45 - ANALYSIS OF THE PHYSICAL FITNESS OF THE PROFESSIONAL SOCCER PLAYERS OF THE ESPORTE CLUBE FLAMENGO - PI (ECF) IN 2011 SEASON.

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INTRODUCTION

The preparation in soccer is one of the factors that has evolved in recent decades and continues to evolve. The knowledge of physical conditioning for soccer is vitally important to the success of a team in a competition.

The first indications of physical training in Brazil date back to early last century, around 1904. The team from São Paulo team tried to substitute the training that matches reproduced by other types of training. The initial motive may have been the difficulty of finding athletes to perform these workouts. The use of physical conditioning exercises such as racing 100, 200, 400 and 800 meters, as well as wrestling, gymnastics and German dumbbells, it is common between the teams. The important thing to be noted was the concern about the strength and not with the speed of the athletes (SANTOS NETO, 2000).

Today the scientific aspect of physical training is very developed. Professionals specialize even more by using computers and the most varied electronic gadgets possible to determine the fitness level and progress of athletes. The preparation is constituted by the methods and training methods, used sequentially in obedience to the principles of periodization and is designed to take athletes to the pinnacle of their particular physical form, from a good general basis (Dantas, 2003: 41).

To Frisselli (1999), physical preparation is divided into general and specific. In general it has been the development of the physical manifestations that are not currently competitive priority, but which directly or indirectly influence the competitive performance. The specific physical preparation aims to achieve the optimal development of physical manifestations of these capabilities that meet the needs of a specific player during the course of a football match.

Also to be mentioned in the goal of fitness, conditioning the players on the views and neuromuscular organic for the full exercise of the activity - end: matches (90) minutes, in which are traversed on average, more than 11 km, sometimes sequences of up to three (3) games per week, possibly in different competitions, but concurrent, and seasons in Brazil, some clubs require approximately 100 (one hundred) games in 52 (fifty two) weeks per year (LEAL, 2001:129).

According to Leal (2001), the physical preparation serves as a basis for preparing technical - tactical, and direct the general preparation of the peak shape. Generally, you can only keep it for about 3 (three) or 4 (four) weeks. So it must be achieved at the right time or the season of competition, in accordance with the strategy established in the work program. In order to improve the performance of athletes, physical training should be more specific (KRUSTUP; Bangsbo, 2001; Rebelo et al. Al. 2002; Da Silva, 2005a; WESTON et al. Al., 2004). For this, it is necessary to know the largest number of variables that could assist in the preparation of the training program due to the increasing use of exercises that transfer their effects to the sport that it is training. These variables are investigated by evaluating the results of tests of physical fitness.

According to Astrand and Rodahl (1980), the use of physical tests by professional physical education can be justified by the pedagogical point of view and psychological, as the results allow the objective evaluation of any progress. The results of a battery of tests used to determine the potential and weaknesses of an athlete, thus determining its condition before, during and after training. This allows you to check if the program is reaching the goals set and in the end, conclusions regarding the athlete gained through training. In addition to serving the diagnosis of the athlete's performance level, this data can be used to stimulate their interest in training (Astrand, Rodahl, 1980; POLLOCK; WIMORE, 1993; EISSMANN, 1996).

A large part of scientific publication regarding the national professional soccer players was developed in the south-southeast of the country, so little is known about the fitness level of athletes from other regions. Therefore this study aimed at determine the fitness level of professional athletes Sport Club Flamengo, one of the largest and oldest club affiliated with the CBF state of Piauí.

MATERIAL AND METHODS

The study population was composed by athletes in the Esporte Clube Flamengo (ECF) affiliated to the Federação de Futebol Piauiense (FFP). These athletes showed the coaching staff to be subjected to the tests of physical fitness during the off-season of 2011. The sample consisted of 30 players, all male, with a mean age of 21.1 +4.1 years (Table 1), mean height 177.9 +7.4 cm (Table 2), and mass body average of 70.9 +7.6 kg (Table 3). The total number of subjects evaluated corresponded to 100% of the population of professional athletes contractually bound to the ECF for the current season. The players were divided into five groups, each group integrating six individuals.

The tests used to analyze the physical fitness of the squad was able to provide data for the main physical valences involved in a football match: VO2 max, muscular power, fatigue index and agility. The test battery was composed of two passes through the circuit of Illinois, a passage through Rast Test 35m and 2400m Cooper completed the test. The tests were given in the same order as described above is divided into two days of execution. On the first day of the test and Rast Illinois in the second Test and the Cooper test.

The time of recovery during the tests of the first day was not less than 5 minutes. The tests were applied to a soccer field dimensions and individual officers used appropriate shoes for the sport. To measure the time in each of the tests were used timers Cosmos brand, model PZFM - 629.

For statistical information, we used descriptive statistics to group the results mean and standard deviation. For the calculation of VO2 max consumption of each individual was evaluated using the formula of Cooper:

$$\text{Vo2 máx} = \frac{(2400 \times 60 \times 0{,}2) + 3{,}5}{\text{Time in seconds}} = \frac{28803{,}5}{\text{time in seconds}}$$

For the calculation of peak anaerobic power, anaerobic power and the average fatigue index we used the following

formulas:

PW = PC x D² / T³ (seconds)
PAN – Peak W = Max P in 1 shot
PAN – Average W = ΣPW 6 shots/6
IF (w/s) = (PAN – Peak W) – (PAN – Minimum W)
Total time for 6 shots

RESULTS

The results obtained by the players during the agility test are listed in Table 04. The results of resistance testing and anaerobic alactic Cooper test are presented in Tables 05 and 06.

Table 01: Analysis of age of players.

	N	Average	DP
Players	30	21,1	4,1

N: Sample
Average: Age in years
DP: Standard deviation

Table 02: Analysis of the stature of the players.

	N	Average	DP
Players	30	177,9	7,4

N: Sample
Average: Stature in cm
DP: Standard deviation

Table 03: Analysis of body mass of players.

	N	Average	DP
Players	30	70,9	7,6

N: Sample
Average: Body Mass in Kg
DP: Standard deviation

Table 04: Illinois Test Results

	N	Average	DP
Players	30	16,99 (16,07 – 17,87)	0,4

: Sample
Average: Seconds
DP: Standard deviation
According to Davis (2000), the team is at an average level of agility.

Table 05: Rast 35m test Results.

		Anaerobic power			
	N	PAN Peak (W/kg)	PAN Min(W/kg)	PAN Ave(W/kg)	DP
		Shot 1			
Jogadores	30	9,51	8,23	8,86	0,8
		Shot 2			
Jogadores	30	8,97	7,78	8,0	0,77
		Shot 3			
Jogadores	30	8,0	5,96	7,69	1,01
		Shot 4			
Jogadores	30	7,69	5,40	6,72	1,07
		Shot 5			
Jogadores	30	6,72	4,46	5,73	1,06
		Shot 6			
Jogadores	30	5,73	4,26	5,17	0,86
		Fatigue Index			
	N	Average IF			DP
Jogadores	30	7,95 (7,13 – 8,91)			2,82

PAN Peak: Maximum Anaerobic Power PAN Min: Minimum Anaerobic Power
PAN Méd: Mean Anaerobic Power N: Sample
DP: Standard deviation W: Watt Power
Average IF: Fatigue index average in W/s

Table 06: Cooper 2400 m test Result.

	N	TM	DP	$VO_{2\,máx.}$ Average	DP
Players	30	572 (549 – 596)	3,95	50,45 (48,33 – 52,47)	1,17

TM: Average time in seconds
DP: Standard deviation
N: Sample
VO2 max: Maximum capacity of oxygen uptake in ml/kg/min.

DISCUSSION

The first trial was applied to test players of illinois. The average time for athletes was 16.99 +0.4 seconds (n = 30). Agility refers to the ability of the athlete to change direction quickly and efficiently, moving easily in field or actions that pretend to deceive the opponent in front of you (Bompa, 2002, p. 51). The agility in football is the ability to change the movements as quickly as possible in the face of unforeseen circumstances, taking quick decisions and performing actions efficiently (SCHMID, Alejo, 2002). According to Davis (2000) the team would qualify as having a medium level of agility. Agility is developed through exercises that require a rapid reversal movements with the participation of the whole body (Kunz, 1987, p. 140). For football players, agility training is great for improving skill levels (Schmid, Alejo, 2002).

In the second time we held of the Rast Test 35 meters, where the group of six athletes made pikes of 35 meters each with an interval of 10 seconds between the two pikes. The group presented indices of maximum power, minimum power and average power, respectively lower than expected for professional footballers, these data confirmed from the results presented by Bangsbo (1998) (Table 07). The anaerobic SPRINT RUNNING BASED TEST (RAST) was developed by the University of Wolverhanpton UK (www.brianmac.demon.co.uk, accessed September 2011) to test performance athletes presenting data anaerobic anaerobic power. Because the football hold large number of dislocations with varying intensity and duration, anaerobic power becomes an important aspect for the athlete, so that not a state of fatigue at the end of matches (SOUZA, 2006). Maximum Power values found in this study are lower than those found by Godik (1996), who found values of 12.4 +1.1 W / kg in 15 athletes from Football League.

In relation to average power, Pavanelli (2004) points out that good levels of this variable, express the good glycolytic capacity and high efficiency anaerobic lactic, or athletes who have high levels of power are more tolerant of Average lactic acid production, enabling him to perform high-intensity movements without noticeable loss of efficiency. The study of the fatigue index aims to express the ability of the athlete has to endure high-intensity stimuli, with no significant drop in performance (SOUZA, 2006). Corroborating this analysis, Bangsbo (1994) explains that the smaller the value of the fatigue index, the greater the tolerance of the athlete to the intense effort and thus fatigue.

The Fatigue Index levels found in this study are greater than the values found by Silva et al (1999), where the values are 46.2 +15.2%. Thus, the athletes of this study have a lower tolerance to high intensity stimuli.

Completing the battery of tests applied was held the Cooper Test 2400 meters. The maximum oxygen consumption (VO2 max.) Is the physiological variable that best describes the functional capacity of cardiovascular and respiratory systems. It is accepted as an index that represents the maximum integration of the body to capture, transport and utilize oxygen for aerobic processes for energy production during muscle contraction (Denadai, 1999).

The results of VO2 max squad was 50.45 +1.17, these data demonstrate that low aerobic capacity of the team compared to other studies of professional football teams. Corroborating this analysis we have the data presented by Turibio et al (1998) where the analysis of 715 professional athletes in the state of São Paulo presented as mean VO2 max 57.12 +5.47 ml / kg / min.

Table 07: Reference values for Testerência Rast Rast Test for.

indicator	Excellent	Good	Aceptable	Weak
Maximum Power (W/kg)	15,95	15,94 a 14,57	14,56 a 13,20	< 13,19
Average Power (W/kg)	12,82	12,81 a 11,51	11,50 a 10,20	< 10,19
Fatigue Index (W/s)	6,96	6,97 a 8,90	8,91 a 10,85	> 10, 86

SOURCE: BANGBO, J (1998).

CONCLUSION

Data analysis allowed to conclude that in absolute terms, the ECF players are below the average found in other research on the physical capacity of professional footballers. Therefore, would be ready physically for the sport, but below the national level.

The value of VO2 max by athletes presented demonstrates that the difference is the level of fitness, where a specific training program with the use of Fartlek training and reduced field is widely indicated.

For an improved level of muscle power and consequently decreased fatigue, we recommend a periodization of strength training with weight lifting in the gym.

For a better understanding of the athletic profile of professional footballers Piauí, it would be interesting to measure the performance data for the other players' physical state associations. Thus, we could identify which teams better prepared and those in need, most urgently, a specialized training.

The data presented here will serve as a reference for players and coaches, who can compare their results with results from traditional players in a football team that consistently Piaui and participates in national competitions, so you can set goals in the training program.

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ANALYSIS OF THE PHYSICAL FITNESS OF THE PROFESSIONAL SOCCER PLAYERS OF THE ESPORTE CLUBE FLAMENGO - PI (ECF) IN 2011 SEASON.

ABSTRACT

Present study aimed at evaluating the level of physical fitness of professional soccer squad Sport Club Flamengo - PI (ECF). The sample consisted of 30 athletes who underwent fitness tests at the beginning of the 2011 season. All subjects were male, had an average age of 21.1 +4.1 years, height 177.9 +7.4 cm and body mass 70.9 +7.6 kg. The battery of tests used at the end of the pre-season 2011 were: Illinois, Cooper and Rast Test 2400m 35m. The players have an average of 16.99 seconds at +0.4 agility test, Pikes traveled 35 meters in 5.63 seconds and +0.56 Cooper performed the test on 2400m 9.32 +0.07 minutes. The data analysis found that, in absolute terms, the athletes of the ECF produced unsatisfactory results in all the physical tests, so would not be physically ready to compete at national games.

KEY-WORDS: soccer, physical fitness and tests.

ANALYSE D'APTUDE PHYSIQUE DOS JOUERS DE FOOT DU SPORT CLUB FLAMENGO (SCF) DANS JEUX 2011

RESUMÉ

Cette recherche a eu comme but évaluer le niveau d'aptude physique de l'équipe professionel de foot du Sport Club Flamengo -PI (SCF). Pour analyse nous avons choisi 30 athlètes qui se sont soumis à tests d'aptude physique au debut des jeux 2011. Tous sont du sexe masculin, ils ont l'âge entre 21 ans a 25 ans, la taille entre 1,77 a 1,84 et la masse corporelle de 70 kg a 77kg. L'ensemble de tests utilisés avant les jeux 2011 ont eté: Illinois, Cooper 2400m et Rast Test 35m. Les jouers ont obtenu une moyenne de 16,99+0,4 secondes dans le test d'agilité, ils ont completé les piques de 35 mètres en 5,63+0,56 secondes et ils ont fait le test Cooper 2400m en 9,32+0,07 minutes. La analyse des donnés nous avons permis de conclure que les athlètes du SCF ont presenté resultats insatisfaisante en tous les tests physique, donc ils ne sont pas preparés physiquement pour disputer les jeux au niveau national.

PALAVRAS-CHAVE: foot, aptude physique et tests.

ANALISIS DE APTITUD FÍSICA DE LOS JUGADORES DE FÚTBOL PROFESSIONAL DE LOS ESPORTE CLUBE FLAMENGO – PI (ECF) EN LA TEMPORADA 2011.

RESUMEN

Este estúdio tuvo como objetivo avaliar el nível de aptitud física del plantel profesional del fútbol del Esporte Clube Flamengo- PI (ECF). La muestra fue constituída por 30 atletas que sujetaran a las pruebas de aptidón física en el inicio de la temporada 2011.Todos los indivídios son del sexo masculino, presentaron una edad media de 21,1+4,1 años, la estatura de 177,9+7,4 cm y masa corporal de 70,9+7,6 kg. La batería de testes utilizados al final da pré temporada de 2011 fueron: Illinois, Cooper 2400m y Rast Test 35m. los jugadores conseguiron una media de 16,99+0,4 segundos y efetuaron un teste Cooper 2400m en 9,32+0,07 minutos. El analisis de los dados permitió deducir que, en termos absolutos, los atletas do ECF presentaron resultados insatisfatórios en todos los testes físicos, por lo tanto no estarian preparados fisicamente para competir juegos de nivel nacional.

PALABRAS- LLAVE: fútbol, aptitud física y testes

ANALISE DA APTIDÃO FÍSICA DOS JOGADORES PROFISSIONAIS DE FUTEBOL DO ESPORTE CLUBE FLAMENGO (ECF) NA TEMPORADA 2011.

RESUMO

Este estudo teve como objetivo avaliar o nível de aptidão física do plantel profissional de futebol do Esporte Clube Flamengo – PI (ECF). A amostra foi constituída por 30 atletas que se submeteram a provas de aptidão física no inicio da temporada 2011. Todos os indivíduos eram do sexo masculino, apresentavam uma idade média de 21,1+4,1 anos, a estatura de 177,9+7,4 cm e massa corporal de 70,9+7,6 kg. A bateria de testes utilizados ao final da pré temporada de 2011 foram: Illinois, Cooper 2400m e Rast Test 35m. Os jogadores conseguiram uma média de 16,99+0,4 segundos no teste de agilidade, percorreram os piques de 35 metros em 5,63+0,56 segundos e efetuaram o teste Cooper 2400m em 9,32+0,07 minutos. A análise dos dados permitiu concluir que, em termos absolutos, os atletas do ECF apresentaram resultados insatisfatórios em todos os testes físicos, portanto não estariam preparados fisicamente para competir jogos de nível nacional.

PALAVRAS-CHAVE: futebol, aptidão física e testes.