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The Effect of 6-Month Fundamental Soccer Training on Body Composition, Soccer Skill and Biomotor Abilities of Aged 10-12 Sedentary Male Children

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Abstract

Objectives: The aim of this study was to investigate the effect of 6 months fundamental soccer training program on body composition, soccer skill and biomotor abilities of sedentary young men who were aged 10-12 years.
Materials and methods: Thirty and six healthy sedentary male children who were aged 10-12 years participated voluntarily in this research. Participants were equally distributed into three different age groups, according to age level. Fundamental soccer exercises were applied to all groups in an hour for a day in a week for duration of 6 months. Participants' stature, body mass (BM), percentage of body fat (%BF), body mass index (BMI), 30-meter sprint (30mS), Illinois agility (IA), shoot to goal (SG) and ball control with the body (BC) tests were measured and compared according to age groups before and after the 6 months of soccer training program.
Results: At the end of pre and post-test results of three age groups, there were significant improvements between the average parameters of stature, BM, BMI, %BF, 30mS run, IA, SG and BC ($p<0.05$). Due to increase of 12-age group's stature was much more than other age groups ($F_{2,33}=18.52$, $P<0.05$), significant improvements in BM values were observed in favour of 12 years age group ($F_{2,33}=6.01$, $p<0.05$). It was found at moderate level of correlation (pre-test: $r=0.62$, post-test: $r=0.57$) between the IA and 30mS test. The 30mS sprint time in 10-age group had significant improvements compared to other age groups ($F_{2,33}=13.60$, $p<0.05$). Although the development of the SG and BC parameters of 12-age group were more higher compared to other age groups, there was no significant relation between them ($p> 0.05$).
Conclusion: After the 6-month fundamental soccer training program, age factors had an impact on the parameters of body composition, soccer skill and motor abilities. Due to significant increase of body composition values in the higher age groups, the significant improvement of sprint time was observed in favour of the lower age group. It was found at moderate level of correlation between the IA and 30mS test. Hence, the relations between them were lower than expected. The obtained data as a result of fundamental soccer training can keep the important lights especially to the infrastructure trainers, and thus can make a major contribution to the growth of soccer players in higher ability in the future.
Keywords: Fundamental training, body composition, soccer skill, biomotor ability, soccer.

INTRODUCTION

Nowadays, participation of organized sports in younger children is increasing gradually. Because of the basic philosophy is "discover at an early age", the participations of training and competition should be started before puberty for successful performance (1). Thus, in order to achieve success in elite sport at increasingly younger ages, leads to tendency to sports at an early age. So, it has become compulsory to be done many years of training in children's sports for to be elite. However, the responses to the training load of children are different from adults, and the reason for this has been shown to be directly related to growth and maturation (2). Variability of growth and development during childhood and adolescence should be considered in order to creation of child athletes' physiological standards, interpret test results and selection of talent (3). Although there are many skill tests for children to choose a particular sport branches, the most important selection criteria is their physical capacities and the body size (1). Hence the maturity level is an important factor on physical performance capacity of young soccer players (4, 5, 6, 7). In addition, many exercise performances that determine to physiological components improves growth and biological maturity (1). However, the relationship between the level of maturity and soccer skills are not fully understood (8). Therefore, the soccer skill and basic motor levels of the children is very important to know at the stage of sporting activities (4).

During a 90-minute game, soccer players run at an average intensity of 80–90% of maximal heart rate. Within this endurance context, numerous explosive bursts of activity are required, including jumping, kicking, tackling, turning, sprinting, changing pace, and sustaining forceful contractions to maintain balance and control of the ball against defensive pressure (9). On the other hand, although soccer is one of the most widely played sports around the world, studies about young players and the success factors in soccer are still scarce (4, 10).

Besides fundamental soccer training develop to soccer skills of young players, it can provide to gain experience, maturation, socialization and sharing as well as finding a place in the community to enhance the social and psychological status (11). At the same time, the changing characteristics of the players (e.g. age, height, weight, agility, training experience, adolescence and functional capacity) may also provide us to have some prior knowledge (12). In recent years, both in developed and developing countries, a rapid increase in obesity seen in children and adolescents proves to be, and almost the general public has to deal to this most common problem (4). So, the programme demonstrated that it was possible to implement a football-based health-education programme for children that achieved significant increases in health knowledge and that was also well received by participants (11). Therefore, the obtained data from the fundamental soccer training can keep the important lights to coaches and trainers. So that, the trainers can develop the infrastructure football trainings and can facilitate the selection of appropriate training models. In this regard, we believe that it will make a huge contribution to growth of youth footballers with higher ability in the future.

In accordance with these information, the aim of this study was to contribute to the success of children in soccer, and it conducted in order to provide some information about how affects the six-month training that applied regularly on the body composition, soccer skill and motor abilities of the sedentary male children, aged 10-12 years.

METHODS

Study Group

Thirty-six healthy sedentary male children (age: 11.00±0.83 years; stature: 147.03±8.83 cm; body mass: 37.62±11.77 kg) participated voluntarily in the study. Volunteers were selected according to their birth date (age level) for this study. They were divided into three different age groups with 12-person per group by 10 yrs, 11 yrs and 12 yrs, called group I, II and III, respectively. Age status of the children was determined by self-assessment of development in birth date (years) according to the criteria of identification card. All of them were not a soccer player in any soccer school or soccer clubs. Candidates underwent a medical examination at the state hospitals of Malatya (Turkey). As a result of the survey and the medical reports, it has been identified that they did not have any health problems and use drugs. In accordance with the Declaration of Helsinki, all participants and their parents were informed of the purpose and possible risks involved in this study before giving their informed written consent for participation. After that, this medical report was signed by parents prior to the study for each subject in order to participate to all fundamental soccer trainings and tests.

Applied Training Programs

The trainings were administered under dry conditions in outdoor soccer fields with synthetic surface at Inonu University. The same training programs were performed in different fields according to age groups. The trainings were applied to the group I, II and III by two expert coaches who were over 3 years of experience in young soccer. All the participants were trained in fundamental soccer specific drills and games, independently of the age, free from injury that might have affected their performance on the tests. All the subjects' training experiences were applied at the time of the study between at 09:00 and 10:00 on the weekend during 6 months. They were trained for a-day (Saturday or Sunday) per week and playing a competition match in the last periods of trainings for totally 20 minutes in two halves (10 minutes for each halve). The soccer balls (Molten VG 121, number-4, USA) that designed for children aged 08 to 12 and approved by FIFA were used for all trainings.

Measurement Methods

The subjects were taken to tests by experts after the adequate and proper warm-up studies (soccer specific standard jogging and stretching exercises), and also adequate rest intervals were given them. Prior (pre-test) and after (post-test) the study, all subjects were tested by the experts in two times.

Body Composition Tests

Anthropometric Measurements

Stature of subjects in bare feet was measured by a ruler in centimetres with the sensitivity of ±0.01 cm. Body composition (BM and %BF) of subjects in bare feet, t-shirts and tights was measured by using of Tanita (Body Composition Analyzer BC-418 MA, Japan). Body mass index was calculated by the formula of BMI (body weight by kg/height by m^2).

Biomotor Ability Tests

30-Meter Speed (30ms) Test

Measurements were performed by photocells that placed in the starting and finishing lines. The subjects performed the 30 m maximum speed test, and they warmed up in the usual manner for 10-15 minutes before starting the test. Each participant performed two trials for each of the tests with 5 minutes of rest between them, and better of two trials was selected for analysis (13).

Illinois Agility (IA) Test

On a flat surface area with the dimensions of 10 m x 5 m was prepared (figure 1a) for

performing of agility test protocol (13). Measurements were performed by photocells that placed in the starting and finishing lines. The subjects warmed up in the usual manner for 10-15 minutes before starting the test. The subjects started to the test in the standing position behind the starting photocell. On the 'Go' command the athlete rushed as quickly as possible and ran around the course in the direction indicated, without knocking down any cones, to the finishing photocell, at which the timing stopped. Each participant performed two trials for each of the tests with 5 minutes of rest between them, and better of two trials was selected for analysis.

Figure 1a:
Illinois agility test (14)

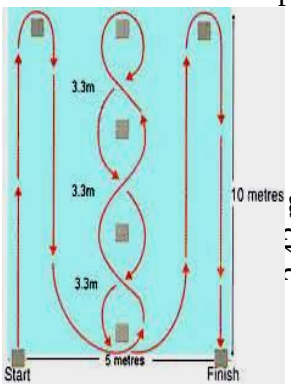
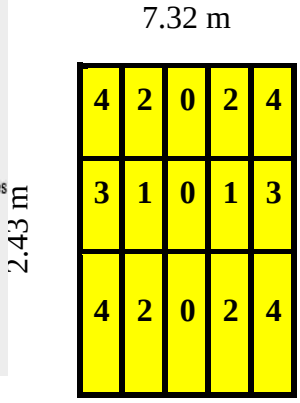


Figure 1b:
A standard football goal, divided into 15 parts (15)



Soccer Skill Tests

Shoot to Goal (SG) Test

A standard football goal (2.43 m x 7.32 m) was divided into 15 equal parts on the wall. The dimension of each part had 1.46 m x 0.8 m, and each of them was graded between 1 and 4 pts (figure 1b). Each subject tried six times shot to the goal behind the line at a distance of 16.5 m. Total scores of these six shots were evaluated (15).

Ball Control with the Body (BC) Test

Within the diameter of 180 cm circle, the subject had to keep the ball in the air without using the arms or hands, and also without falling to the floor and going out of the circle. When the ball hit the floor, the counting stopped and the number of contacts (score) to the ball was recorded. Each subject tried three times, and total scores were evaluated (15).

Statistical Analyses

The obtained data were recorded immediately after each measurement. The data from the participants before (pre-test) and after (post-test) 6-month fundamental soccer trainings were compared statistically according to age groups. The variables were analyzed by using of descriptive statistics (mean and standard deviation=X±SD), and the data normality was tested by the Shapiro-Wilk. The Paired Samples t-Test was used for determining of differences between the means of pre and post-test of age groups. According to the age levels, the differences in the body composition, soccer skill and motor features among players were initially evaluated by One-Way ANOVA for Repeated Measures, and later least significant differences were analysed by the Tukey's post-hoc test. The ±0.05 was accepted for the level of significance.

RESULTS

In this current study, the collected data before and after 6-month fundamental soccer trainings from the participants with a sedentary life style, were compared statistically according to three different age groups. The obtained average values for group I, II and III are provided in Table 1, 2 and 3, as below.

The average stature and BM of groups that obtained from the pre and post-tests increased from 147.03±8.83 cm to 147.75±9.12 cm and from 37.62±11.77 kg to 38.23±11.85 kg, respectively (Table 1). Thus, these increases were statistically significant ($p<0.05$; Table 2).

Table I. Descriptive statistics for the total sample (n=36) of sedentary male children, related to the pre and post-test.

Variable	Test *(n:36)*	Mean	Standard deviation	Minimum	Maximum
Age (years)	Pre	11.00	0.83	10.00	12.00
Stature (cm)	Pre	147.03	8.83	133.00	168.00
	Post	147.75	9.12	133.00	169.00
Body mass (kg)	Pre	37.62	11.77	24.50	69.50
	Post	38.23	11.85	25.00	70.20
Body mass index (kg/m^2)	Pre	17.06	3.36	13.20	27.10
	Post	17,17	3.31	13.50	27.10
Body fat (%)	Pre	17.52	5.92	12.10	38.10
	Post	18.03	5.58	12.40	36.20
30 m sprint (sec)	Pre	5.99	0.47	5.21	7.05
	Post	4.93	0.46	4.10	6.11
Illinois agility (sec)	Pre	21.44	1.67	18.90	25.31
	Post	20.24	1.46	17.60	24.17
Shot to goal (score)	Pre	11.86	3.78	4.00	18.00
	Post	14.17	3.68	8.00	21.00
Ball control (score)	Pre	35.89	14.06	15.00	56.00
	Post	41.97	14.39	16.00	65.00

Table II: The paired samples t-test results of three groups, related to the pre and post-test.

		Group I (10 yrs; n:12)		**Group II** (11 yrs; n:12)		**Group III** (12 yrs; n:12)	
Variable	**Test**	**X±SS**	**t**	**X±Sd**	**t**	**X±Sd**	**t**
Stature (cm)	Pre	139,4±4,1	**-3,9***	146,6±6,2	**-4,7***	155,1±7,7	**-11,0***
	Post	140,0±4,5		147,3±6,6		156,0±7,8	
Body mass (kg)	Pre	31,4±5,1	**-12,8***	35,9±11,0	**-15,3***	45,6±13,3	**-11,9***
	Post	31,9±5,1		36,5±11,1		46,4±13,4	
Body mass index (kg/m^2)	Pre	16,1±2,3	**-1,7***	16,5±3,5	**-4,2***	18,7±3,9	**-2,7***
	Post	16,2±2,2		16,6±3,4		18,7±3,8	
Body fat (%)	Pre	17,4±4,1	**-2,3***	16,4±7,0	**-1,6***	18,8±6,5	**-4,1***
	Post	17,8±4,2		17,0±6,2		19,3±6,3	
30 m sprint (sec)	Pre	6,1±0,6	**7,5***	6,2±0,4	**11,5***	5,7±0,3	**12,9***
	Post	5,3±0,4		4,9±0,2		4,6±0,4	
Illinois agility (sec)	Pre	22,5±1,7	**6,6***	21,4±1,7	**3,9***	20,4±1,0	**9,2***
	Post	20,8±1,3		20,6±1,8		19,5±1,1	
Shot to goal (score)	Pre	8,8±2,1	**-7,2***	9,5±2,4	**-6,9***	10,6±2,4	**-7,2***
	Post	12,7±3,4		13,9±3,2		15,9±3,9	
Ball control (score)	Pre	33,7±12,3	**-6,4***	35,6±14,7	**-6,7***	38,4±15,8	**-6,4***
	Post	38,3±13,1		42,6±14,6		45,1±15,8	

***P<0.05**: The mean difference is significant at the 0.05 level; **X±Sd:** mean ± standard deviation.

According to the multiple comparisons for the differences between mean stature of three age groups, the group III had significant increase from the another two groups, and the mean stature of group II had significant increase from the group I, also ($F_{2,33}$=18.52, P<0.05; Table 3). Given the age distribution of our study, it can be interpreted that the height values of children in the stage of development can be significantly affected by the age factor. In addition, the significant differences between pre and post-test values of groups can be explained that the body height of male children increases faster after the age of 12 (maturity period), and the applied 6-month fundamental soccer trainings may have a positive effect on bone development (4). On the other hand, it can be said that the role of physical environment, nutrition and heredity can be quite effective to the emergence of this difference on physical development (12). Related to the differences between mean BM of three age groups, the III had significant increase from the another two groups ($F_{2,33}$=6.01, P<0.05), and there was no difference between the other age groups (P>0.05; Table 3).

Table 3: The multiple comparisons of the dependent variables, related to three age groups.

Dependent variable	Test	Age (I)	Age (J)	Mean difference (I-J)	F	Sd	95 % confidence interval for mean	
							Lower bound	Upper bound
Stature (cm)	Pre	10	11	**-7,17***	19,41	2,52	-13,34	-0,99
			12	**-15,67***			-21,84	-9,49
	Post	10	11	**-7,25***	18,52	2,63	-13,71	-0,79
			12	**-16,00***			-22,46	-9,54
Body mass (kg)	Pre	10	11	-4,51	5,90	4,25	-14,93	5,92
			12	**-14,28***			-24,7	-3,85
	Post	10	11	-4,60	6,01	4,27	-15,07	5,87
			12	**-14,48***			-24,94	-4,01
Body mass index (kg/m^2)	Pre	10	11	-0,39	2,20	1,33	-3,65	2,87
			12	-2,58			-5,84	0,68
	Post	10	11	-0,41	2,16	1,31	-3,62	2,80
			12	-2,53			-5,74	0,68
Body fat (%)	Pre	10	11	0,99	0,48	2,45	-5,03	7,01
			12	-1,41			-7,43	4,61
	Post	10	11	0,75	0,52	2,31	-4,91	6,41
			12	-1,56			-7,22	4,10
30 m sprint (sec)	Pre	10	11	-0,04	4,07	0,18	-0,47	0,39
			12	0,41			-0,02	0,84
	Post	10	11	**0,47***	13,60	0,14	0,12	0,82
			12	**0,74***			0,39	1,09
Illinois agility (sec)	Pre	10	11	1,14	6,01	0,60	-0,33	2,62
			12	**2,08***			0,61	3,56
	Post	10	11	0,49	2,71	0,57	-0,91	1,89
			12	1,31			-0,09	2,71
Shot to goal (score)	Pre	10	11	-1,33	0,86	1,55	-5,14	2,47
			12	-2,00			-5,80	1,80
	Post	10	11	-1,25	2,59	1,44	-4,78	2,28
			12	-3,25			-6,78	0,28

Ball control (score)	Pre	10	11	-1,92	0,33	5,85	-16,27	12,44
			12	-4,75			-19,11	9,61
	Post	10	11	-4,33	0,68	5,93	-18,89	10,22
			12	-6,83			-21,39	7,72

DISCUSSOIN

In this study, the obtained mean values in pre- and post-tests, which were applied before and after the 6-month fundamental soccer training, were compared with each other according to different age groups (Groups I, II and III). The differences between the mean values of pre-and post-tests of the groups were examined, and the multiple comparisons were made to determine differences between in which age groups.

In this study, although measured mean BMI values in the pre- and post-test were found statistically significant between the age groups ($p>0.05$; Table 2), these relationships were not statistically significant according to the multiple comparisons for the differences between three age groups ($F_{2,33}=2.16$, $P>0.05$; Table 3). In a similar study, Gullu (2013) applied fundamental soccer training in two days a week for six months to 43 male children (the 10-12 age group with a mean age of 10.88±0.88 yrs), who were not apply in any training and activity. He measured the mean BMI values at 17.10±3.49 kg/m2 and 17.55±3.37 kg/m2 for pre- and post-test, respectively. As a result of his study, the differences between the mean values were insignificant by the level of 0.05 (4). In a study of Pantelis et al. (2011) divided 290 different club footballers into 9 different age groups (between under12 yrs-U12 and under 21 yrs-U21), who performed short-term (3.25 h/week) and long-term (8.5 h/week) trainings. They measured the mean BMI values of U12 (n: 16) group was 19.98±3.56 kg/m^2 and U13 (n: 16) group was 19.00±2.09 kg/m^2. As a result of their study, they reported that the BMI values of the players had higher value compared to the long-term training in this age group (12). Another 4-month study (of Gil et al., 2010) reported that the mean BMI values of 14-year old of 43 young players who applied three 90-minute training session per week and playing in a match in the football season, were 20.66 ± 3.0 kg/m^2 (16). So, although there are similarities between the values of these studies with this current study (pre-test: 17.06±3.36 kg/m^2 and post-test: 17.17±3.31 kg/m^2; Table 1), a difference was observed. It can be interpreted as affecting the values of BMI due to the subjects of current study were previously untrained, while others were trained subjects in football. In addition, different test applications are also conceivable.

From another perspective; although there are different approaches to identify overweight and obesity, there is not a certain classification for children and adolescents like in adults. Individual and social level percentile and / or Z-scores are one of the most commonly used methods. For this reason, the growth standards for 0-5 year's age children in 2006, and also the growth reference values for 5-19 age group children and adolescents in 2007 have been published by the World Health Organization (WHO). So nowadays, the BMI values by age have been used in children and adolescents in the classification of overweight and obesity. By the WHO's classification for BMI, it is stated that the median Z-score values are between 16.7 kg/m^2 to 20.2 kg/m^2 for boys who were aged 10-12 years old. (17). Although the mean BMI values of the pre and post-exercise in our study increased from 17.10 kg/m^2 to 17.55 kg/m^2, these values were between the median Z-scores, according to the WHO's classification for BMI (17). Therefore, the group can be classified as moderately overweight.

There were significant relationships between the average %BF of I, II and III

group, related to pre and post-test ($p<0.05$, Table 2). Similarly, Gullu (2013) found the mean values of %BF were 17.87±5.84 % and 16.65±4.93 % for pre- and post-test, respectively. Result of his study, the differences between the mean values was significant by the level of 0.05 (4). In another similar study, Rodrigo et al measured the average %BF values of 15 male children (11.8±0.2 years) at 16.6±6 %, after match periods for 4-week (10). Also, Pantelis et al (2011) found the average %BF values for U12 group (n: 16) at 18.57±6.73 % and for U13 group (n: 16) at 16.61±5.27 %, respectively (12). Between the obtained findings of another studies and the average values of this current study (pre-test: 17.52±5.92 % and the post-test: 18.03±5.58 %, Table 1) appears to be a correlation. So, the results of this study were supported by other obtained findings. According to the multiple comparisons between the age groups, there was no any difference between the %BF values ($F_{2,33}$=0.52, $P>0.05$; Table 3). In boys, the association between biological maturation and various anthropometric characteristics is most striking up until 14 years of age. They have also been found to have greater lean body mass, fat mass and heart volumes, where the correlations reaches a maximum at about 11 years of age (1). In addition, moderate-intensity and long-term aerobic exercises are effective in fat burning. That is why; these types of exercises can lead to reduction in the rate of BM, BMI and body fat [18]. It can be explained by the first measurements of average %BF may be due to the normal values ($F_{2,42}$=1,16, $P<0.05$; Table 3). Because, the groups had low rates of %BF in pre-tests (17.87% ± 5.84), and exercises performed on a regular basis may cause in a further decline in these rates (16.65% ± 4.93; Table 2).

In this study, there were significant correlations between the pre and post-test results of the average duration of 30mS for all groups ($p<0.05$, Table 2). Similarly, Gullu (2013) found the mean values of 30mS were 6.08±0.51 sec and 4.95±0.50 sec for pre- and post-test, respectively. Result of his study, the differences between the mean values was significant by the level of 0.05 (4). Koklu and colleagues (2009) compared the average 30mS values according to player's positions (defence, midfield and forward) on 36 young male football players (average age was 16.37±0.4 years). They measured the mean values of 30mS at 4.2±0.1 sec, but the differences between them was insignificant by the level of 0.05 (19). On the other hand, Iri et al (2009) applied a study on 37 male soccer players (average age was 12.83±1.78 years) who participated in summer sports school for 16 weeks. They examined the effects of physiological and skill development of the subjects. After their study, they measured mean values of 30 m sprint for the first test at 5.38±0.58 sec and for the last test at 5.18±0.55 sec, and they found a significant development between them at 0.01 levels (15). So, the obtained findings in our study (pre-test: 5.99±0.47 sec and the post-test: 4.93±0.46 sec, Table 1) were supported by the other findings for being a parallelism in between them. According to multiple comparisons for age groups, the average 30mS duration of 1st group had significant development from another two (II and III) groups ($F_{2,33}$=13.60, $P<0.05$). So, significant developments for durations of sprinting were observed in favour of the youngest age group. That is, the velocity increased in younger age. On the other hand, there was no significant relationship was found between the II and III ($P>0.05$; Table 2). Nowadays, the main opinion about development of speed is school ages, and it is the most suitable stage for the development of sprint training periods, and speed is one of the motor skills that affect the skill (15). These designations based on scientific data, the speed education should start from early childhood periods (18). So, it can be said that applying of the fundamental training program according to age groups had positive impact on children

that contained in the different skill models, such as variety of activities and sprinting with and without the ball during the games or trainings. For this reason, considering the age groups involved in the study, the improvements of the 30mS performance thought to result from applying of the fundamental soccer training programs (4) during 6-month.

There was found insignificant correlation between the average IA times of the groups ($p < 0.05$, Table 2). Similarly, Gullu (2013) found the mean values of IA were 21.65±1.77 sec and 20.49±1.59 sec for pre- and post-test, respectively. Result of his study, the differences between the mean values of IA was significant by the level of 0.05 (4). Hazar et al. (2008) studied on 35 male and female children group (20 boys and 15 girls with the mean age was 11.12±0.96 years), and they measured the average IA values at 22.38±1.58 sec (20). Between the obtained findings of another studies and the average values of this current study (Table 1) appears to be a correlation. So, the obtained results of our study were supported by other findings.

Agility is a motor ability, which can be improved by regular exercise training and education (21). Therefore, the physical factors are trained to improve the performance of agility (22). So, it can be caused to development to the ability of agility of the workgroup against time by the regularly applied fundamental soccer training for six months. Because of the short sprint repetitions with more change of direction were often used in the studies (22). Besides, it can be considered that the development of 30mS may also affect the development of agility. However, Young and his colleagues (2011) stated that to improve straight sprint trainings with the change of directions were not have a significant impact on the performance of high-speed running, and also straight sprint performance was not improved by the trainings on specific agility (23). For example, we found at moderate level of correlation ($r=0.62$ in pre-test, and $r=0.57$ in post-test) between the average IA and 30mS scores of the age groups in our study. For this reason, the relations between the straight sprints with the agility (running speed with the change of direction) are not as high as expected. Similarly, Draper and Lancaster (1985) found a moderate relationship ($r=0.472$) between IA and 20 m sprint test. In other words, the Illinois agility test is a timed task involving some straight sprinting and multiple direction changes around obstacles (22), therefore, the relationships between them may be lower than expected. Also in another study, there were not found a significant correlation between straight sprint speed and commutated running speed containing 90 and 120 degree turns. These findings show that the sprint with the change of directions and the straight sprinting are different physical traits from each other (23).

According to multiple comparisons of IA test scores that applied to age groups; although the differences of the average values of 1st group in pre-test had significant development from the III ($F_{2,33}=6.01$, $P<0.05$), there were found insignificant correlations between the average values of three age groups in post-test ($F_{2,33}=2.71$, $P>0.05$; Table 3). In theory, the amount of body fat and the length of body segment may affect agility performance. Thus, it can be explained in that the group II and III who having a higher percentage of body fat and low muscle mass, had to produce more force per the unit of muscle mass during negative and positive acceleration due to the high resistance of inertia (21).

In this current study, there was found significant correlation between the average SG scores of the study groups ($p<0.05$, Table 2). Iri et al (2009) measured the mean values of SG for the first test as 10.56±3.93 scores and for the last test as 12.89±3.25 scores and they also found a significant development between them at 0.01 levels (15). Between the obtained

findings of another studies and the average values of this study appears to be a correlation (Table 1). To the obtained findings in our study were supported by the other findings for being a parallelism in between them. Although it was a considerable improvement in the SG values of three age groups (Table 2), there were not found a significant correlations between them according to multiple comparisons ($F_{2,33}$=2.59, P>0.05; Table 3). As known, the children of study group participated in the fundamental soccer training for only one-day per week. This condition can be associated with they did not have any active sports lifestyle and also any fundamental soccer training activities from before. The results of the first measurement ($F_{2,33}$=0.86, P>0.05; Table 3) supported this idea.

Between the average BC scores of the study group were identified significant relationship (p<0.05; Table 2). Similarly, Iri et al (2009) measured the mean values of the BC scores for the first test at 47.56±35.60 times and for the last test at 98.97±75.37 times, and they also found a significant development between them at 0.01 level (15). Between the obtained findings of another studies and the average values of this study appears to be a correlation (Table 2). To the obtained findings in our study were supported by the other findings for being a parallelism in between them. According to multiple comparisons for the BC test scores that applied to the age groups; although it was a considerable improvement in the BC values, there was found an insignificant correlation between them ($F_{2,33}$=0.68, P>0.05; Table 3). This condition can be associated with they did not have any active sports life-style and also any fundamental soccer training activities from before. As known, the children of study group participated in the fundamental soccer training for only one-day per week. So that, the results of the first measurement ($F_{2,33}$=0.33, P>0.05; Table 3) confirm this view.

For these reasons, the following comments can be made; the technical fundamental soccer training that applied regularly during the 6-month after the pre-test can provide positive impacts on development of body composition (stature, BM, BMI, %BF), technical skills (SG, BC) and biomotor abilities (30mS, IA) of sedentary male children who were aged 10-12 years.

CONCLUSION

An important part of the scientific publications indicate that the main period of branching in soccer is ranged between from 10 to 12 years (4). Thus, the start of soccer-specific trainings and transition to fundamental technical trainings concentrates in this age periods (3). In the literature about the scientific talent selection, the early period of this age (early school-age period) is main period to start the sport, talent identification in accordance with the principles of physical fitness and sport branches (5, 18). Therefore, to know some features of children in the talent selection will generate a forecast for the next steps (4). In addition, the efficiency of the training is directly related to the structure of the psychological trait of footballer. So that, the athlete's personality, faith and determination of the interest and desire, group dynamics and the detection levels are extremely important features to the achievement of the required performance (24). Therefore, all trainings that applied can improve positively the physical (3, 4, 12, 24, 25), physiological (3, 4, 12, 24, 25) and psychological (24, 26) skills of athletes. Moreover, the fundamental soccer training that applied to 10-12 age group children may contribute in mostly psychologically feel good about themselves and to maintaining a healthy life. So that, regularly participate in sportive activities at least one day in a week for 60 minutes is recommended to develop children's physical fitness.

After these applied fundamental soccer trainings for this study, the stature, BM, BMI and %BF values were significantly different in the III-age group than the other age groups. During adolescence, the subjects presented significant differences in positive direction in terms of body composition and physique. Accordingly, the stature and BM values developed positively in favour of 12-age groups. On the other hand, although the 12 age group had a higher development than the other age groups in IA, SG and BC skills, there was not observed any significant differences between them. Besides, it can be considered that the development of 30mS may also affect the development of agility, but we found at moderate level of correlation between the average IA and 30mS scores of the age groups in our study. Therefore, the relations between the 30mS sprints with the IA (running speed with the change of direction) were not as high as expected. Accordingly, it can be said that the long-term trainings did not any affect on the technical and agility performance. However, we believe that more effective results will be achieved in these specified parameters by the increasing of the weekly training time. In the contrary of that, the 6-month fundamental soccer training that applied regularly has developed positively in the sprint performance of younger age groups. Because of the speed is a motor skill that affects to the ability, the period of early-school age is one of the best training sessions for the development of speed (26). According to these designations that based on scientific data, the speed training should start in the early childhood periods (4, 18). These results also show that the training should be planned to the finest detail with the preparation, competition and transition period as a whole, and should be performed uninterrupted and appropriate manner (4, 24).

Besides fundamental soccer training develop to soccer skills of the young players, it can provide to gain experience, maturation, socialization and sharing as well as finding a place in the community to enhance the social and psychological status. At the same time, the selection and development of appropriate training programs can be provided by the knowledge about the important capacities of the younger players. Thus, these findings could be employed by coaches and fitness trainers engaged in soccer training in the context of physical fitness assessment and talent identification (4). In this way, it can provide a major contribution to the growth of football players in higher ability in the future.

In conclusion, knowing the skill and basic motor levels of children in the stage of sporting activities is very important. For this purpose, the 6-month fundamental soccer training programs that applied regularly for 60-minute in a day at weekend have affected positively on the body composition, soccer skill and biomotor abilities of the sedentary male children who were aged 10-12 years old.

SUGGESTIONS

- It is recommended that the fundamental soccer training programs especially for the sedentary boys between 10 to 12 years should be applied long-term on a regular basis more than one day per week for 60-minute to develop the body composition, technical skill and biomotor abilities.
- It may be suggested to trainers that the applied tests in the present study should be used to measure the talent selection, physical, technical and biomotor skills of the athletes.
- It is recommended that the fundamental soccer trainings should be applied to gain experience, maturation, socialization and sharing as well as finding a place in their own community to enhance the social and psychological status of the sedentary children.
- It is recommended that the fundamental soccer trainings should

be applied as a health care program especially for obese sedentary children, and also to teach positive information to participants about healthy exercise and especially for the healthy life style.

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