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Comparative study of preparatory and competitive season football training on the selected physical fitness variables

Anjan Kumar[1]

[1]Brahmanand P. G. College, Kanpur, India.

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Abstract

To give best performance at the time of need, sportsperson in the present time has to undergo systematic and planned training program. Viewing this, the present study was undertaken to study the effects of preparatory season and competitive season training loads on selected physical fitness variables of football players. The subjects were 20 male students comprising college football team of LNIPE, Gwalior. The data obtained for speed, agility, explosive leg strength and hip flexibility were analyzed by one-way analysis of variance and LSD was used to assess the significant difference between the means of different stages. Significant difference at 0.05 level was seen between the variables of preparatory and competitive season training over pre-season, whereas there was insignificant difference between the variables of preparatory and competitive season training except speed and hip flexibility.

Key Words: Preparatory Season; Competitive Season; Speed; Football Team; Explosive Leg Strength.

Introduction:

The time when sports were nothing more than an enjoyable recreation is irrevocably past. Since, the sports has become prestigious aspects to prove one's superiority, the philosophy of participation in games and sports has undergone a great change (Renwes, 1972). Sports training aims to win the competitions, so sportsman must give their best at the time of competition. The training provides room for the players to ensure the capability to cope-up with the loads that competitive match play involve. Training is a pedagogical process which makes possible the achievement of high standard performances without any physical or mental damage through planned, systematic development of certain special skills, physical capabilities and spiritual qualities, and the adaptation of the organism (Csanadi, 1978; Young et al., 1993).

For the purpose of training, whole season is breakdown into smaller training or periods, viz, preparatory period, competition period and transitional period known as periodisation. The preparatory season is normally the longest period in the training cycle and aims to create a base for better performance in the competitive season. In the beginning, abilities which are not directly related to performance in the game are developed and later, those factors are improved on which the performance directly depends. The competitive season aims at achieving top form and to maintain it for a sufficiently long period and is characterized by high to maximum training intensity, lower in volumes and predominant use of competitive and special exercises.

Development of various physical and physiological components of sportsman takes place during the training with varied rate from training to training, person to person and also in a training cycle in different stages of training. The training periods differs from one another in contents, qualities and quantities of training load (Singh, 1984; Bangsbo, 1994). Studies on the physical and physiological properties of a successful football player show that due to the improvements in the speed and skills of the football players, football has become more dynamic (Mangine et al., 1990). As in preparatory season emphasis is on the development of basic components of physical fitness and improvement of skills and techniques and competitive season stress is given on achieving top form and to maintain it for a sufficient long duration, the research scholar developed an interest to find out proportionate changes taking place on the selected physical fitness variables of football players in a training cycle at its different stages of training.

This study was conducted on football match practice group of LNIPE, Gwalior. Subjects belonged to different parts of India and their age ranged from 17 to 25 years. Initially, all the students of football match practice group were

involved in the training; later students representing the college football team for competitions were selected for this study limiting the number of subjects to 20.

2. Materials & Methods

2.1 Criterion Measures

Following criterion measures were adopted for data collection at three different stages of training for the selected variables (Barrow et al., 1979):

1. Speed was measured by 50 m run or walk test and recorded to the nearest of $1/10^{th}$ of a second.
2. Strength was measured by standing broad jump and recorded in centimeters.
3. Agility was measured by shuttle run (4x10m) and recorded to nearest $1/10^{th}$ of a second.
4. Hip flexibility was measured by maximum distance covered by splitting legs to the side and recorded in cm.

The data for stage-I was collected before the commencement of the preparatory season, for stage-II at the end of preparatory season and before the commencement of competitive season, and data for the stage-III was collected at the end of competition period.

2.2 Statistical Analysis:

To determine the difference between the results obtained at three different stages of training, one way analysis of variance (ANOVA) was computed for each variables. LSD test of post-hoc was used to assess the significant difference between paired means. The F-ratio was tested for significance at .05 level of confidence.

3. Results:

3.1 Speed and Agility

Figure 1 shows there is improvement in the performance as time requirement to cover a distance from stage I to stage III. Speed mean values recorded for pre season, preparatory and competitive season were 7.61a ± 0.14s, 7.25b ± 0.12s and 7.17c ±0.1s respectively. There was significant difference in speed between these three stages. It may confirm through F value, i.e., 73.46 (Table1), significant at level of 0.01 and the differences of the mean value of these stages are much higher than the value of LSD (0.0748)

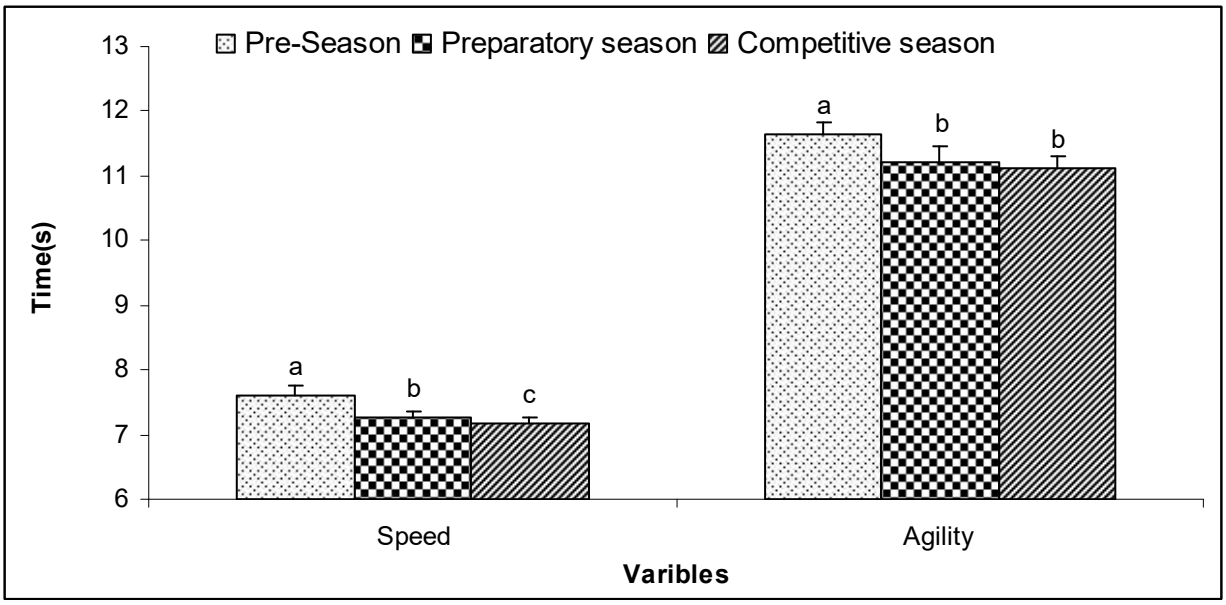

Figure1. Performance of football players in terms of speed(s) and agility(s) during Preparatory and Competitive against Pre-season. (Non-significant values through LSD are represented with same alphabet)

In case of Agility, the recorded mean values were 11.63^{a} ±0.19s, 11.22^{b} ±0.24s and 11.13^{c} ± 0.17s for pre season, preparatory season and competitive season correspondingly (Fig.1). Trend of decreasing of time requirement by players

and improvement in agility was same as speed. Again calculated F value shows the significant differences in agility among three seasons (Table 1). Further statistical analysis through LSD (0.13) shows there are non-significant differences in agility between the preparatory and competitive season as represented with same alphabet.

Table 1. Analysis of variance of the Mean Difference of physical variables:

Variables	F values	LSD(0.05)
Speed(s)	73.46**	0.0748
Agility(s)	89.684**	0.1283
Explosive leg strength (cm)	4.46*	6.783
Hip flexibility (cm)	47.51**	2.67

*Significant at p<0.05, **Significant at p<0.01

3.2 Explosive Leg Strength and Hip flexibility

Significant differences had been noted in explosive leg strength among football players during the competitive season (236.35^{a}±10.19cm) and preparatory season (235.55^{b} ± 11.01cm) compared to pre season (227.2^{b} ± 10.94cm) as shown in figure 2. Even if F values among 4 physical variable is less i.e. 4.46 (Table 1), it is significant at the level of <0.05. Post-hoc analysis (LSD=6.783) shows non-significant improvement in explosive leg strength during preparatory and competitive season.

Figure 2 also represents the improvement in hip flexibility among football player during the competitive season 156.25^{a} ± 3.92cm compared to preparatory 153.25^{b} ± 4.57cm and pre season 143.88^{c} ± 4.12cm. Like speed, F value (47.51) and LSD (2.67) also proves the significant differences at the level of p<0.01 among these three stages.

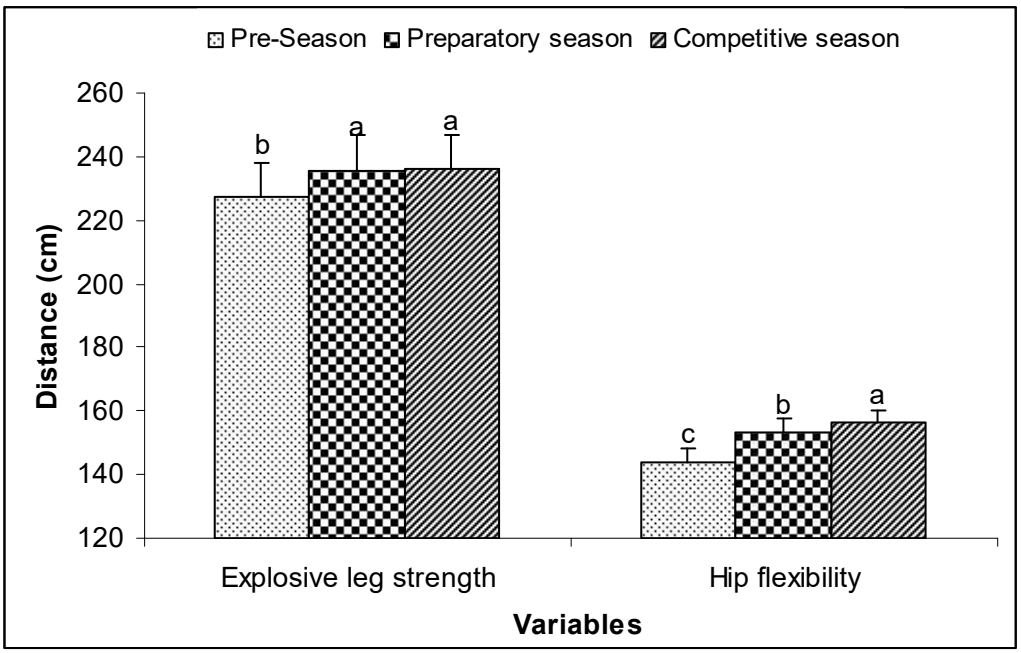

Figure 2. Performance of football players in terms of Explosive leg strength (cm) and Hip flexibility (cm) during Preparatory and Competitive against the Pre-season (Non-significant values through LSD are represented with same alphabet)

4. Discussion:

In a previous study, Ostojic and Zivanic (2001) stated that the effects of training sessions and matches on body weight may have a decreasing effect at different periods. Some footballers may lose more weight during competitive season than in pre-season preparation training period; they may also reach the minimum level of body mass index at the end of the season. When various bodily systems and functions are repeatedly charged for a number of days, they produce functional and morphological modification in the organism, which enable the body to tolerate load more easily.

This is called adaptation (Singh, 1984). In other words, continuous and regular training leads to stable adaptation or increase in performance. It is also true, that the adaptation take place fast in the initial phase and it takes longer time in advance or later phase of training. Therefore, the observed improvement in speed, agility, explosive power and flexibility may be justified.

The analysis of data and results of finding revealed that the physical variables viz speed, agility, explosive leg strength and hip flexibility significantly improved in the preparatory and competitive season over pre-season training, whereas there was no significant improvement in the competitive season over preparatory season training except in speed and hip flexibility. This may be due to the fact that in the initial phase of training the adaptation process is faster in comparison to later phase of training. Probably, the first impact of training for improving physical fitness might be responsible for such change where as at the later stage agility and explosive leg strength might not been given much stress.

5. Conclusion:

Speed, agility, explosive power and hip flexibility can be improved through endurance and strength dominated training designed for general fitness program. Speed and hip flexibility can be improved through involvement in optimum number of matches and with regular training exercises for 4 week duration. 4 week of competitive season does not seem to be sufficient for improvement in agility and explosive leg strength. Training scheduled of preparatory season for 8 week was brought more change in the selected physical variables than the training schedule of competitive season for 4 week. This may also be viewed from another angle as any improvement or change in performance is much faster in the early stage of training and the rate of improvement slows down with time.

To develop physical components of soccer performance, the teachers of physical education and coaches should use proportionate combined loads of speed, strength and endurance.

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Corresponding Author:
Anjan Kumar,
Brahmanand P. G. College,
Kanpur, India.