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Original article

DETERMINATION OF SOME PHYSICAL PROPERTIES Of U-23 SOCCER PLAYERS'

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Abstract

Objective. This study was made out on 15 football players (age:18,6±1,4) selected among 2500 footballers for the U-23 National Team of Kyrgyzstan.

Methods. Measurements of footballers was measured before 2018-2019 season, environmental measurements, maxVo2 levels, anaerobic capacity, BMI, sprint (10 m, 20 m, 60 m), football-specific right and left leg smash distances, flexibility levels. The data obtained in the study were calculated using SPSS 15.00 package program and the averages were calculated.

Results. When the obtained data were analyzed, the maxVo2 and anaerobic power levels of the footballers were found to be low in general compared to the literature. Additionally, the mean of Sprint measurements were found to be compatible with the literature.

Conclusions. As a result, it was observed that the averages of aerobic and anaerobic power measured at the beginning of the preparation period were low. It was concluded that the training of the footballers during the preparation period should be planned according to the development of the aerobic and anaerobic power feature.

Keywords: football, maxVo2, pre-season.

Introduction

Football is one of the most popular sports in the world, and senior players need technical capabilities, as well as powerful physical features. Knowing the characteristics of the football players

Football is described as the world's most popular sport played almost all over the world (Günay ve Yüce, 2008; Müniroğlu at all. 1996). The physical structure of the football players is one of the most important factors (Çaglar ve ark. 1997; Müniroglu at all. 1996; Tamer at all. 1996). In addition football is a sports branch where anaerobic and aerobic features are required at a high level. It is known that the importance of aerobic and anaerobic characteristics in football, namely flexibility, speed strength, muscular endurance, cardiovascular endurance, coordination, body structure and composition are important factors in increasing performance (Güler at all. 2010).

As with other sports, in football, both physiological and physical abilities, including anthropometric measurements of body composition and cardiorespiratory endurance, muscle strength, muscle endurance and flexibility, are generally assessed by tests (Stolen at all. 2005; Canhadas at all. 2010). The factors which cause physical fitness in football players by the researchers are listed as aerobic capacity, anaerobic power, strength speed, flexibility, agility, balance and coordination (Islegen 1987; Açıkada ve ark 1999). Training of distinguished level and the development of factores that will affect success have been an important subject of research by sport scientists.

programs are shaped according to the results obtained from these properties measured by the tests. To have in-depth information of the determinants of success for football coaches and scientists, such as specific anthropometric and physiological characteristics of players, is important in both skill identification and development processes (Reilly ve ark.).

In the light of this information, the present situation of 15 football players that will affect the success before the season has been determined by a number of tests and presented to continue to the literature.

Methods

This study was made out on 15 football players selected among 2500 footballers for the U23 National Team of Kyrgyzstan.

Height, body weight and body environmental measurements: The subjects have been weighed in up to 20-gramm sensitive weighbridge with bare feet and shorts only. Length measurements have been taken with the Holtain slide calipers while the subjects were standing in upright position having the calipers that slide along the scale adjusted so

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that they can touch the heads and read with an accuracy of 1 mm in length. This net body weight was then used to calculate body mass index (BMI, kg/m2) (Inokuchi at all. 2006). Body environmental measurements were made with anthropometric stripe meters (Gulick meters) ±1mm accuracy. Calculation of anaerobic power: Anaerobic power in kg-m/sec is calculated according to the following Lewis formula by measuring the spatial distance and using the body weight (Tamer 2000; Fox 1984).

$$p = \sqrt{4.9} \times \text{Body Weight} \times \sqrt{D}$$

P = Anaerobic Power (kg-m/sec)

D = Vertical Jump (cm)

Aerobic capacity (maximum oxygen consumption): Measured by 20m shuttle running test. At the gym, distance of 20 meters and a test area for colored funnel were determined. The subjects ran to both arrival and return lines with the signal from the tape. The pre-prepared level follow-up form marked the levels in which the subjects left the test, and according to the evaluation table, Max.VO2 was estimated in ml/kg/min (tamer, 200).

Flexibility measurement: The football players were asked to do warm-up and stretching exercises before the flexibility measurements, in the long sitting position (without bending their knees) the bare feet were asked to push the digital ruler based on the sit-down table. The measurements were repeated 3 times for each athlete and the highest value was recorded.

Sprint performance tests: The subjects were held ready at the exit point. When the subjects felt they were ready, they ran the distance (15-30-60 m) using maximal velocities. The time between start and end was determined by photocell (New Test 2000, Oulu, Finland). Tests were applied to subjects three times and the best performance value was analyzed.

Hitting ball test: 15 minutes before the smash test, the football players were given time to warm up. Then they were asked to shoot the distance in the marked direction. The measurements were made twice with the right and left legs and the first contact point of the ball was recorded in meters as distance.

Data Evaluation: The obtained data were processed in Exel and the mean standard deviation and minimum-maximum values of all parameters were determined and tabulated.

Results

Descriptive statistics and physical test scores of the football players included in the study are given in Table 1.

Table 1. Descriptive Statistics of Football Players

PARAMETERS	Min	Max	Mean	sd
Age (years)	16	21	18,6	1,4
Body weight (kg)	61,6	84,6	69,51	7,40
Height (cm)	167,7	186,4	177,03	5,26
BKİ (kg/m^2)	19,73	24,74	22,13	1,47
Anaerobic Power (kgm/sec)	90,44	131,08	104,76	12,18
Aerobic Power (maxVo2) (ml/kg/min)	45,5	60	52,34	3,84
All leg length (cm)	94,4	108,2	100,52	4,12
Femur circumference (cm)	49,5	58,3	53,81	2,87
Calf circumference (cm)	33	39,5	36,01	2,33
Leap Vertical jump distance (cm)	38	53	46,4	3,58
Flexibility (cm)	17	41,5	30,85	7,30
Sprint (15 m)	2,15	2,42	2,30	0,07
Sprint (30 m)	4	4,22	4,12	0,07
Sprint (60 m)	7,44	8,34	7,74	0,22
Hitting ball with right leg (m)	33,1	60,2	45,42	14,25
Hitting ball with left leg (m)	29,6	59	39,04	18,04

As shown in Table 1, the average of shorts of football players with the right leg was 45,42±14,25 m, while the average of the shots with the left leg was 39,04±18,04. Sprint averages (15-30-60 m) in the order of 2.30 ± 0.07 sec, 4,12 ± 0,07 sec and 7,74 ± 0,22 sec averages were

determined. Flexibility average of 30,85 ± 7,30 cm and Leap Vertical jump distance average were 46,4 ± 3,58 cm.

Discussion

In the study, the physical characteristics of 15 football players with average age of 18,6±1,4 years, aerobic and anaerobic forces, sprint times, flexibility levels and maximum shot distances were determined from 2500 young football players in Kyrgyzstan.

Aerobics capacities of the players participating in the study maxVO2 averages 52,34 ± 3,84 ml / kg / min. have been determined. In a study conducted Kartal and Günay (1994), measured Max VO2 levels in players as 53.05 ml/kg/min before the preparation season. In different studies, maxVo2 levels were obtained from Resina and his friends (1991) as 60.6 ml / kg / min, Filaire and his friends (2001) as 58.8 ml / kg / min, Duvillard and his friends (1993) as 59.2 ml / kg / min, Bozkurt and Hazar (2004). PAF team players as 55,53 ml / kg / min, Kayatekin and his friends (1993) as 45.83 ml / kg / min in 2 Lig football players, Gençay (1995) in his study 53.12 ml / kg / min. Studied from the literature most of these maxVo2 levels reflect higher averages than our results. The reason for this indicates that the oxygen utilization capacities of the football players we are measuring are not improved sufficiently. In addition, in the literature, results are compatible with our findings. As a matter of fact, Erken and his friends (2005) reported maxVo2 levels as 46.55 ± 5.20 ml / kg / min for competing football players with a mean age of 20.71 ± 1.86. In another study İşleyen and his friends (1992), in the 2 Lig football players, Max VO2 was 45,2 ml/kg/min before the preparation season.

In our study, anerobic power averages of football players were determined as 104,76 ± 12,18 kg.m / sec. In a survey conducted on footballers, Kılış and Toşur (2018) measured an average of 128.90 ± 17.13 kg.m / sec in professional football players and 117.21 ± 12.54 kg.m / sec in amateur football players. In another study, Iri and his friends (2017) defined that the average anaerobic power of elite football players was 127.60 ± 4.27 kg.m / sec. In a similar study, Aslan and Koç (2015) reported an anaerobic power average of 119.07 ± 18.50 kg / sec in their study with amateur football players. The anaerobic power averages of the studies examined showed higher values than our study findings.

In our study, the BMI averages of football players were measured as 22,13 ± 1,47. . In our study, there are many studies supporting the results of BMI obtained from football players (İri at all. 2017; Uğraş at all., 2002; Wittich at all.,1999; Aslan and Koç, 2015).

In our study, another parameter analyzed by footballers, sprint averages (15m, 30m, 60m) were 2.30±0.07 sec, 4.112±0.07 sec and 7.74±0.22 sec respectively. Uğraş and his friends (2002) in their study on football players, the scores of 30 m speed were 2.69±0.08 sec and 50 m. They reported speed scores as 5.86 ± 0.24 sec. In another study, Ek and his friends (2007) again reported 30 m sprint times as 4,19 ± 0,2 sec and 60 m sprint times as 8 ± 0,33 sec. Our findings showed better scores than the results of the researchers. It is thought that this may be due to the level of training of football players.

The flexibility levels measured at the beginning of the season were 30.85 ± 7.30 cm. In different studies, the level of flexibility of football players reported reflected the values close to our findings (Uğraş at all.., 2002; Yamaner and Hacıcaferoğlu 1997: Müniroğlu at all. 1997).

As a result, it was observed that the aerobic and anaerobic power averages of football players measured at the beginning of the preparation period were low. While planning preparatory training, it has been concluded that studies aimed at improving these characteristics could increase the success of the football players.

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