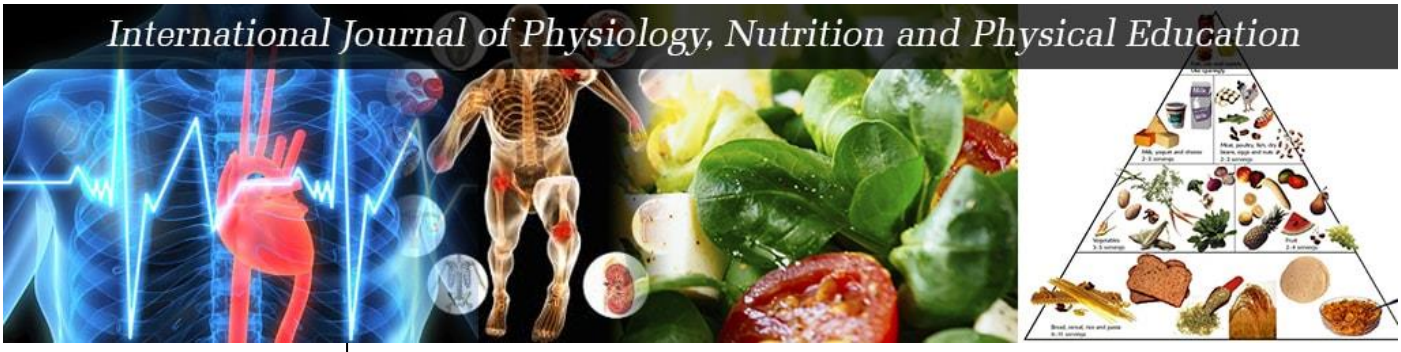
International Journal of Physiology, Nutrition and Physical Education 2022; 7(1): 142-145



ISSN: 2456-0057
IJPNPE 2022; 7(1): 142-145
© 2022 IJPNPE
www.journalofsports.com
Received: 10-11-2021
Accepted: 13-12-2021

Dr. S Kamalakannan
Director of Physical Education, Kumaraguru College of Liberal Arts and Science, Coimbatore, Tamil Nadu, India

M Nirmaladevi
Physical Directress, Kumaraguru College of Technology Coimbatore, Tamil Nadu, India

Corresponding Author:
Dr. S Kamalakannan
Director of Physical Education, Kumaraguru College of Liberal Arts and Science, Coimbatore, Tamil Nadu, India

Comparative effect of plyometric training with weight training on selected skill related fitness variables among college level women cricket players

Dr. S Kamalakannan and M Nirmaladevi

Abstract
To evaluate the real facts of the Research Problem, the Researcher made an effort to examine the comparative effect of plyometric and weight training on selected skill related fitness variables among women college level cricket players. To achieve the purpose of the study 30 Subjects were from Dr. Mahalingam College of Engineering and Technology (MCET) and Kumaraguru college of Technology (KCT) Coimbatore. Their age ranged from 19 to 23 years. The subjects were assigned in equal two groups. Group No-I from KCT (n=15) named as Plyometric training with Weight Training Group (PWWG) underwent the respective training as it was named and Group No–II (n=15) from MCET acted as control group (CG). The plyometric training with weight training was given to the PWWG for the periods of 12 weeks. The CG was not given any sort of training except their routine Physical activities. The following Skill related fitness variables Reaction Time, Balance and Power were chosen for the study which was measured with standard test items. Pre and post test was conducted on one day one test system with warm-up and warm-down. The reaction time was assessed by nelson hand reaction time test with unit of measurements in seconds balance was assessed by stock balance test with unit of measurements in seconds and power assessed by standing broad jump with unit of measurement in meters. The data collected from the subjects were statistically analyzed using 't' test to find out whether significant mean difference existed at 0.05 level of confidence. This study may help trainers to assess the applicability of plyometric training with weight training to improve skill related physical fitness, one of the most important factors determining the cricket players. Further, the findings confirmed the plyometric training with weight training is suitable protocol to bring out the desirable changes over skill related physical fitness variables of Subjects.

Keywords: plyometric training with weight training, cricket players, reaction time, balance and power

Introduction

Plyometrics Training

Plyometric, or "ploys" for short, are a type of exercising designed to produce fast and powerful movements. They are commonly used by way of athletes to enhance overall performance in sports, in particular those that entails speed, quickness and power. In addition, it is possible to find plyometrics used in the fitness field, however to a whole lot lesser degree. Thus, plyometric workout routines use explosive, fast-acting movements to strengthen muscular power and improve basic speed. In different words, it is the workout that approves muscular to exert most pressure the shortest quantity of time possible. The term "plyometrics" was once coined through Fred wilt after looking at Soviet athletes preparing for their tournament in track and field. He felt this was a key to their success. It is a terrible time period to describe what happens but it has since been regularly occurring and is now nicely established. When wilt learned of the work being executed by way of Michael Yessis on soviet (Russia) training methods, they shortly collaborated to help disseminate information on plyometrics. In the authentic model of plyometrics created via Yuri Verkhoshansky of the former Soviet Union, it was described as the shock method. In this, athlete would drop down from a height and experience a "shock" upon landing. This in flip would bring about a forced, spontaneous eccentric contraction which was once then directly switched to a concentric contraction as the athlete jumped upward.

The landing and takeoff were achieved in an extremely brief duration of time, in the range of 0.1-0.2 seconds. This approach is the nice approach used by using the athletes to improve their speed, quickness and power after improvement of a strong strength base (Chauhan, 2013). Plyometric is one of the primary equipment for growing the speed. It is not surprising that training workout routines such as plyometrics, which are performed with high motion speeds, would enhance the overall performance of things to do requiring speed, such as jumping, running, and agility. The technical time period for this thinking is "specificity." In different words, training that is "specific" or similar to the recreation to be performed is believed to be optimal. As a result, leisure athletes, as nicely as these who want to increase their ordinary health and add range to their training, frequently include plyometric training into their packages (Ebben, 2013). Plyometric exercising refers to those things to do that enable a muscle to attain maximal force in the shortest possible time. "Plyometrics" is aggregate of Greek phrases that literally ability to expand size (plio = more; metric = measure). Practically defined, plyometrics exercising is a quick, powerful movement the use of a pre-stretch, or countermovement, that entails the stretch-shortening cycle (SSC). The reason of plyometrics workout is to expand the energy of subsequent moves by the use of both the natural elastic components of muscle and tendon and the stretch reflex. To efficiently use plyometrics as section of a training program, it is essential to understand: (1) The mechanics and physiology of plyometrics exercise, (2) Principles of plyometrics program design, and (3) Methods of safely and effectively performing specific plyometrics workouts (Baechle et al., 2000).

Weight Training

The use of weight Training (WT) via children and young people has attracted multiple pastimes simply to enhance fitness and performance related health components. The National Strength and Conditioning Association (NSCA) defines RT as a specialized form of conditioning involving the innovative use of a extensive way of resistive loads and a range of training modalities designed to enhance health, fitness, and sports activities performance (Faigenbaum, 2009). Weight training program is one of the fine decisions to make for your health, well-being, physical, and mental performance. Weight training on an everyday foundation improves your strength, endurance, confidence, appearance, health, longevity, and pleasant of daily living. Consistent weight training helps limit your stress, control your weight, support your bones, decrease your chance of injury, and, gives you an aggressive aspect in all components of life (Narasimham, 2009). Weight training will help to attain that healthy look to which most of us aspire. One can develop association muscles, which cannot be got by using dieting or from other forms of exercise. And because female players have low levels of male hormones, they are not in all likelihood to get massive or bulky muscles. Rather, one will tend to lose weight and inches, get a greater defined body and increase strength. But weight training will not do it all. For a fit, described body one must pay attention to what he eats and burns up plenty of calories in endurance exercise. A mixture of weight training, staying power exercise and ideal weight loss plan will improve health stage and tone the physique (Fahey and Hutchinson, 1992).

Methodology

Experimental Approach to the Problem

In order to address the hypothesis presented herein, we selected 30 cricket players from SIVET College Gowriwakkam, Sembakkam, Chennai. Their age ranged from 18 to 23 years. The subjects were randomly assigned in to two equal groups namely, plyometric training with weight training Group *(PWWG)* (n=15) and Control group (CG) (n=15). The respective training was given to the experimental group the 6 days of the weeks for the training period of eight weeks. The control group was not given any sort of training except their routine.

Design

The evaluated performance reaction time was assessed by nelson hand reaction time test with unit of measurements in seconds balance was assessed by stock balance test with unit of measurements in seconds and power assessed by standing broad jump with unit of measurement in meters. The parameters were measured at baseline and after 12 weeks of complex training were examined. The intensity was increased once in two weeks based on the variation of the exercises.

Training Programme

The training programme was lasted for 60 minutes' session in a day, 6 days in a week for a period of 12 weeks' duration. These 60 minutes included warm up for 10 minutes, 20 minutes plyometric training, 20 minutes weight training and 10 minutes warm down. The equivalent in plyometric training with weight training is the length of the time each action in total 6 days per weeks.

Table 1 Computation of 't' ratio on reaction time on experimental group and control group (Scores in Numbers)

Groups	Pre test	Post test	Numbers	SD	"T" Ratio
Experimental Group	0.20	0.22	15	0.12	7.79*
Control group	0.19	0.17	15	0.10	1.63

*significant level 0.05 level (degree of freedom 2.14, 1 and 14)

Table 1 reveals the computation of mean, standard deviation and 't' ratio on selected variable are reaction time of experimental group. The obtained 't' ratio on reaction time were 7.79 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

Further the computation of mean, standard deviation and 't' ratio on selected variable for reaction time of control group. The obtained 't' ratio on reaction time were 1.63 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.

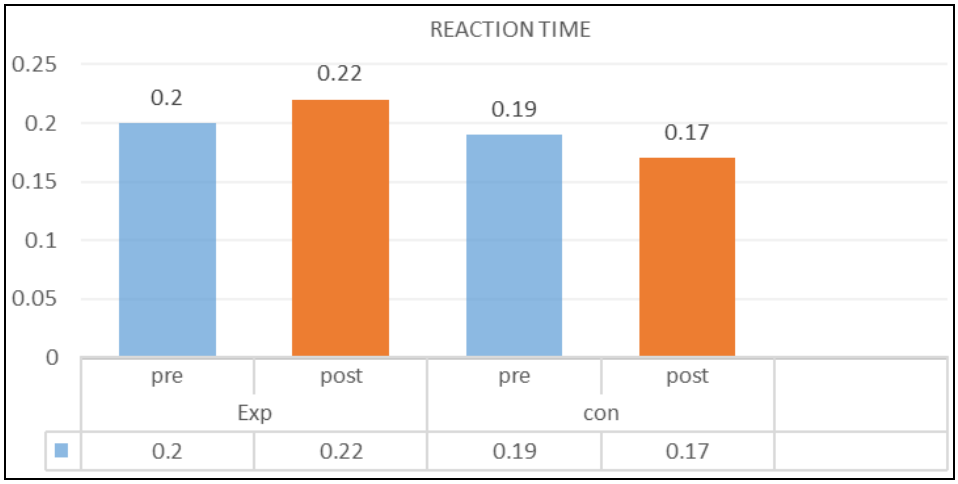


Fig 1: Bar diagram showing the mean value on reaction time of cricket players on experimental and control group

Table 2: Computation of 't' ratio on balance on experimental group and control group(Scores in Numbers)

Groups	Pre test	Post test	Numbers	S.D	"T" Ratio
Experimental Group	22.80	25.73	15	2.00	8.19*
Control group	17.60	17.40	15	1.68	0.37

*significant level 0.05 level (degree of freedom 2.14, 1 and 14)

Table 1 reveals the computation of mean, standard deviation and 't' ratio on selected variable for balance of experimental group. The obtained 't' ratio on balance were 8.19 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

Further the computation of mean, standard deviation and 't' ratio on selected variable for balance of control group. The obtained 't' ratio on balance were 0.37 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.

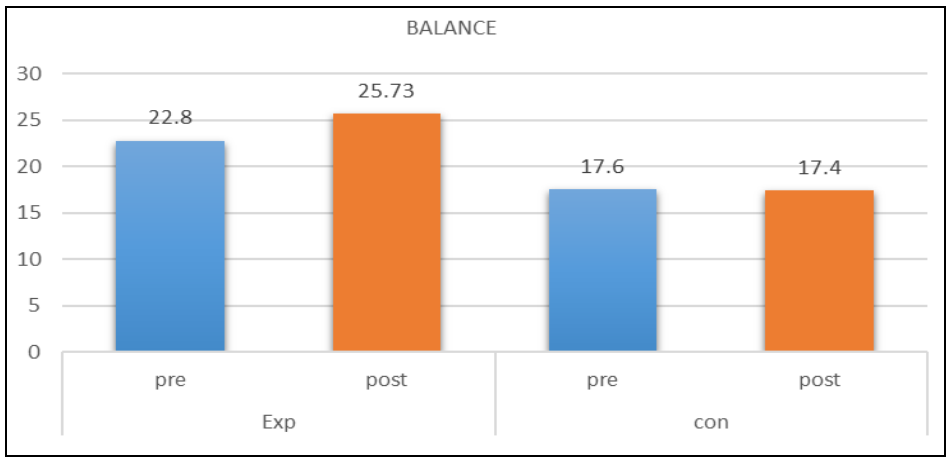


Fig 2: Bar diagram showing the mean value on balance of cricket players on experimental and control group

Table 3: Computation of 't' ratio on power on experimental group and control group (Scores in Numbers)

Groups	Pre test	Post test	Numbers	S.D	"T" Ratio
Experimental Group	1.99	2.18	15	0.08	9.18*
Control group	1.57	1.49	15	0.49	1.62

*significant level 0.05 level (degree of freedom 2.14, 1 and 14)

Table 1 reveals the computation of mean, standard deviation and 't' ratio on selected variables power of experimental group. The obtained 't' ratio on power were 9.18 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

Further the computation of mean, standard deviation and 't' ratio on selected variables parameters namely power of control group. The obtained 't' ratio on leg muscle power were 1.62 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.

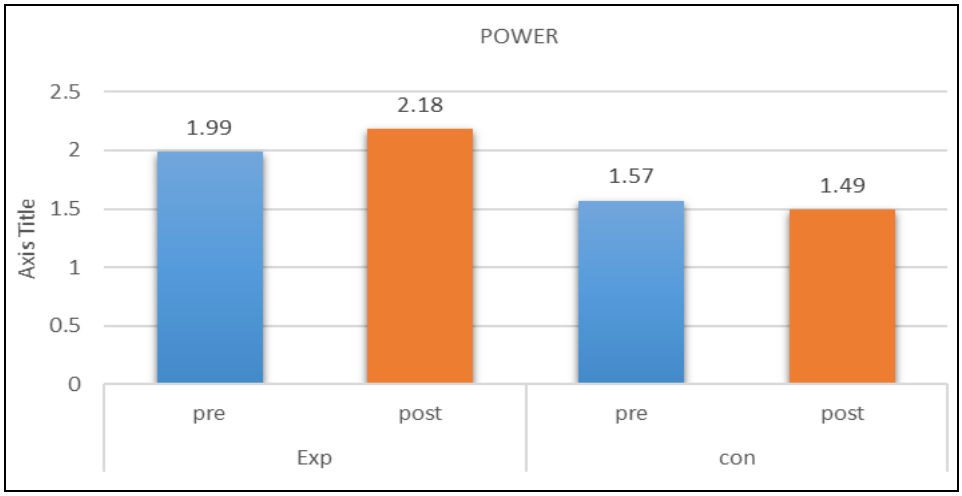


Fig 3: Bar diagram showing the mean value on power of cricket players on experimental and control group

Discussion and Findings

The present study experimented the influence of twelve week's plyometric training with weight training on the skill related fitness variables among college level Women cricket players. Plyometric plays a vital role in building the elastic qualities which gives the maximum explosive power in muscle groups to avoiding injuries in sudden action of running, jumping and throwing from distance movements during the match, plyometric with weight training program which gives the adequate strength to execute the performance the particular cricketing skill in a maximum efficient manner. The results of this study indicated that plyometric training with weight training is more efficient to bring out desirable changes over the variables of college women cricket players. Rathore, V. *et al*., (2016) [3]. Impact of plyometric training and weight training on vertical jumping ability. Turkish Journal of Sport and Exercise, 18(1), 31-37. Fukunaga, T. *et al.* (2007). Effects of plyometric and weight training on muscle-tendon complex and jump performance. Medicine and science in sports and exercise, 39(10), 1801. Rahimi, R., &. *et al.*, (2005) The effects of plyometric, weight and plyometric-weight training on anaerobic power and muscular strength. Facta universitatis-series: Physical Education and Sport, 3(1), 81-91. 1. Fusel, C. *et al.*, (1983). Effects of three combinations of plyometric and weight training programs on selected physical fitness test items. Perceptual and Motor Skills, 56(3), 919-922.

Conclusions

Within the limitation and on the basis of the findings, it was very clear that twelve weeks of plyometric training with weight training (PWWT) produced significantly changes in the reaction time of college level women cricket players. It was clear shown that twelve of plyometric training with weight training (PWWT) produced significant changes in the balance of women college level cricket players. It was clear find that twelve of plyometric training with weight training (PWWT) produced significant changes in the power of college level women cricket players. Hence, the study was concluded that for the selected variables of skill related fitness components such as reaction time, balance and power was significantly improvement on twelve weeks of plyometric training with weight training among college level cricket players.

References

1. Ford Jr HT, Puckett JR, Drummond JP, Sawyer K, Gantt K, Fussell C. Effects of three combinations of plyometric and weight training programs on selected physical fitness test items. Perceptual and Motor Skills. 1983;56(3):919-922.
2. Umaran U, Zaky M, Imanudin I, Subarjah H. Impact of Complex Training on Reaction of Time and Leg Power of Volleyball Athletes. In 4th International Conference on Sport Science, Health, and Physical Education (ICSSHPE 2019) Atlantis Press, 2020, February, 365-368.
3. Thakur J, Mishra M, Rathore V. Impact of plyometric training and weight training on vertical jumping ability. Turkish Journal of Sport and Exercise. 2016;18(1):31-37.
4. Dayalu D. A comparative study of anthropometric measurement and motor fitness component among cricket badminton and volley ball of university players, 2017.
5. Bashir B, Suleh Hayyat F, Shafi S. The effect of 8 weeks of plyometric and resistance training on agility, Speed and explosive power in cricket players.
6. Elumalai S. Impact of upper body plyometric training with and without skill movement training on Cricket ball throwing ability.
7. Anbukumaran V, Jeyaveerapandian V. Comparative effect of plyometric training yogic exercises and game specific training on selected psycho-motor variables among college men volleyball players, 2019.
8. Mohanta N, Kalra S, Pawaria S. A Comparative Study of Circuit Training and Plyometric Training on Strength, Speed and Agility in State Level Lawn Tennis Players. Journal of Clinical & Diagnostic Research, 2019, 13(12).
9. McNellie T. The effects of a six week plyometric training programme on the agility of male cricketers, 2013.
10. Brown AC, Wells TJ, Schade ML, Smith DL, Fehling PC. Effects of plyometric training versus traditional weight training on strength, power, and aesthetic jumping ability in female collegiate dancers. Journal of dance medicine & science. 2007;11(2):38-44.
11. Kubo K, Morimoto M, Komuro T, Yata H, Tsunoda N, Kanehisa *et al*. Effects of plyometric and weight training on muscle-tendon complex and jump performance. Medicine and science in sports and exercise. 2007;39(10):1801.