.50, 2212.00 and 2172.00 respectively. The obtained 'F' ratio 0.41 for pre-test mean value was less than the table value 3.35 for df 2 and 27 required for significance at 0.05 level of confidence on cardio respiratory endurance. The post-test mean values on cardio respiratory endurance of cardio respiratory training group, core strength training group and control group are 2261.50, 2274.00 and 2152.00 respectively.

The obtained 'F' ratio 4.32 for post-test mean value was greater than the table value 3.35 for df 2 and 27 required for significance at 0.05 level of confidence on cardio respiratory endurance. The Adjusted post-test means of cardio respiratory training group, core strength training group and control group are 2254.00, 2264.00 and 2169.00 respectively. The obtained 'F' ratio 5.17 for adjusted post-test mean value was greater than the table value 3.37 for df 2 and 26 required for significance at 0.05 level of confidence on cardio respiratory endurance.

## Conclusions

Based on the research findings the following conclusions were drawn: The Cardio respiratory training and core strength training group has achieved significant positive improvement on physical variables when compared to the control group.The control group had not shown significant changes in any of the selected variables.The cardio respiratory training and core strength training group has achieved significant positive improvement among football players.

## Reference

Davis, B. *et al* "Training for physical fitness". *Physical Education and Study of Sport.* Spain: Harcourt Publishers. (2000): 121-122.

Hardayal Singh "Science of Sports Training", New Delhi: D.V.S. Publications, (1991): 2-3.

Johnson, B.L. and Nelson, J.K "Practical Measurement and Evaluation in Physical Education". Surjeet Publications, New Delhi. (1988): 28.

Marguerite Ogle Health's Disease and Condition content is reviewed by the Medical Review Board Updated March 03, (2011): 27.

Mikkola J, Rusko H, Izquierdo M, Gorostiaga EM, Häkkinen K "Cardiovascular adaptations during concurrent strength and endurance training in untrained men". 33(9) (2012): 702-10.

Patrick Dale Health's Disease and Condition content is reviewed by the Medical Review Board Updated May 9, (2010): 41.

Schilling JF, Murphy JC, Bonney JR, Thich JL "Effect of core strength and endurance training on performance in college students: Randomized pilot study". 17(3) (2013): 278-90.

Sato K, Mokha M "Does core strength training influence running kinetics, lower- extremity stability and 5000-M performance in runners." *Journal of Sports Medicine*. 24(4) (2009): 936-41.

Sekendiz B, Cuğ M, Korkusuz F "Effects of Swiss-ball core strength training on strength, endurance, flexibility, and balance in sedentary women." *Journal of Strength and Conditioning Research*. 24(11) (2010): 3032-40.

Willardson JM Core stability training: Applications to sports conditioning programs; 21(3) (2007): 979-85.

Willardson JM, Fontana FE, Bressel E "Effect of surface stability on core muscle activity for dynamic resistance exercises." *International Journal of Sports Physiology and Performance*. 4(1) (2009): 97-109.