EFFECT OF PLYOMETRIC TRAINING ON SELECTED PHYSICAL VARIABLES AMONG MEN FOOTBALL PLAYERS

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Introduction

Ramirez-Campillo (2019) stated that football is a sport that demands a combination of cardiovascular endurance and explosive power from its players. In pursuit of enhancing the athletic performance of men football players, this study investigates the effects of plyometric training on selected physical variables. Plyometric training, characterized by rapid muscle contraction and stretching, has gained recognition as a training modality capable of improving various aspects of physical fitness. The focus of this research is on two critical variables: Cardio-Respiratory Endurance and Explosive Power. These variables play pivotal roles in a football player's ability to sustain prolonged periods of activity and execute explosive actions such as sprinting, jumping, and tackling. Understanding the impact of plyometric training on these variables among men football players is crucial for coaches, trainers, and players themselves in optimizing training protocols for improved on-field performance.

Plyometric Training

Plyometrics, also known as jump training are exercises in which muscles exert maximum force in short intervals of time, with the goal of increasing speed-strength. This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" manner, such as in specialized repeated jumping. Plyometrics are primarily used by athletes, especially martial artists, sprinters and high jumpers to improve performance, and are used in the fitness field to a much lesser degree. Sebastian, M. M. D. P. (2018)

Research Gap

Despite the wealth of research on plyometric training in various athletic contexts, there remains a noticeable research gap concerning its specific effects on men football players. According by Ramirez-Campillo (2016) plyometric training has demonstrated efficacy in enhancing cardiovascular and muscular parameters in different sports, its application and outcomes within the unique demands of football are not extensively explored. The gap
in existing literature prompts the need for a focused investigation into the effects of plyometric training on Cardio-Respiratory Endurance and Explosive Power among men football players. Additionally, considering the age range of 19 to 24 years in this study, it addresses a crucial developmental phase where players are refining their physical attributes. By identifying and filling this research gap, the study aims to contribute valuable insights to the field of sports science and provide practical implications for the training regimens tailored to men football players.

Hypothesis

There was a significant improvement on selected dependent variable such as Cardi Reservoirry Force and Explosive Power on effect of plyometric training on selected physical variables among men football players

Sample & Method

The purpose of this study was to effect of plyometric training on selected physical variables among men football players. To achieve the purpose of the study taken(N=30) men football players from Vadakudi football club and Veylangudi football club Karaikudi. The selection of Variables is Cardio-Respiratory Endurance and Explosive Power. The subject's age ranged from 19 to 24 years. The selected subject was divided into two Equal groups each group fifteen (N=15) subject Group-I Plyometric Training Group and Group -II Control Group. The PlyometricTraining Group was treated with their respective training for one and a half hours per dayweekly three days for eight weeks.

Table -I
Selection of Variables and Criterion Measures

<table>
<thead>
<tr>
<th>SL.No</th>
<th>CriterionVariables</th>
<th>TestItems</th>
<th>UnitsofMeasurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cardio-Respiratory Endurance</td>
<td>12Minutes Run</td>
<td>InMeters</td>
</tr>
<tr>
<td>2.</td>
<td>Explosive Power</td>
<td>StandingBroad Jump</td>
<td>InMeters</td>
</tr>
</tbody>
</table>

Statistical Analysis

All the subjects were tested on selected criterion variables. The data about the variables wereexamined by using paired sample't' test cell mean differences. The level of significance was fixedat a0.05 level of confidenceforall the cases.

Table -II
TheSummaryofMeanandPaired Sample'T'TestsforthePreandPost-Test on Cardio Reservoirry Endurance of Plyometric Trainingand Control Groups

<table>
<thead>
<tr>
<th>SL.No</th>
<th>Groups</th>
<th>PreTestMean</th>
<th>PostTestMean</th>
<th>t’ratio</th>
<th>TableValue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>PlyometricTrainingGroup</td>
<td>2890.00</td>
<td>3203.33</td>
<td>10.35*</td>
<td>2.15</td>
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<tr>
<td>2.</td>
<td>ControlGroup</td>
<td>3020.00</td>
<td>3000.00</td>
<td>0.56</td>
<td>2.15</td>
</tr>
</tbody>
</table>
*Significant at 0.05 level

Table - II shows that the obtained dependent 't' ratio values between the pre and post-test mean plyometric training group and control groups are 10.35* and 0.56 respectively. The table value required for significant differences with df 14 at 0.05 level is 2.15. Since the obtained 't' ratio value of experimental groups is greater than the table value, it is understood that the plyometric training group had significantly improved the cardiorespiratory endurance performance.

Pre and Post-Test on Cardio-respiratory Endurance on Plyometric Training and Control Groups

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Groups</th>
<th>PreTest Mean</th>
<th>PostTest Mean</th>
<th>'t' ratio</th>
<th>Table Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Strength Endurance Training Group</td>
<td>1.65</td>
<td>1.74</td>
<td>7.16*</td>
<td>2.15</td>
</tr>
<tr>
<td>2.</td>
<td>Control Group</td>
<td>1.67</td>
<td>1.66</td>
<td>1.94</td>
<td>2.15</td>
</tr>
</tbody>
</table>

*Significant at 0.05 level.

Table - III shows that the obtained dependent 't' ratio values between the pre and post-test mean plyometric training group and control groups are 7.16* and 1.94 respectively. The table value required for significant differences with df 14 at 0.05 level is 2.15. Since the obtained 't' ratio value of experimental groups is greater than the table value, it is understood that the plyometric training group had significantly improved the explosive power performance.
Discussion:

The findings of this study reveal a significant improvement in the selected physical variables, namely Cardio-Respiratory Endurance and Explosive Power, among men football players subjected to plyometric training. The study focused on players from Vadakudi and Veylangudi football clubs in Karaikudi, with participants aged between 19 to 24 years. The intervention consisted of one and a half hours of plyometric training per day, three days a week, over an eight-week period.

Cardio-Respiratory Endurance is a critical aspect of football performance, influencing players' ability to sustain aerobic activities throughout the match. The significant improvement observed in this variable suggests that plyometric training positively impacts the players' cardiovascular and respiratory systems. Plyometric exercises, which involve rapid stretching and contracting of muscles also, likely contributed to enhanced cardiovascular efficiency and endurance, enabling players to meet the demands of the sport more effectively.

Explosive Power is another crucial component for football players, influencing actions such as sprinting, jumping, and tackling. The study's findings indicate a noteworthy enhancement in Explosive Power among the group subjected to plyometric training. This improvement is consistent with the nature of plyometric exercises, which are designed to enhance the muscles' ability to generate maximal force in minimal time. Such improvements in explosive power can have direct implications for the players' agility, speed, and overall performance on the field.

The significance of these findings lies in the practical application for coaches and trainers working with football players. Incorporating plyometric training into the regular
training regimen can be a valuable strategy for enhancing both Cardio-Respiratory Endurance and Explosive Power, contributing to overall improved athletic performance.

**Conclusion**

In conclusion, the present study provides evidence supporting the positive effects of plyometric training on selected physical variables among men football players. The improvements observed in Cardio-Respiratory Endurance and Explosive Power over the eight-week intervention period signify the potential benefits of incorporating plyometric exercises into the training routines of football players. Coaches and trainers should consider implementing plyometric training as a targeted and effective means of enhancing the cardiovascular and muscular aspects crucial for football performance. The findings of this study contribute to the growing body of literature supporting the efficacy of plyometric training in optimizing physical performance in football, emphasizing the importance of a well-structured training program for athletic development.

**References**


