ISSN: 2349 - 4891

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

Influence of Bilateral Power Training on Selected Skill Performance among Soccer Players

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Received 2nd December 2015, Accepted 1st January 2016

Abstract

The purpose of the study was to investigate the influence of bilateral power training on selected skill performance among soccer players. It was hypothesized that there would be significant differences on selected skill performance due to the influence of bilateral power among soccer players. For the present study the 30 male soccer players from H.H. The Rajah's College, Pudukkottai, Tamilnadu, India were selected at random and their age ranged from 18 to 25 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent bilateral power training and Group 'B' has not undergone any training. Kicking was assessed by McDonald soccer test and dribbling was assessed by Mor-Christian general football ability test. The data was collected before and after twelve weeks of training. The data was analyzed by applying Analysis of Co-Variance (ANCOVA). The level of significance was set at 0.05. The bilateral power training had positive impact on kicking and dribbling among soccer players.

Keywords: Bilateral Power, Kicking, Dribbling, Soccer.

Introduction

Bilateral training allows the use of a greater percentage of the body's overall musculature. This is superior to unilateral training due to the greater hormonal response. More muscle activation equals a greater release of testosterone and human growth hormone. To overcome this limitation the athlete can perform large, compound bilateral movements early in the workout to stimulate hormone production and finish the workout with unilateral exercises. However, bilateral deficit is a negative associated with this form of training which refers to a slight decrease on the neural activation in the recruitment of motor units when compared to the sum of unilateral works. Aagaard, P et al., (2002) states that we are able to generate more force production unilaterally as compared to bilateral. Incorporating single limb exercises quantifies the effort and the effectiveness of that particular exercise. In a single leg movement, the hip musculature will be more activated which will result in proper muscle activation. This deficit is one of the main arguments surrounding the debate of Unilateral vs. Bilateral training due to its major effect on performance (Dickin et al., 2011). Despite this, bilateral training has been proved to reduce the bilateral deficit (difference between the force developed during bilateral action and the sum of the force developed within each limb independently) within sporting performance (Teixeira et al., 2013).

Soccer is one of the most popular sports in Europe and the Americas. It has a vivid and interesting history in the world of sports. Early evidence of soccer being played as a sport finds occurrence in China during the 2nd and 3rd centuries BC. In China, it was during the Han dynasty that people dribbled leather balls by kicking it into a small net. Recorded facts also support the fact that Romans and Greeks used to play ball for fun and frolic. Some facts point to Kyoto in Japan where kicking of ball was a popular sport.

Methodology

The purpose of the study was to investigate the influence of bilateral power training on selected skill performance among soccer players. It was hypothesized that there would be significant differences on selected skill performance due to the influence of bilateral power among soccer players. For the present study the 30 male soccer players from H.H. The Rajah's College, Pudukkottai, Tamilnadu, India were selected at random and their age ranged from 18 to 25 years. For the present study pre test – post test random group design which consists of control group and experimental group was used. The subjects were randomly assigned to two equal groups of fifteen each and named as Group 'A' and Group 'B'. Group 'A' underwent bilateral power training and Group 'B' has not undergone any training. Kicking

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was assessed by McDonald soccer test and dribbling was assessed by Mor-Christian general football ability test. The data was collected before and after twelve weeks of training. The data was analyzed by applying Analysis of Co-Variance (ANCOVA). The level of significance was set at 0.05.

Results

The findings pertaining to analysis of co-variance between experimental group and control group on selected motor components among soccer players for pre-post test respectively have been presented in table I to III.

Table I. ANCOVA between Experimental Group and Control Group on Kicking of Soccer players for Pre, Post and Adjusted Test

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	22.00	22.56	BG	9.63	1	9.63	1.90
			WG	141.73	28	5.06	
Post Test Mean	29.93	22.66	BG	396.03	1	396.03	115.19*
			WG	96.26	28	3.43	
Adjusted Post Mean	30.07	22.52	BG	399.83	1	399.83	123.11*
			WG	87.68	27	3.24	

*** Significant at 0.05 level.** **df: 1/27= 4.21**

Table I revealed that the obtained 'F' value of 123.11 was found to be significant at 0.05 level with df 1, 27 as the tabulated value of 4.21 required to be significant at 0.05 level. The same table indicated that there was a significant difference in adjusted means of Kicking of soccer players between experimental group and control group. The graphical representation of data has been presented in figure I.

Figure I. Comparisons of Pre – Test Means Post – Test Means and Adjusted Post – Test Means for Control group and Experimental Group in relation to Kicking

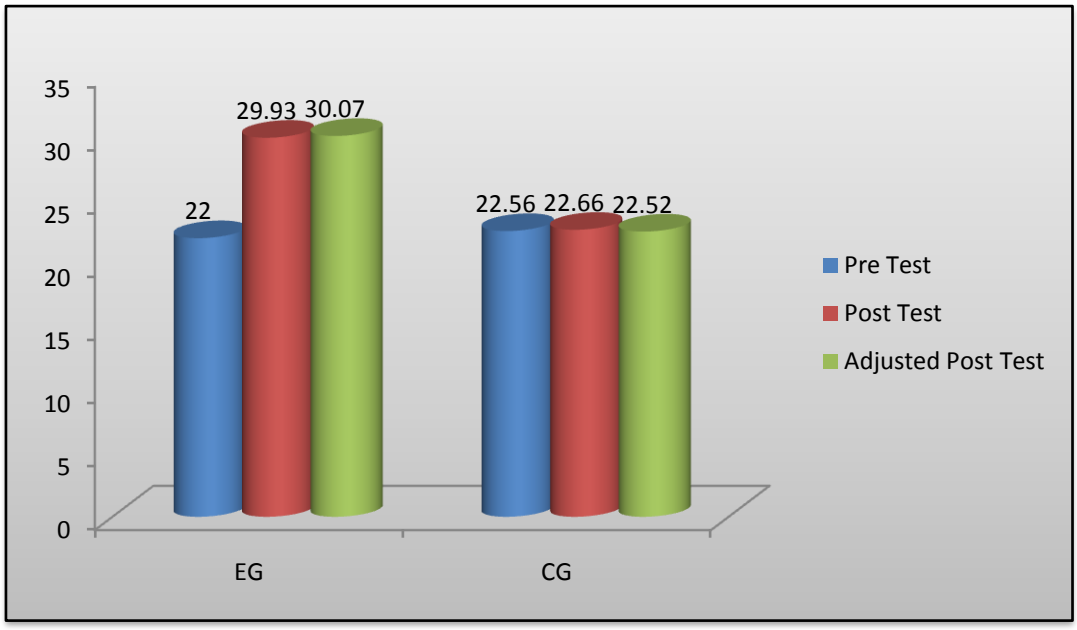


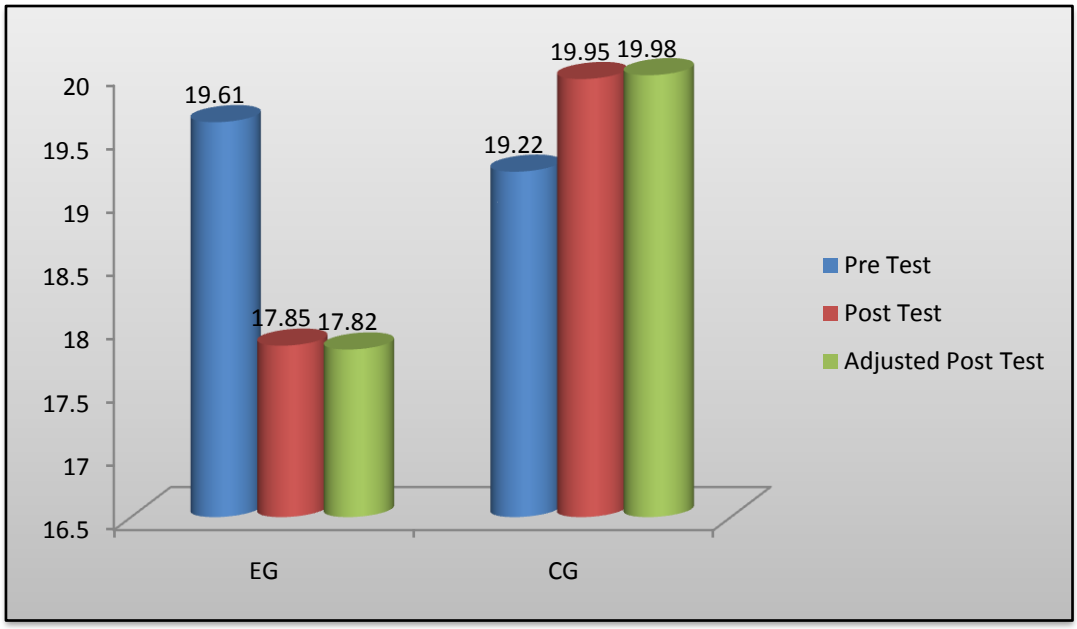
Table II. ANCOVA between Experimental Group and Control Group on Dribbling of Soccer players for Pre, Post and Adjusted Test

	Experimental Group	Control Group	Source of Variance	Sum of Squares	df	Mean Square	F
Pre Test Mean	19.61	19.22	BG	1.09	1	1.09	0.34
			WG	90.41	28	3.22	
Post Test Mean	17.85	19.95	BG	33.18	1	33.18	19.26*
			WG	48.21	28	1.72	
Adjusted Post Mean	17.82	19.98	BG	34.42	1	34.42	19.97*
			WG	46.53	27	1.72	

*** Significant at 0.05 level.** **df: 1/27= 4.21**

Table II revealed that the obtained 'F' value of 19.97 was found to be significant at 0.05 level with df 1, 27 as the tabulated value of 4.21 required to be significant at 0.05 level. The same table indicated that there was a significant difference in adjusted means of dribbling of soccer players between experimental group and control group. The graphical representation of data has been presented in figure II.

Figure II. Comparisons of Pre – Test Means Post – Test Means and Adjusted Post – Test Means for Control group and Experimental Group in relation to Dribbling



Discussions on Findings

In case of skill performances i.e. kicking and dribbling the results between pre and post (12 weeks) test has been found significantly higher in experimental group in comparison to control group. This is possible because due to regular bilateral power training which may also bring sudden spurt in skill performance in soccer players. The findings of the present study have strongly indicates that bilateral power training of twelve weeks have significant effect on selected skill performances i.e., Kicking and dribbling of soccer players. Hence the hypothesis earlier set that bilateral power training would have been significant effect on selected skill performance in light of the same the hypothesis was accepted.

Conclusions

On the basis of findings and within the limitations of the study the following conclusions were drawn:

1. The bilateral power training had positive impact on kicking and dribbling among soccer players.
2. The experimental group showed better improvement on kicking and dribbling among soccer players than the control group.

References

1. Aagaard, P., Simonsen, E., Andersen, J., Magnusson, P. Dyhre-Poulsen, P. (2002). Increased rate of force development and neural drive of human skeletal muscle following resistance training. *Journal of Applied Physiology.* Vol. 93: 1318-1326.
2. Barrow, M. H., McGhee, R. (1979). *A practical approach to measurement in physical education***.** Philadelphia: Lea and Febiger, Edition-3rd.
3. Dickin, D., Sandow, R. and Dolny, D. (2011) Bilateral deficit in power production during multi-joint leg extensions. *European Journal of Sport Science*. Vol. 11, No. 6: 437-445.
4. Gamble, P. (2013) Strength and Conditioning for Team Sports: Sport-Specific Physical Preparation for High Performance. (2nd ed.) Routledge: Oxon.
5. Janzen, C., Chilibeck, P. and Davison, K. (2006) The effect of unilateral and bilateral strength training on the bilateral deficit and lean tissue mass in post-menopausal women. *European Journal of Applied Physiology.* Vol. 97: 253-260.
6. Kevin W. Mccurdy, George A. Langford, Mike W. Doscher, Larry P. Wiley, and Kim G. Mallard. (2005). The Effects of Short-Term Unilateral and bilateral lower-Body Resistance Training on Measures of Strength and Power. Journal of Strength and Conditioning Research, 2005, 19(1), 9–15.
7. Makuruk, H., Winchester, J., Sadowski, J., Czaplicki, A. and Sacewicz, T. (2011) Effects of unilateral and bilateral plyometric training on power and jumping ability in women. *Journal of Strength and Conditioning Research.* Vol. 12: 3311-3318.
8. Manikandan, S. (2015). Impact of sports loading programme on selected strength and skill performanceof handball. International Journal of Applied Research 2015; 1(1): 61-63.
9. Mohan, R. (2003). *Research methods in education*. New Delhi: Neelkamal Publications Pvt. Ltd.
10. Neilson, N. P., Johnson, C. R. (1970). *Measurement and statistics in physical education.* Belmont California: Warsworth Publishing Company Inc., p.245.
11. Srivastva, G. (1994). *Advanced research methodology*. New Delhi: Radha Publications, pp. 219-220.
12. Teixeira, A., Narciso, J., Salomão, T. and Dias, M. (2013) Bilateral Deficit in Maximal Isometric Knee Extension in Trained Men. *Journal of Exercise Physiology.* Vol. 16, No. 1: 28-34.