ISSN: 2349 - 4891

International
Journal of Recent Research and Applied Studies
(Multidisciplinary Open Access Refereed e-Journal)

Isolated and Combined Effect of Parcourse and Swissball Training on Selected Motor Fitness Variables among Football Players of Periyar University Affiliated Colleges

A. Eswara Moorthy[1] & Dr. K. Angamuthu[2]

[1]*Ph.D., Research Scholar, Dept. of Physical Education, Tamilnadu Physical Education and Sports University, Chennai, Tamilnadu.*
[2]*Director of Physical Education, Periyar University, Salem, Tamilnadu, India.*

Received 8th August 2016, Accepted 1st September 2016

Abstract

The purpose of the study was to find out the isolated and combined effect of parcourse and swissball training on selected motor fitness variables among football players of Periyar University affiliated colleges. To achieve the purpose of the present study, eighty football players from affiliated colleges of Periyar University, Salem, Tamilnadu, India were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into four equal groups of twenty each. Group I acted as Experimental Group I (Parcourse Training), Group II acted as Experimental Group II (Swissball Training), Group III acted as Experimental Group III (Combined Parcourse & Swissball Training) Group IV acted as Control Group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. The study was formulated as a true random group design, consisting of a pre-test and post-test. Pre test was conducted for all the subjects on selected motor fitness variables. This initial test scores formed as pre test scores of the subjects. Experimental Group I was exposed to parcourse training, Experimental Group II was exposed to swissball training, Experimental Group III was exposed to combined parcourse & swissball training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. After the experimental treatment, all eighty subjects were tested on their motor fitness variables. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant; Scheffe's post hoc test was used. In all cases 0.05 level of confidence was fixed to test hypotheses.

Keywords: Parcourse, Swissball, Motor Fitness.

Introduction

The original parcourse was invented in 1968 by Swiss Architect Erwin Weckemann with support from Swiss life insurance firm Vita. The first course was built in Zurich, Switzerland. Hundreds of courses were built in Europe in 1972. Each station is accompanied by a written description showing how to perform the exercise, together with figures showing the exercise from begin to end. Some stations might feature a simple freestanding calisthentic or stretching movement while others might feature a specific exercise on the timber form apparatus. The exercises are easily adaptable for all ages and can be modified to accommodate individual fitness levels and physical limitations (James, 1988). The plastic ball used by ball exercises was developed in the '60s by an Italian petrochemical manufacturer named Aquilino Cosani. Although he did not design the ball for use in the fitness industry he nonetheless was the first to pioneer their production and their use. A Swiss doctor by the name of Susan Klein-Vogelbach is responsible for promoting the use of these plastic balls in the field of orthopedic medicine at the physical therapy clinic she founded. The origin of the "swiss ball" appellation is found in that ball exercises were first observed in Switzerland and not in Italy. This explains talk about why they are not commonly known as Italian balls.

Association football, commonly known as football or soccer, is a team sport played between two teams of 11 players. It is the most popular sport in the world. Football is a ball game played on a rectangular grass or artificial turf field, with a goal at each of the short ends. The object of the game is to score by maneuvering the ball into the opposing goal. In general play, the goalkeeper is the only player allowed to use their hands or arms to propel the ball; the rest of the team usually use their feet to kick the ball into position, occasionally using their torso or head to intercept a ball in mid air. The team scores the most goals by the end of the match wins. If the score is tied at the end of the

Correspondence
A.Eswaramoorthy
E-mail: ragumoorthi83@gmail.com, Ph. +9190034 76330

game, either a draw is declared or the game goes into extra time and/or a penalty shootout, depending on the format of the competition (Reilly, 1996).

Methodology

The purpose of the study was to find out the isolated and combined effect of parcourse and swissball training on selected motor fitness variables among football players of Periyar University affiliated colleges. To achieve the purpose of the present study, eighty football players from affiliated colleges of Periyar University, Salem, Tamilnadu, India were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into four equal groups of twenty each. Group I acted as Experimental Group I (Parcourse Training), Group II acted as Experimental Group II (Swissball Training), Group III acted as Experimental Group III (Combined Parcourse & Swissball Training) Group IV acted as Control Group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study. The study was formulated as a true random group design, consisting of a pre-test and post-test. Pre test was conducted for all the subjects on selected motor fitness variables. This initial test scores formed as pre test scores of the subjects. Experimental Group I was exposed to parcourse training, Experimental Group II was exposed to swissball training, Experimental Group III was exposed to combined parcourse & swissball training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. After the experimental treatment, all eighty subjects were tested on their motor fitness variables. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant; Scheffe's post hoc test was used. In all cases 0.05 level of confidence was fixed to test hypotheses.

Results

Table I. Computation of analysis of covariance of parcourse training swissball training combined parcourse & swissball training and control groups on muscular endurance

	PTG	SBTG	CPSBTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	34.10	34.40	34.85	34.15	**BG**	7.05	3	2.35	0.99
					WG	179.70	76	2.36	
Post-Test Means	41.25	40.80	46.35	34.85	**BG**	1328.13	3	442.71	295.01*
					WG	114.05	76	1.50	
Adjusted Post-Test Means	41.21	40.80	46.42	34.81	**BG**	1318.29	3	439.43	299.14*
					WG	110.17	75	1.46	

An examination of table - I indicated that the pre test means of parcourse training, swissball training, combined parcourse & swissball training and control groups were 34.10, 34.40, 34.85 and 34.15 respectively. The obtained F-ratio for the pre-test was 0.99 and the table F-ratio was 2.72. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 76. This proved that there were no significant difference between the experimental and control groups indicating, that the process of randomization of the groups was perfect while assigning the subjects to groups. The post-test means of the parcourse training, swissball training, combined parcourse & swissball training and control groups were 41.25, 40.80, 46.35 and 34.85 respectively. The obtained F-ratio for the post-test was 295.01 and the table F-ratio was 2.72. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 76. This proved that the differences between the post-test means of the subjects were significant. The adjusted post-test means of the parcourse training, swissball training, combined parcourse & swissball training and control groups were 41.21, 40.80, 46.42 and 34.81 respectively. The obtained F-ratio for the adjusted post-test means was 299.14 and the table F-ratio was 2.72. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 75. This proved that there was a significant difference among the means due to the experimental trainings on muscular endurance. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-II.

Table II. The scheffe's test for the differences between the adjusted post-test means on muscular endurance

Adjusted Post-Test Means				Mean Difference	Confidence Interval
PTG	SBTG	CPSBTG	CG		
41.21	40.80	---	---	0.41	1.09
41.21	---	46.42	---	5.21*	
41.21	---	---	34.81	6.40*	
---	40.80	46.42	---	5.62*	
---	40.80	---	34.81	5.99*	
---	---	46.42	34.81	11.61*	

**** Significant at 0.05 level of confidence***

The multiple comparisons showed in Table II proved that there existed significant differences between the adjusted means of parcourse training and parcourse & swissball training (5.21), parcourse training with control group (6.40), swissball training with combined parcourse & swissball training (5.62), swissball training with control group (5.99) and combined parcourse & swissball training and control group (11.61). There was no significant difference between parcourse training and swissball training group (0.41) at 0.05 level of confidence with the confidence interval value of 1.09. The pre, post and adjusted means on muscular endurance were presented through bar diagram for better understanding of the results of this study in Figure-I.

Figure I. Pre post and adjusted post-test differences of the, parcourse training swissball training combined parcourse & swissball training and control groups on muscular endurance

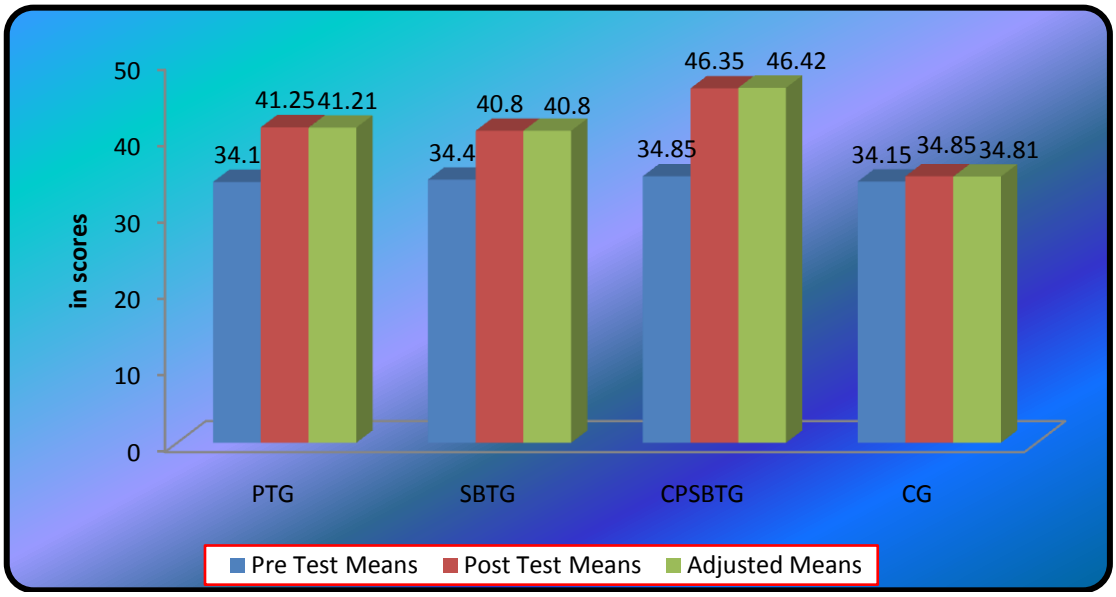


Table III. Computation of analysis of covariance of parcourse training swissball training combined parcourse & swissball training and control groups on balance

	PTG	SBTG	CPSBTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	33.83	32.81	33.85	32.91	**BG**	19.41	3	6.47	1.22
					WG	402.08	76	5.29	
Post-Test Means	39.18	38.94	48.11	33.17	**BG**	2282.22	3	760.74	228.65*
					WG	252.85	76	3.32	
Adjusted Post-Test Means	39.19	38.93	48.12	33.15	**BG**	2238.88	3	746.29	221.58*
					WG	252.60	75	3.36	

An examination of table - III indicated that the pre test means of parcourse training, swissball training, combined parcourse & swissball training and control groups were 33.83, 32.81, 33.85 and 32.91 respectively. The obtained F-ratio for the pre-test was 1.22 and the table F-ratio was 2.72. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 3 and 76. This proved that there were no significant difference between the experimental and control groups indicating, that the process of randomization of the groups was perfect while assigning the subjects to groups. The post-test means of the parcourse training, swissball training, combined parcourse & swissball training and control groups were 39.18, 38.94, 48.11 and 33.17 respectively. The obtained F-ratio for the post-test was 228.65 and the table F-ratio was 2.72. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 76. This proved that the differences between the post-test means of the subjects were significant. The adjusted post-test means of the parcourse training, swissball training, combined parcourse & swissball training and control groups were 39.19, 38.93, 48.12 and 33.15 respectively. The obtained F-ratio for the adjusted post-test means was 221.58 and the table F-ratio was 2.72. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 3 and 75. This proved that there was a significant difference among the means due to the experimental trainings on balance. Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-IV.

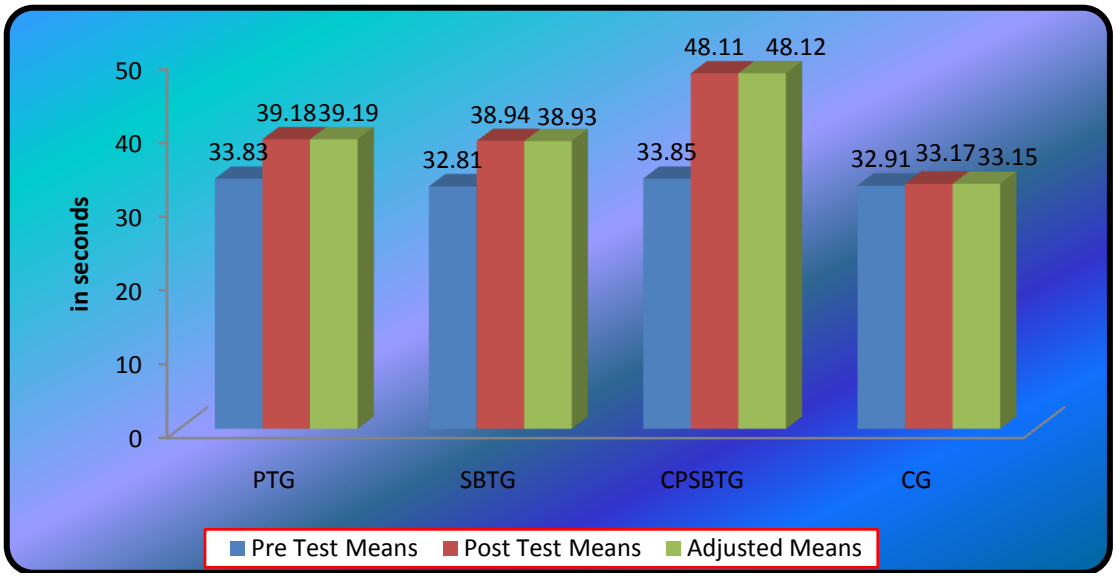
Table IV. The scheffe's test for the differences between the adjusted post-test means on balance

Adjusted Post-Test Means				Mean Difference	Confidence Interval
PTG	SBTG	CPSBTG	CG		
39.19	38.93	---	---	0.26	1.65
39.19	---	48.12	---	8.93*	
39.19	---	---	33.15	6.04*	
---	38.93	48.12	---	9.19*	
---	38.93	---	33.15	5.78*	
---	---	48.12	33.15	14.97*	

**** Significant at 0.05 level of confidence***

The multiple comparisons showed in Table IV proved that there existed significant differences between the adjusted means of parcourse training and parcourse & swissball training (8.93), parcourse training with control group (6.04), swissball training with combined parcourse & swissball training (9.19), swissball training with control group (5.78) and combined parcourse & swissball training and control group (14.97).There was no significant difference between parcourse training and swissball training group (0.26) at 0.05 level of confidence with the confidence interval value of 1.65. The pre, post and adjusted means on balance were presented through bar diagram for better understanding of the results of this study in Figure-II.

Figure II. Pre post and adjusted post-test differences of the, parcourse training swissball training combined parcourse & swissball training and control groups on balance



Conclusion

From the analysis of the data, the following conclusions were drawn:

1. The parcourse training group had shown significant improvement in all the selected motor fitness variables among football players after undergoing parcourse training group for a period of twelve weeks.
2. The swissball training group had shown significant improvement in all the selected motor fitness variables among football players after undergoing the swissball training group for a period of twelve weeks.
3. The combined parcourse & swissball training group had shown better performance on motor fitness variables among the football players than the other groups.

References

1. Baechle, T. R. (1994). *Essential of Strength Training and Conditioning.* Champaign Illinois: Human Kinetics Publishers.
2. Barton, C,J., Kennedy, A., Twycross, L,R., Woledge, R., Malliaras, P. & Morrissey, D. (2014). Gluteal muscle activation during the isometric phase of squatting exercises with and without a Swiss ball. *Phys Ther Sport.* 15(1):39-46.
3. Beim, G. (1977). *Principles of Modern Soccer.* U.S.A: Houghton Mifflin Company.
4. Bompa, T. O., (1999). *Periodization: Theory and Methodology of Training* (4th edn) Champaign, Illinois: Human Kinetics publishers.
5. Dick, F. W. (1980). *Sporting Training Principles.* Great Britain: University Press Cambridge.
6. Escamilla, R.F., Lewis, C., Bell, D., Bramblet, G., Daffron, J., Lambert, S., Pecson, A., Imamura, R., Paulos, L. & Andrews, J.R. (2010). Core muscle activation during Swiss ball and traditional abdominal exercises. *J Orthop Sports Phys Ther*. 40(5):265-76.
7. Eswara Moorthy, A & Angamuthu , K. (2013). Effect of Swissball Training on Selected Motor Fitness Variables among Football Players. *Star Research Journal. 01*.
8. George A. & Dhinu, M.R. (2014). Impact of Parcourse Work and Interval Training on Strength Endurance of Male Students. *Online International Interdisciplinary Research Journal.* Volume-IV, Issue-I.
9. George, A. (2013). Two Modes of Interval Training And Its Impact on Plasma Cholesterol Among Young Boys. *Lokavishkar International E-Journal*. Vol-II, Issue-IV.
10. Goran, S., Zoran, M., Nebojsa, T. & Aleksandar, J. (2011). Correlation between Speed, Agility and Quickness (saq) in Elite Young Soccer Players. *Acta Kinesiologica*, 2: 36-41.
11. Grieco, C.R., Cortes, N., Greska, E.K., Lucci, S. & Onate, J.A. (2012). Effects of a combined resistance-plyometric training program on muscular strength, running economy, and Vo2peak in division I female soccer players. *J Strength Cond Res.* 26(9):2570-6.
12. Ingebrigtsen, J., Dillern, T. & Shalfawi. (2011). Aerobic capacities and anthropometric characteristics of elite female soccer players. J *Strength Cond Res* 25(12): 3352–3357.
13. James, A. B. (1988). Illustrated Guide to Develop Athletic Strength, Power and Agility, *Research Quarterly*. 33:12.
14. Reilly, T. (1996). *Science of Soccer.* London: Champman hall.

Please cite this article as: A. Eswara Moorthy & Dr. K. Angamuthu. Isolated and Combined Effect of Parcourse and Swissball Training on Selected Motor Fitness Variables among Football Players of Periyar University Affiliated Colleges. *International Journal of Recent Research and Applied Studies*, 2016, 3, 9(2), 7-11.