



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2016; 2(1): 929-932
www.allresearchjournal.com
Received: 18-11-2015
Accepted: 21-12-2015

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Effect of a block training programme on selected motor fitness components of football players

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Abstract

The purpose of the study was to ascertain the effect of a 4-week Block Training Programme on selected physical fitness components of 30 young football players. The age of the subjects ranged from 14 to 16 years. Keeping the feasibility criteria in mind the motor fitness components selected were speed (50m sprint), Agility (4x10m shuttle run), Flexibility (standing bobbing test), Strength (standing broad jump) and Endurance (800m run). The analysis of data employing t-test revealed that the 4-week training programme was effective in improving speed, flexibility and endurance. The analysis of data further showed insignificant increase in strength. The difference in the initial and final means in the case of agility was significant showing a considerable decline in the agility performance.

Keywords: Block training programme, motor fitness components

Introduction

Exercise taxes the various physiological systems of the body beyond their normal resting level of performance. Changes that occur because of training allow these systems to function more effectively and efficiently during training as well as in competition. The training process is complex and only partially understood. Simply working to exhaustion each day will not improve each physiological system and each phase of metabolism equally. Training that benefits one system or one phase of metabolism may be detrimental to others. Therefore, training must be carefully planned and executed. Coaches should have a specific goal in mind for each set of repeats, and they should understand the effects of those repeats on each physiological system.

Fitness is relative to the individual and specific to a sport. The fitness demands required to last a full game of football are very different from those placed on the marathon runner. Even within a sport, specificity is relevant, such as in the difference between the attack and the defense players of a football team. The coach who wishes to progress towards peak performance must be aware of both relative and specific fitness, and recognize the demands that a change in either can affect the physical structure of the body. A sports person who wishes to achieve peak performance must have a higher level of fitness than the less ambitious competitor.

Football is a sport requiring high levels of motor fitness. It is one of those rare games, which demand all the motor fitness components namely speed, agility, strength, power, endurance, flexibility and coordinative abilities. Players at top level can run several kilometers in a game whilst not forgetting the frequent accelerations, decelerations, changes of direction and jumps they must undertake. Fitness is important at all levels of the game, whilst being essential for top level players. The aim of fitness training in football is to enable a player to cope with the physical demands of the game as well as allowing the efficient development of his various technical and tactical competencies throughout the match.

After the coach has determined the fitness requirements of the sport and assessed the physiological capacities of each player it becomes possible to prescribe an individualized training programme. Such a training prescription should adhere to the basic principles of load i.e. recovery, reversibility, specificity and individuality.

Before gains in fitness can occur it is necessary to undertake a training load exceeding that to which the body is normally accustomed.

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Whenever an athlete is subjected to a training stimulus that causes strain (fatigue), the body reorganizes its physiological capacities in order to cope up with the load. The training process then involves gradual adaptation of these capacities to repeated and progressively higher workloads as the athlete becomes fitter. The term progressive is best linked to load to ensure that the training stimulus is gradually increased. The most perplexing problem confronting a coach at practice is to determine the correct amount of load to apply as a training stimulus. It must exceed threshold capacity yet not become too excessive and therefore destructive.

Jones and Carter (2000) [3], Nobuo et al. (2004) [6], Vincent et al. (2002) [12], Uppal et al. (1982) [10], Dey et al. (1982) [2], Uppal and Singh (1983) [8] and Darryl (2004) [1] in their investigations have observed significant improvement in different motor components namely aerobic fitness, strength, speed, flexibility and agility as a result of specific training as well as training in different games and sports.

Methodology

Selection of Subjects

The subjects for the study were 30 young football players and their age ranged from 14-16 years. On the very first day of their joining the training sessions they were tested in selected motor fitness components and after the expiry of 4 weeks the same tests were again repeated.

Selection of Variables

The following variables were selected for the purpose of the study.

Table 1: List of variables, tests used and their unit of measurements

S. No.	Variable	Test Used	Unit of Measurement
1	Speed	50m Run	Second
2	Agility	6x10m Shuttle Run	Second
3	Flexibility	Standing Bobbing Test	Centimeter
4	Strength	Standing Broad Jump	Centimeter
5	Endurance	800m Run	Minute

Criterion Measures

1. The score in 50m sprint was the elapsed time to the nearest hundredth of a second between the starting signal and the instant the student crossed the finish line.
2. The agility score was the elapsed time recorded in seconds and hundredths of seconds for the better of 2 trials in 6x10m shuttle run.
3. The flexibility score as indicated on the digital monitor of

the Standing Bobbing Instrument was recorded in centimeters.

4. In standing broad jump the score was the distance between the take-off line and the nearest point where any part of the subject's body touched the mat. It was measured in meters to the nearest centimeter. Three attempts were given and best of the three was credited.
5. In 800m run the score was the elapsed time in minutes and seconds.

Collection of Data

Before administration of tests for collection of data, the scholar had a meeting with the subjects in order to make them familiar with the study and explained to them the effort required on their part. He also explained them in plain and simple words the significance of the research work being undertaken. The procedure of tests was also explained to them in detail so as to remove any sort of doubt or ambiguity regarding the efforts and hard work they had to put in for the successful completion of this study. The subjects got fully convinced and assured the scholar of their sincere and whole-hearted cooperation. Even though no motivational technique was employed in the project, yet the subjects were urged to put in their maximum effort at the time of collection of data. The subjects were tested in all the selected motor fitness components following the appropriate testing procedures. In order to ensure uniform conditions for all the subjects, the tests were administered only in the morning sessions. The duration of the tests was adjusted in such a way so that fatigue might not set in. Sufficient time was provided in between the tests to enable the subjects to put in their best efforts. All the subjects performed on each test with a considerable degree of zeal and enthusiasm. The subjects took all the tests in their proper sports kit.

Analysis of Data

In order to ascertain the effect of 4-week Block Training Programme, the data collected on selected motor components was statistically analyzed by computing means, standard deviations and t-ratio. In order to test the significance of difference between the initial and final means in respect of selected motor components, the level of significance chosen was 0.05.

Findings

The analysis of data in respect of all the motor components selected in the study is presented in Table 2.

Table 2: Significance of difference in the means of selected motor fitness components as a result of training

S. No.	Motor Component	Mean		Mean diff.	S. E.	t-ratio
		Initial	Final			
1.	Speed	7.92	7.25	-0.67	0.13	-5.15*
2.	Agility	14.82	16.16	1.34	0.51	2.63*
3.	Flexibility	12.5	13.57	1.07	0.35	3.06*
4.	Explosive Strength	2.08	1.89	-0.19	0.16	1.19
5.	Endurance	183.48	160.21	-23.27	7.77	-2.99*

* Significant at 0.05 level. t₀₅ (58) = 2.00

From the above table it is evident that the block-training programme of four weeks duration has significantly improved the performance of the subjects in respects of speed, flexibility and endurance. The t-ratios obtained are – 5.15, 3.06 and –2.99. In the case of agility a significant decline has been recorded in performance. The t-ratio

obtained is 2.63. In the case of explosive leg strength the difference between the initial and final means was not significant. The initial and final means of the subjects in respect of all the selected motor components are graphically presented in Figures 1 to 5.

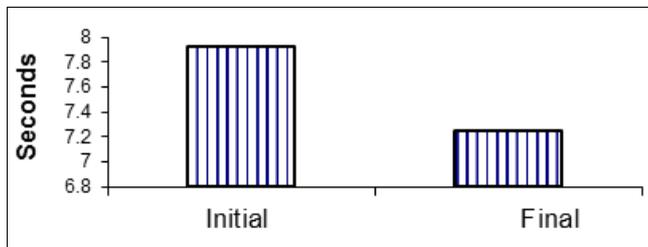


Fig 1: Initial and Final Means of Subjects in Speed (50m Sprint)

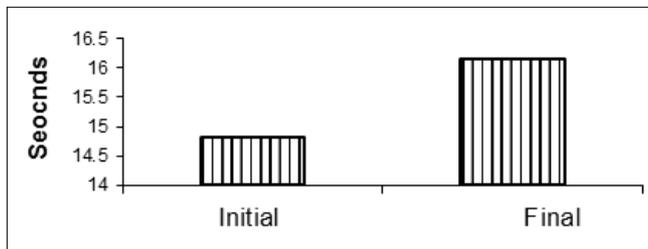


Fig 2: Initial and Final Means of Subjects in Agility (6x10 m Shuttle Run)

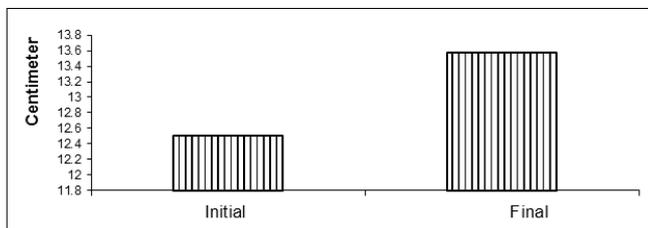


Fig 3: Initial and Final Means of Subjects in Flexibility

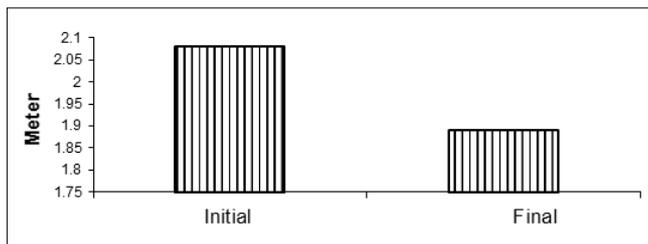


Fig 4: Initial and Final Means of Subjects in Explosive Leg Strength (Standing Broad Jump)

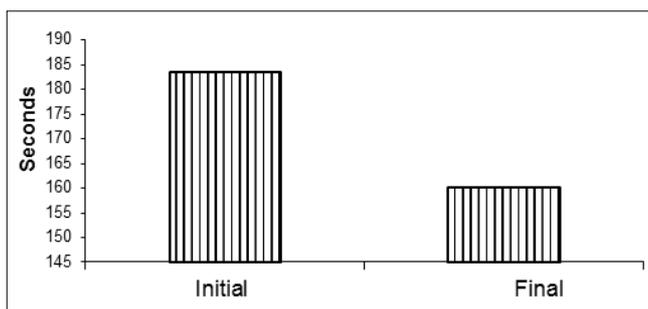


Fig 5: Initial and Final Means of Subjects in Endurance (800m Run)

Discussion

The analysis of data has clearly revealed that the Block Training Programme of four weeks has brought about significant improvement with respect to speed, flexibility and endurance. This could be explained by the fact that the training loads administered to the subjects with regard to enhancement of speed, flexibility and endurance were adequate in terms of all the features of outer training load i.e. intensity, density, duration and frequency. As a results of this

the subjects got adapted to the training loads thus ensuring significant improvement in respect of the above three motor components. A significant decline in agility could be attributed to the fact that either the training methods and means for development of agility were not adequate in terms of stimulus intensity and stimulus volume where by the subjects could not get adjusted to the training load or the development of agility component during the training programme was not adequately stressed. Similar trend has also been observed in the case of legs explosive strength. The difference between the initial and final means for development of strength was not significant there by indicating that in sufficient attention was not paid to the development of this important component of motor fitness.

Conclusion

With in the delimitations of the study the following conclusions are drawn

1. The training programme of the young football players was effective in bringing about a significant improvement in speed (50m dash), flexibility (standing bobbing test) and endurance (800m run).
2. A significant decline was observed in respect of agility (6x10m shuttle run), which reveals that the training programme did not include agility exercises involving change of direction and body position (including speed).
3. In respect of strength the improvement in the initial and final means was not significant there by indicating that the training load in terms of stimulus intensity and stimulus volume was not enough for the improvement of legs explosive strength.

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