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AL  
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**ANALYSIS OF THE PROGRESS RATE OF PHYSICAL QUALITIES FOR  
JUNIOR FOOTBALL PLAYERS**

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***Rezumat***

În cadrul acestui studiu s-a urmărit analizarea ratei de progres a parametrilor calităților fizice la jucătorii juniori de fotbal, ca urmare a utilizării timp de doi ani a acelorași mijloace specifice de antrenament. S-au efectuat trei testări succesive după câte 4 luni și s-au observat creșteri semnificative ale mediilor valorilor parametrilor fizici analizați: viteza, forța picioarelor și agilitatea. Aceste creșteri demonstrează eficiența tehnicilor de antrenare utilizate.

**1. Introduction**

Football is a sport game played at junior level by amateurs, semiprofessionals and professionals. The play is physically demanding requiring players to participate in phases of intense activity followed by short phases of low intense activity and the football players must develop some fitness components such as: muscular power, speed, agility and aerobic power [1]. There are in specific literature some studies concerning the physical characteristics of junior football players correlated to their anthropometric characteristics and the requirements for training and match-playing [2 -5].

Football players spend a substantial time trying to improve their physical capacities, including speed, power and agility [2]. These capacities can be maintained or/and improved by training techniques and even during the competitive seasons by specific practices and conditioning programs [6].

This study intent to emphasize the efficiency of the methods and techniques that have been used in junior football players training for the age category of 16-17 years in correlation to their physical characteristics.

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## 2. Method

A total of 15 subjects participated at this study. All the subjects are registered players from the football club *FC Timișoara* and are competing in the National Junior Championship. All subjects received a clear explanation of this study including the risks and benefits and the consent of their parent was obtained. All the subjects have performed 6 training sessions by week and one mach-play. In the pre-competitive period 4 of these 6 training seasons were dedicated to developing their physical skills and during competitive period there are 2 such training sessions, the other 4 training sessions being concentrated on the technique exercises. It must also to mention that the techniques concerning the development of physical capacities are used for short time in every training session, at the begging or at its end. The envisaged physical skills are: the development of the muscular power, endurance, speed and agility.

The field tests selected for this study are: the muscular power of the legs by repetitive horizontal jumps, sprint for 50 m and agility (commute, 5 times of 10 meters). The field tests have been done three times: the first test (T1) was done in 29.10.2007 and it was repeated in 05.03.2008 (T2) and 27.07.2008 (T3). For the first test the environmental temperature was 20°C in a sunny afternoon, for the second test the temperature was 7°C, in raining conditions and for the third test the temperature was 27°C in hot conditions.

## 3. Results

The values obtained for the investigated physical qualities are presented in figures 1 (speed), 2 (power of legs) and 3 (commute) respectively for all the three tests.

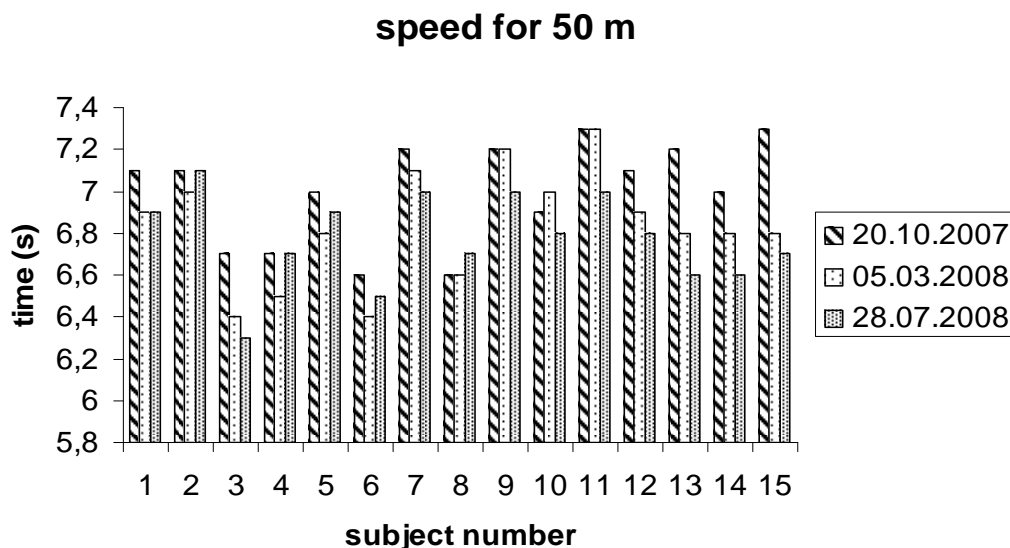


Fig. 1. The values obtained for speed of junior football players in the three tests.

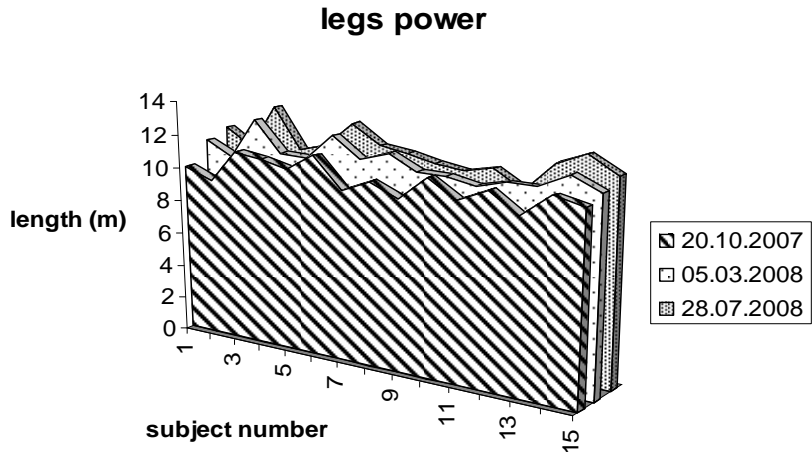


Fig. 2. The values obtained for the legs power (three successive horizontal jumps) of junior football players in the three tests.

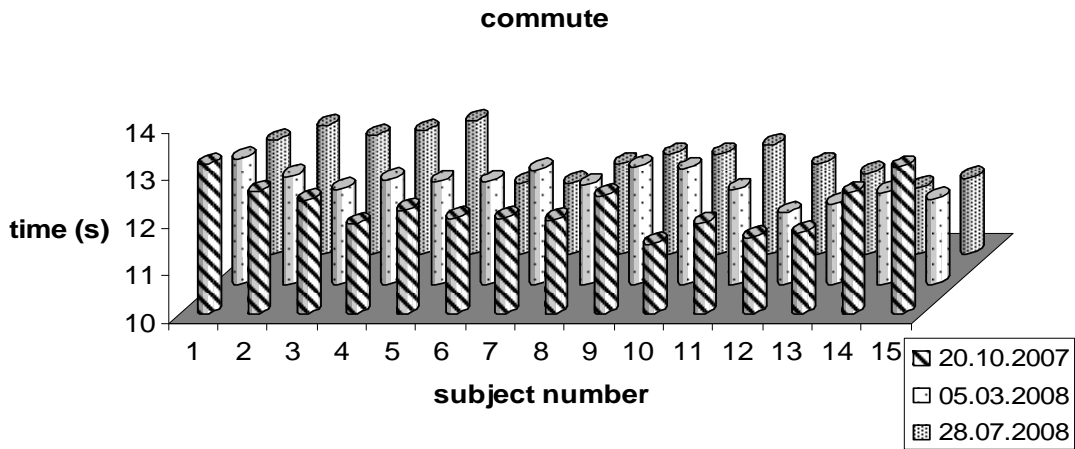


Fig. 3. The values obtained for the agility (commute 5 times of 10 meters) of junior football players in the three tests

The average values of the physical parameters considered in this study are presented in the table 1.

Table 1. The mean values of the physical parameters investigated for the junior football player of 16-17 years

Sprint (s)			Legs power by repetitive jumps (m)			Agility (s)		
T1	T2	T3	T1	T2	T3	T1	T2	T3
7.0±0.1	6.8±0.3	6.7±0.2	10.7±0.7	11.5±0.6	11.8±0.2	12.2±0.5	12.1±0.3	12.1±0.5

The results obtained here are comparable with other published data in the specific literature. For example, for 20m sprint, 21 elite soccer players from the team *Chievo Verona* (mean age  $17.6 \pm 0.4$ ) have registered  $3.05 \pm 0.02$  s before 8 weeks of training and  $2.97 \pm 0.02$  s after it [5].

#### 4. Discussion and conclusions

The Student test implemented under ORIGIN 7.0 package shows that, at 0.05 levels, there are significant differences between the average values for investigated parameters between the tests T1 and T3 for speed, between T1 and T2 and between T1 and T3 for legs power. The others mean values do not differ significantly. It means that, in average, the junior football players have improved their speed and legs power and they have maintained their agility. It is also important to underline that the test T3 was done after four weeks of rest because the summer holiday. Even in these conditions, the great majority of junior football players have improved their physical qualities and the others have preserved them.

The results presented here and obtained for the football players of 16-17 years old underline the efficiency of the training techniques that have been used during their training sessions and assures the support to obtain good results in the future competitions if the team and coaches are maintained. Also, the mean values that we have obtained here for the investigated physical characteristics may be useful for selecting junior football players and also to rationalize or to establish some standard levels for training techniques.

There are a few football players which considerably improved their physical characteristics from one test to the other. It assures the possibility to discover between these subjects a few exceptional football players in the future.

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