

DIFFERENCES IN DIVERSE PHYSICAL AND PERFORMANCE PARAMETERS IN U15, U16 AND U17 AGE CATEGORIES SOCCER PLAYERS

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Abstract

The aim of this study was to determine diverse physical and performance parameters differences in U15, U16 and U17 age categories soccer players. For this purpose; study group was formed from total 77 soccer players in U15, U16 and U17 age categories who are the players of a soccer team in Turkey Professional Football 3. Leagues.

As physical and performance parameters of the football players were evaluated flexibility, strength, speed, agility, aerobic capacity and anaerobic performance. flexibility, strength, speed, agility, aerobic capacity and anaerobic performance were detected with Sit-and-Reach Test, Standing Long Jump Test, Triple Jump Test, 30 Meters Speed Run Test, Japan Test, Balke Test, and Running Anaerobic Sprint Test.

The statistic of obtained data were made via SPSS 15.0 for Windows which is a statistic packaged software. Differences among group was tested by One-Way ANOVA. Margin of error (α) was regarded as $p < 0.01$.

According to statistical analysis findings; a significant difference was found among group (0.01) in terms of flexibility, strength, speed, agility, aerobic capacity and anaerobic performance. Differences in strength, speed, agility, aerobic capacity and anaerobic performance parameters have originated that soccer players of the U17 age categories are better than soccer players of the U15 and U16 age categories. However, difference in flexibility values has arisen from soccer players of the U15 age categories are better than soccer players of the U16 and U17 age categories.

In conclusion; U17 age categories can be considered as a breaking point from the point view of young soccer players's physical and performance.

Key Words: Soccer, Physical and Performance.

Introduction

The aim of this study was to determine diverse physical and performance parameters differences in U15, U16 and U17 age categories soccer players.

Methods

Seventy seven male soccer players volunteered to participate in the study and provided written informed consent in accordance with the Declaration of Helsinki. The Sütçü İmam University ethics committee approved the study protocol. The subjects could withdraw from the study at any time.

All tests were performed in a turf soccer field that has around an athletic track. The subjects were informed about the all test protocols and were expressed aim of the study. Measurements were made separately with four days time-out for each test.

Height and Weight and BMI

Height was measured in cm by a nonflexible measuring tape of 0.1 cm sensitivity barefoot and by enabling anatomic posture, and weight was measured in kg wearing shorts and t-shirt by an electronic scale of 100 gr sensitivity.^(1,2,3)

Strength

Strength were measured with Long Jump Test and Triple jump Test. ⁽⁴⁾

Speed and Agility

Speed and agility were determined to 30 Meters Sprint Run Test and Japan Agility Test. ^(1,2,3,4)

Flexibility

Flexibility were evaluated via Sit and Reach Test. ^(1,3,4)

Aerobic Performance

Aerobic performance were assessed in regard to MaxVO₂.MaxVO₂ was detected Balke Test. ⁽⁵⁾

Anaerobic Performance

Anaerobic performance was identified with Running Anaerobic Sprint Test. ⁽⁵⁾

Statistical Analysis

Statistical analysis was made by SPSS 22.0 for Windows package program. Arithmetic mean, standard deviation, the lowest and highest values were determined. The differences in among the categories was tested by "One Way ANOVA" Margin of error (α) was regarded as $p < 0.01$.

FINDINGS**Table 1:** Descriptive Findings the Research Groups

	Category	N	\bar{X}	Sd.	Se.	Min.	Max.
Height (m)	U15	26	1,68	,07	0,0	1,57	1,80
	U16	27	1,72	,05	0,0	1,60	1,81
	U17	25	1,73	,06	0,0	1,67	1,89
Weight (kg)	U15	26	57,2	9,6	1,8	47,4	80,7
	U16	27	58,5	5,4	1,1	51,2	71,8
	U17	25	65,1	8,7	1,8	53,8	95,1
Body Mass Index (kg/m ²)	U15	26	20,1	2,1	0,4	16,9	25,2
	U16	27	19,8	1,2	0,2	17,4	22,4
	U17	25	21,5	2,2	0,5	18,8	26,1

Table 2: According to Category Differences in Physical and Performance Parameters

	Category	N	\bar{X}	Sd.	Se.	Min.	Max.	F	P
Flexibility (cm)	U15	26	13,2	3,7	0,7	5,00	19,00	1,535	,000*
	U16	27	12,1	5,1	1,1	-1,00	21,00		
	U17	25	11,9	4,7	1,0	0,0	22,00		
Stagnant Strength (m)	U15	26	2,1	0,2	0,0	1,8	2,50	14,103	,000*
	U16	27	2,3	0,1	0,0	2,1	2,50		
	U17	25	2,8	0,1	0,0	2,2	2,60		
Explosive Strength (m)	U15	26	8,7	0,7	0,2	6,5	9,90	18,994	,000*
	U16	27	8,9	0,7	0,2	7,5	10,55		
	U17	25	9,9	0,6	0,1	8,8	11,80		
Aerobic Capacity (ml/kg/dk)	U15	26	42,3	3,1	0,6	35,8	48,30	33,729	,000*
	U16	27	44,4	2,9	0,6	40,7	52,70		
	U17	25	49,6	3,4	0,7	41,6	53,90		
Agility (sec)	U15	26	13,83	0,5	0,1	12,19	15,38	22,808	,000*
	U16	27	13,32	0,7	0,2	11,91	14,91		
	U17	25	12,51	0,4	0,1	11,79	13,48		
Max. Anaerobic	U15	26	326,9	85,0	16,7	156,4	489,3	25,794	,000*

Power(watt)	U16	27	380,4	59,4	12,7	285,6	501,5		
	U17	25	497,7	101,9	21,3	354,3	847,1		
Mean Anaerobic Power(watt)	U15	26	250,2	58,7	11,5	119,6	354,1		
	U16	27	313,0	49,7	10,6	228,7	411,1	38,597	,000*
	U17	25	399,9	68,6	14,3	297,3	628,0		
Min. Anaerobic Power(watt)	U15	26	201,5	48,6	9,5	100,2	277,2		
	U16	27	245,7	42,7	9,1	172,6	320,3	38,405	,000*
	U17	25	319,3	49,7	10,4	230,0	476,7		
Speed (sec)	U15	26	5,05	0,27	0,05	4,65	5,84		
	U16	27	5,01	0,19	0,04	4,62	5,40	5,883	,004*
	U17	25	4,85	0,14	0,03	4,50	5,10		

*p<0.01

Results

The mean height, weight and body mass indeks values of the all age categories soccer players that participated were found as height $1,71\pm 0,6$ m weight $60,2\pm 8,8$ kg body mass indeks $20,4\pm 2,1\text{kg/m}^2$ and the performance test mean values were as follows; sit and reach test $12,4\pm 4,7$ cm, standing long jump $2,4\pm 0,2$ m, triple jump test $9,1\pm 0,7$ m, MaxVO₂ $46,3\pm 4,4$ ml/kg/dk, agility japan test $13,22\pm 0,71$ sec, 30 m speed run test $4,97\pm 0,23$ sec, maximum anaerobic power $398,9\pm 11,3$ W, average anaerobic power $318,2\pm 85,9$ W, minimum anaerobic power $253,1\pm 67,6$ W.

The mean height, weight and body mass indeks values of the U15 age categories soccer players that participated were found as height $1,68\pm 0,08$ m weight $57,2\pm 9,6$ kg body mass indeks $20,1\pm 2,1\text{kg/m}^2$ and the performance test mean values were as follows; sit and reach test $13,2\pm 3,7$ cm, standing long jump $2,1\pm 0,2$ m, triple jump test $8,7\pm 0,7$ m, MaxVO₂ $42,3\pm 3,1$ ml/kg/dk, agility japan test $13,83\pm 0,56$ sec, 30 m speed run test $5,05\pm 0,27$ sec, maximum anaerobic power $326,9\pm 85,0$ W, average anaerobic power $250,2\pm 58,7$ W, minimum anaerobic power $201,5\pm 48,6$ W.

The mean height, weight and body mass indeks values of the U16 age categories soccer players that participated were found as height $1,72\pm 0,05$ m weight $58,5\pm 5,4$ kg body mass indeks $19,8\pm 1,2\text{kg/m}^2$ and the performance test mean values were as follows; sit and reach test $12,1\pm 5,1$ cm, standing long jump $2,3\pm 0,1$ m, triple jump test $8,9\pm 0,7$ m, MaxVO₂ $44,4\pm 2,9$ ml/kg/dk, agility japan test $13,32\pm 0,71$ sec, 30 m speed run test $5,01\pm 0,19$ sec, maximum anaerobic power $380,4\pm 59,4$ W, average anaerobic power $313,0\pm 49,7$ W, minimum anaerobic power $245,7\pm 42,7$ W.

The mean height, weight and body mass indeks values of the U17 age categories soccer players that participated were found as height $1,73\pm 0,06$ m weight $65,1\pm 8,7$ kg body mass indeks $21,5\pm 2,2\text{kg/m}^2$ and the performance test mean values were as follows; sit and reach test $11,9\pm 4,7$ cm, standing long jump $2,8\pm 0,1$ m, triple jump test $9,9\pm 0,6$ m, MaxVO₂ $49,6\pm 3,4$ ml/kg/dk, agility japan test $12,51\pm 0,43$ sec, 30 m speed run test $4,85\pm 0,14$ sec, maximum anaerobic power $497,7\pm 101,9$ W, average anaerobic power $399,9\pm 68,6$ W, minimum anaerobic power $319,3\pm 49,7$ W.

According to statistical analysis findings; a significant difference was found among group (0.01) in terms of flexibility, strength, speed, agility, aerobik capacity and anaerobik performance. Differences in strength, speed, agility, aerobik capacity and anaerobik performance parameters have originated that soccer players of the U17 age category are better than soccer players of the U15 and U16 age categories. However, difference in flexibility values has arisen from soccer players of the U15 age category are better than soccer players of the U16 and U17 age categories.

Youth setup courses vary across age groups in soccer.⁽⁶⁾

The aim of on U14-U16 age groups combine technique skills and physical and physiological features.⁽⁷⁾ On the other hand, it is remained in the forefront of tactical intelligence and physical and physiological capacity progress on U17-U19 age categories.⁽⁸⁾

We think that the differences originate in youth setup courses in soccer. Moreover; U17 age categorie can be considered as a breaking point from the point view of young soccers players's physical and performance.

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