Original Article

The detraining and training effects of different training programs on selected bio-motor abilities of college level football players

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Published online: December 25, 2012

(Accepted for publication December 10, 2012)

DOI:10.7752/jpes.2012.04077;

Abstract

The purpose of the study was to examine the effect of Plyometrics training and SAQ training followed by detraining on selected Bio-motor abilities of college level football players. For the study, thirty male college level football players, were selected as subjects. The selected bio motor variables were Explosive strength, Speed, Speed endurance, Strength endurance and Agility which were tested by using vertical jump, 30 meters dash, 400 meters run, sit ups, and shuttle run respectively.

The training seasons were pre-season, in season and off season. Analysis of covariance was applied to find out the level of significance which was fixed at 0.05 levels. Results showed that SAQ training and Plyometric training helped to improve bio motor abilities. It is revealed that agility and speed endurance were developed through SAQ training and two weeks of detraining program makes significant improvement in the bio motor variables.

Key words: soccer, plyometric, SAQ training, bio-motor abilities,

Introduction

Football is the most popular game in the world. It is played all over the world round the year. Since the game has become more professional and more competitive, it requires a high degree of fitness combined with supreme skill level. Fitness for soccer cannot be determined by a single parameter, since the game demands a large ensemble of physical, physiological and psychological capabilities. Fitness profiles are likely to vary within the playing season; and the emphasis placed on different components of fitness will change with the stage of the season. Variables linked with fitness are influenced not just by training regimes but also by the stimulus provided by competing regularly.

Biomotor abilities are the foundations of ability of an individual to perform an exercise – strength, endurance, speed, coordination, flexibility and agility. The contribution of the biomotor abilities to the attainment of high performance is determined by 2 factors; the ratio between them as a reflection of the specifics of the sport and, by the level of development of each ability according to its degree of participation in performing the sport/event. (Dawson 2003)

In modern training scenario, Plyometric training has been using a very result oriented tool in developing the speed and quickness of soccer players. In plyometric exercises, a muscle is rapidly contracted and lengthened, and then immediately contracted and shortened further. Plyometric exercises force the muscles to contract rapidly from a full stretch position. (Donald A. Chu)

In the simplest of terms, plyometrics are exercises or drills that involve a jumping movement, sometimes referred to as “jump training.” Examples of these types of exercises include skipping, bounding, jumping rope, hopping, lunges, jump squats, sprinting, and clap push-ups. Three components of soccer that can be improved through plyometric training are speed, agility, and quickness (SAQ). If coaches are using these kind of exercises they could improve their teams' performance by easily adding some simple exercises at the appropriate time,

Method

The purpose of the study was to examine the effect of Plyometrics training and SAQ training followed by detraining on selected Bio-motor abilities of college level soccer players. To achieve this purpose, thirty male soccer players of different colleges between 18 and 26 years of age were selected as subjects. The biomotor variables (dependent variables) selected for the study were speed, explosive strength, speed endurance, strength endurance, and agility which are stated in table 1.

Table 1

S. No	Criterion variable	Test items	Unit of Measurements
1	Explosive strength	Vertical jump	Centimeter
2	Speed	30 meters dash	Seconds
3	Speed endurance	400 meters dash	Seconds
4	Strength endurance	Bent knee sit-ups	Seconds
5	Agility	Shuttle run	Seconds

The season of training period was divided into three. The first training season was later pre-season, which consisted of four weeks of training with three days (three sessions) of training and before the training session was a rest day. After the training session, the minor games based on the soccer skill were given to the subjects. The second training season was the In-season, which consisted of two weeks with two days (two sessions) of training and before the training session was a rest day. The subjects of SAQ group, Plyometric group and control Group were made to undergo their training programs. The third training season was in the closed-season, which consisted of two weeks. The subjects of SAQ group, Plyometric group and control Group were made to undergo the minor games. Each work out session was lasted for 60-75 minutes. After the first half of the training five minutes were given as the rest period. The data collected was analyzed statistically by using Analysis of covariance (ANACOVA) to find out the significance difference. In all conditions the significant level was fixed at 0.05 levels.

Results & Discussion:

Table 2

DESCRIPTIVE STATISTICS OF EXPLOSIVE STRENGTH

Groups		pre test	post test	De training	No	F
CON	Mean	52.9	53.9	54.2	10	*12.9726
	SD	4.33	2.68	3.58		
SAQ	Mean	53.4	54.6	54.20	10	
	SD	2.91	2.50	2.20		
PLMTS	Mean	53.90	56.7	58.20	10	
	SD	2.68	1.57	1.47		

*Significant at .05 level of confidence

'F' value required at 0.05 level=3.37

Table 3

DESCRIPTIVE STATISTICS FOR SPEED (30 METERS)

DESCRIPTIVE STATISTICS FOR SPEED (50 METERS)						
Groups		Pre test	Post test	De training	No	F
CON	Mean	4.34	4.31	4.31	10	*13.2134
	SD	.14	.14	.13		
SAQ	Mean	4.28	4.27	4.28	10	
	SD	6.7	0.14	0.14		
PLMTS	Mean	4.36	4.26	4.24	10	
	SD	.14	7.9	7.18		

*Significant at .05 level of confidence

'F' value required at 0.05 level=3.37

Table 4

DESCRIPTIVE STATISTICS FOR SPEED ENDURANCE (400 METERS)

Groups		Pre test	Post test	De training	No	F
CON	Mean	58.41	56.59	57.41	10	*13.0025
	SD	3.01	2.32	2.04		
SAQ	Mean	56.96	55.7	56.55	10	
	SD	.77	.76	.57		
PLMTS	Mean	58.39	56.88	58.19	10	
	SD	2.07	1.45	1.59		

*Significant at .05 level of confidence

'F' value required at 0.05 level=3.37

Table 5

DESCRIPTIVE STATISTICS FOR STRENGTH ENDURANCE (SIT UPS)

Groups		pre test	post test	De training	No	F
CON	Mean	55.6	56.9	57.2	10	*13.0044
	SD	5.04	4.38	3.12		
SAQ	Mean	56.3	58.00	57.1	10	
	SD	3.23	2.16	2.18		
PLMTS	Mean	53.1	56.3	55.6	10	
	SD	3.90	2.71	1.95		

*Significant at .05 level of confidence

'F' value required at 0.05 level=3.37

Table 6

DESCRIPTIVE STATISTICS FOR AGILITY

Groups		pre test	post test	De training	No	F
CON	Mean	14.47	14.40	14.39	10	*12.9962
	SD	.33	.27	.26		
SAQ	Mean	14.48	14.20	14.20	10	
	SD	0.23	0.13	0.13		
PLMTS	Mean	14.89	14.80	14.91	10	
	SD	.61	.58	.58		

*Significant at .05 level of confidence

'F' value required at 0.05 level=3.37

The results of the study indicate that after the six weeks period of training programme strength endurance has been improved in both SAQ and plyometric training group. The study also indicate that after the completion of six weeks period of soccer training programme leg strength improved for both SAQ group and Plyometric group.

The Plyometric group soccer players have improved the leg strength ability significantly, when compared with the SAQ group basketball players. Further, the study showed that in the case of plyometric training, the speed has developed better than the SAQ training group. The reason for the development of the plyometric group was that the speed is the product of stride length and frequency. The stride length has basically depends on the explosive strength. So the result of the present study indicates that the strength is the main factor for the development of speed.

The study also indicated that after the six weeks period of training programme, improvement has been noted on agility for SAQ group and plyometric training group soccer players, whereas the SAQ Group have improved the agility significantly, when compared with the plyometric training group.

Conclusion

The results showed that SAQ group were better in agility. The training of six week remarkably influenced for SAQ group in term of agility. It also indicated that the SAQ training is better for the development of agility but for the acceleration speed, the plyometrics training is better because the strength is the basic requirement of the speed.

The present study gives clear information is that SAQ training and Plyometric training will improves the biomotor abilities of soccer players. Speed, explosive strength, and strength endurance were develop through the plyometrics and Agility and speed endurance were developed through the SAQ training.

The another fact has shown that in the two weeks detraining program had made a significant improvement in the bio motor abilities like explosive strength, speed, strength endurance and agility. The reason may be that the two week of detraining was a short period to diminishing the performance and the subjects were actively continue the soccer training during the detraining period. The last reason is that the two week period of detraining is the right time for better recovery of the highly intensive anaerobic training program.

Biomotor abilities like explosive strength, speed and strength endurance show better improvement in plyometrics training group, speed endurance and agility show better improvement in plyometrics training.

Speed endurance can be developed within six weeks. Speed endurance can be developed only after the development at speed and strength. Further speed is a natural ability and the development will be only is marginal amount. Since there is a significant improvement in speed, consequently a significant improvement in speed endurance also. The results of the present study shows that there is a significant improvement in speed and speed endurance for both experimental group.

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