Research Article

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Building Standard Levels to Assess the Level of Some Elements of Fitness Related to Health among Junior Footballers

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Abstract

This study aimed to build standard levels to assess the level of some elements of physical fitness related to health among the juniors of Al-Faisali Football Club Academy, as well as to identify the differences in the tests due to the variable of height, weight and age. The researcher used a set of standardized tests that have a high degree of validity and reliability to measure the physical fitness elements of the subject of the study. The sample included (123) young players registered in the academy. The study reached to build standard levels for the juniors of the Al-Faisaly Football Club Academy, as well as the results of the study showed that there are differences between the averages of tests of explosive power, agility, transitional speed and grip strength of the right and left hand due to the variables of age, height and weight, while there were no differences in the 1000m running tests and the 30-second stomach repeat test due to the study variables. The study recommends building standard levels to measure the elements of fitness for other games, specifically for juniors.

Keywords: *physical fitness, standard levels, football, Physical health*

1. Introduction

Football is one of the most popular sports among citizens, as this sport is practiced by both sexes and of different ages (Pfirrmann et al., 2016). The sport of football has developed remarkably and very significantly at the global level, as this development touched the physical and tactical skill aspect of this sport through sports training science programs (Foss et al., 2018).

The process of developing sports comes through expanding the base of the game and paying attention to the youth sector or age groups, and that the development process must be through clear training programs based on scientific foundations based on the results of scientific studies (Bidzan-Bluma et al., 2018), and since sports training is an educational process subject to scientific foundations and principles. It aims to prepare the individual to achieve the highest possible level of sport in a certain type of sporting activity (Seiler, 2010).

The process of selecting and preparing players is based on scientific, objective, and transparent bases to determine the level of physical fitness, skill and planning for the players (Rodríguez-Rosell et al., 2017), where this process must be subject to an evaluation that determines the level of the players, and that the evaluation process means issuing judgments on the value of things, people or topics. The concept also includes improvement, development and modification. Evaluation is considered similar to judging things to show strengths and weaknesses. Evaluation in physical education requires the use of clear scientific standards and foundations (DeCelles et al., 2016).

To identify the strengths and weaknesses, it is necessary to establish specific foundations and criteria governed by standard criteria that determine the level of the player in a correct manner (Seiler, 2010). The results of tests and standards in the field of physical education are employed to select novice players in sports activity (Hughes et al., 2020).

Stricker et al (2020) also add that the tests that are applied in the field of physical education use raw grades, and these grades have no meaning unless we refer to a standard that defines the meaning of these values or grades.

Therefore, tests and standards are the best way to carry out the evaluation and comparison between players and to achieve the principle of justice and equality between individuals, there must be standard levels to facilitate the process of judging the results and their interpretation (Dauenhauer et al., 2019).

The use of standard levels and standards in the field of physical education has become a necessity, as certain conditions and appropriate tests and standards are set in the field of sports, such as tests to measure the level of physical fitness or skill to identify the appropriate physical level for the type of this sport (Wu et al., 2019).

As mentioned above, the interest of young people in playing football is very high, and the spread of many football schools in most countries of the world has increased interest in football and encouraged parents to engage their children in this sport. Specific criteria that help determine the level of the emerging player, and allow the sports coach to begin the process of planning a successful sports training process. Hence, the idea of setting standards for age groups for those wishing to play football was crystallized.

1.1 Statement of the problem

Football is the most popular and popular sport in the world, and it attracts the attention of large segments of the world and both sexes (Elzinga et al., 2019). This sport has developed greatly, achieving advanced levels has become a preoccupation for trainers and researchers to reach high levels.

Since the development process needs scientific studies in the field of physical education that work on the availability of clear criteria and bases for selecting athletes or players, these criteria come through tests and standards to determine the capabilities and level of the player and the extent of the development of the player's physical and skill performance.

Since there are individual differences between the players and each kind of the sport has certain characteristics, requirements, a level of physical fitness and a special skill, and this was indicated by the study of Paul et al (2015), as it showed different standard levels, especially for the type of the practiced sport, and since football has special physical requirements and these physical characteristics give a clear indication of the athlete's health status, and since the environment and geographical location affect the nature of these requirements, in addition to the researchers' work at the university in teaching physical and health education, and their knowledge of many studies in this field of sports training science, it was found that there is specificity for the level of physical fitness for each community or study sample. It was necessary to identify the levels of physical fitness for the young players participating in the Al-Faisali Football Academy in the city of Salt and to determine the scientific criteria for the levels of physical fitness for these age stages through standardized tests and measurement to determine the level of physical fitness because the old standards are difficult to apply to current societies. This is due to the difference in physical abilities from one stage to another and from one society to another and the development of the science of sports training. This is what prompted the researcher to do this study to determine the standard levels for this age group and to identify their physical fitness levels to benefit from them as criteria in determining the levels of physical fitness for players wishing to Practice football.

In light of what was indicated by the results of studies and scientific research and the researcher's experience in this field, the researcher was motivated to conduct this study and based on the foregoing, the problem of the study was identified in determining standard levels of health-related physical fitness for football juniors registered at the Al-Faisali Club Academy.

1.2 Study Objectives: The study aimed to achieve the following objectives:

First: Building standards for some elements of physical fitness for junior footballers at Al-Faisaly Club Academy.

Second: Identifying the differences in the levels of physical fitness among junior footballers at Al-Faisali Club Academy due to the chronological age.

Third: Identifying the differences in the levels of physical fitness among junior footballers in Al-Faisaly Club Academy due to weight.

Fourth: Identifying the differences in the levels of physical fitness among junior footballers in the Al-Faisaly Club Academy due to height.

1.3 Study questions: This study seeks to answer the following questions:

1. What are the standard levels of some elements of physical fitness related to health for football juniors at Al-Faisaly Club Academy?
2. Are there differences in the levels of physical fitness among junior footballers at Al-Faisali Club Academy due to the chronological age?
3. Are there differences in the levels of physical fitness among junior footballers at Al-Faisali Club Academy due to age and weight?
4. Are there differences in the levels of physical fitness among junior footballers at Al-Faisali Club Academy due to age and height?

1.4 Significance of the study

Through what the theoretical literature and previous studies of this subject acknowledge, the importance of the study lies in the fact that it:

1. The study provides a list of the standard levels of some elements of physical fitness related to health for young football players.
2. Providing coaches with strengths, weaknesses, and the physical and skill level of young

football practitioners.

3. The need for the International Library for such a study, which studies the science of sports training.

1.5 The limits of the study:

- Time limits: This study was conducted during the period between (25/7/ 2021 and 1/8/2021).
- Human limits: the current study was limited to the players participating in the Al-Faisaly Football Club Academy.

1.6 The study definitions

Physical fitness: It is the ability to carry out the daily burdens with strength and awareness, without undue fatigue, with a sufficient and possible amount to enjoy leisure time, practice popular hobbies, and face the physical pressures that a person is exposed to (Chen et al., 2018).

Al-Faisaly Club Academy: It is a sports school that trains football for the "junior" age groups and provides the clubs with distinguished players.

Standard score: It is defined as the score of each individual based on the number of standard deviation units at the mean (Snedden et al., 2019).

1.7 Standard levels:

Percentile: A scale that ranges from zero to 99 percentile (Guillen et al., 2021).

Percentile rank: It refers to a position that represents a specific value within a group of values arranged according to its amount, by means of the percentage of values located at, below or above that value (Miller, 2021).

Test: It is a method that gives us estimates or scores as a result of applying methods that are described as accurate (Otani, 2017)

Measurement: The quantitative estimation of objects and levels according to a specific framework of scientifically listed measurements (Östlund, 2011)

1.8 Previous studies

The study of Abu Shehab (2002) aimed at building standard levels of fitness elements for goalkeepers for soccer in Jordanian schools. The researcher used the descriptive approach and the study sample was chosen randomly. The percentile standard and a battery of ten degrees were built, and the researcher recommended using the criteria that were built when selecting, testing and evaluating goalkeepers.

Al-Hadabi (2001) conducted a study aimed at building standard levels for some elements of physical fitness for students of Sultan Qaboos University and comparing the levels of physical fitness according to the four school years. The researcher used the descriptive approach to suit the nature of the study, as the study sample was chosen randomly. The third-year students excelled in all health-related fitness items tests compared to the four-year students. Standard scores were determined for the four school years and all health-related fitness items. The researcher recommended the adoption of health-related fitness criteria resulting from this study as a basis for evaluating fitness items.

Al-Awadi et al., (2017) conducted a study aimed at building and designing a test battery to measure the general handling of football players. The researcher used the descriptive approach on a sample that was chosen by the intentional method from the fourth year level and used the appropriate statistical methods, which were and were adopted as a test battery to measure the handling in the foot time.

Bishr (2012) conducted a study aimed at building a physical fitness test for the Palestinian army

personnel and building standard levels for the extracted battery vocabulary. To accept the factor in the light of the Gilford test, the researcher reached to construct levels using the percentile degrees of the physical variables in the study sample for both categories. The researcher recommended the application of the final battery extracted to measure the physical aspect of the members of the Palestinian army.

While Bassem, (2008) conducted a study aimed at building a scale of legal knowledge in handball for students of the College of Physical Education, the researcher used the descriptive approach in a survey style for its suitability and the nature of the study. The study population was represented by fourth-year level students, and the researcher reached a measure of legal knowledge of handball for students of the Faculty of Physical Education. The researcher recommended the adoption of the scale prepared as a tool in the quarterly exams for students of the Faculty of Physical Education in handball law subjects.

The study of Abdul Muti (2009) aimed to build a scale of the attitudes towards swimming and its relationship to the physical and skill abilities of students applying to join the Department of Physical Education, Faculty of Education, Al-Azhar University. It has high validity and reliability to measure the trend towards swimming. The researcher recommended the necessity of applying the proposed scale to the same students in a sequential manner throughout the four studies to know the trends towards swimming.

The study of Al-Rahahla (2006) aimed to build standard levels of physical fitness elements for female students of the Faculty of Physical Education at the University of Jordan. The researcher used the descriptive method in the survey method for its relevance and the nature of the study. The researcher reached a scale for the standard levels of physical fitness elements for the students of the Faculty of Physical Education at the University of Jordan. The researcher recommended the necessity of using this scale to determine the level of physical fitness among female students of the Faculty of Physical Education at the University of Jordan.

1.9 Commenting on previous studies:

It was found through previous studies similar to the subject of the study that some of them dealt with the standard levels of male and female students, such as the Rahala study (2006) and the Al-Hadabi study (2001), while some studies dealt with the army and the armed forces, such as the study of Bishr (2012), and that most of these studies confirmed the need for the existence of levels Clear criteria for each field or age group due to its importance in determining the level of physical fitness or skill for individuals.

This study was distinguished from the rest of the studies in that it was conducted to determine the standard levels for the age groups of football players and on the sample and the study population is new, and within the researcher's knowledge, no scientific studies were conducted in the field of football on the current study community for a long time.

The researcher benefited from these studies in formulating the study problem, setting the objectives of the study, and choosing the appropriate methodology for the nature of the study. The researcher also benefited from the mechanism of discussing the results of the study.

2. Methodology

Study Design: The researcher used the descriptive method represented by the cross-sectional survey method due to its suitability to the study objectives.

The study population and sample: The study sample consisted of (123) registered players in Al-Faisali Football Academy for juniors, who were chosen intentionally by 75% of the study population, and their ages ranged between (9-16) years.

Table 1: Demographic characteristics of the study participants

Variable	Category	N	%
Age	9 - 11 years	46	37.4
	12 – 14 years	41	33.3
	15 – 17 years	36	29.3
	Total	123	100.0
Weight	50 kg or less	59	48.0
	More than 50 to 60 kgs	18	14.6
	More than 60 to 70 kgs	46	37.4
	Total	123	100.0
Height	Less than 150 cm	53	43.1
	150 – 160 cm	27	22.0
	More than 160 cm	43	35.0
	Total	123	100.0

The following table describes the study sample and the homogeneity and parity among the study sample members

Table 2: Means, standard deviations and coefficient of variation for age, weight and height variables of the study participants (n=123)

Variable	Measurement unit	Mean	Standard deviation	coefficient of variation
Age	Year	12.69	2.31	18.20
Weight	Kgs	52.73	11.45	21.71
Height	cm	150.14	14.36	9.56

Table (2) shows the values of the means, standard deviations, and coefficient of variation for measurements of age, weight and height of the research sample members. By reviewing these values, it appears that the average age of the research sample members reached (12.69) years, while their average weight was 52.73 kg. As for the height variable, the average height of the research sample individuals was (150.14) cm. The last column in the table shows the values of an important statistical indicator, which is the coefficient of variation that reflects the convergence and homogeneity of the measurements of the research sample members in these variables. It is noted that the largest value of this indicator has reached (21.71%), which is within the normal limits of the data, where it is assumed that the value of this indicator does not exceed 50%, which represents the percentage of the standard deviation from the arithmetic mean

2.1 Tests, devices and tools used in the study:

2.1.1 First: the tests used

The researcher reviewed many scientific studies and relevant literature in the field of study, such as the study of Bishr (2012) and Rahahla (2006), where the researcher built tests that achieve the goal of conducting the study.

The tests used in the study

1. Sit-to-prone stomach exercise test (Sit Up): To measure the strength of the abdominal muscles.
2. The horizontal jump test from stability (to measure the explosive force of the legs/cm).
3. The zigzag running test between the cones to measure the component of agility. The laboratory runs at the maximum speed between the cones for a distance of 30 meters (to measure agility).

4. The 50-meter sprint test (to measure the transitional speed/second).
5. 1000m running test (to measure periodic respiratory endurance).
6. The torso flexion test from a long sitting position (to measure the component of flexibility/cm).
7. Grip strength test for the right and left hand (dynamometer/kg).

2.1.2 Secondly: tools and equipment

1. Forms for data registration.
2. Playgrounds and sports arenas.
3. Dynamometer: A device for measuring grip strength of the hand
4. Stopwatch
5. A wooden ruler to measure flexibility
6. Cones and poles to measure agility.
7. Tape measure.
8. Marking pens.
9. whistle

2.2 The study procedure

1. The tests were conducted during the period between 7/25/2021-1/8/2021
2. The tests were conducted inside the stadiums of the city of Salt.
3. The conditions of the tests were standardized for all participants in the study sample.
4. The study sample players were given sufficient time to warm up and adequate explanation about the test, and to make two attempts in all the tests, and the best attempt was recorded, taking into account the return to the sports recovery when the attempt began.

2.3 Validity and reliability indicators

2.3.1 Validity

To ascertain the validity of the study tool for application to the sample of the study, junior footballers, the researcher presented it to many referees, experts and specialists in the field of sports training, health, measurement and evaluation, to take their opinions and directions and make appropriate adjustments to the content and content of the test to measure the test for what it was prepared for. The researcher has reached the final tests.

2.3.2 Reliability

Table 3: Test-retest reliability method scores (n=22)

Test	Measurement unit	Test		Re-test		Correlation coefficient	Sig
		M	SD	M	SD		
Stomach repeat (30 sec)	Times	20.32	2.73	20.50	2.77	0.896	0.000
Horizontal jump from stability	M	1.67	0.31	1.69	0.33	0.941	0.000
zigzag jogging with ball 30m	Sec	7.90	1.66	8.23	1.48	0.838	0.000
Running (50m)	Sec	13.35	1.98	13.68	1.68	0.822	0.000
Running (1000m)	Min	5.54	0.51	5.60	0.51	0.824	0.000
Flex the stump forward from long sitting	Cm	10.64	2.57	11.02	2.88	0.882	0.000
Right-hand grip	Kg	32.64	5.90	32.95	5.62	0.932	0.000
Left-hand grip	Kg	23.82	4.36	24.41	5.00	0.873	0.000

Table (3) shows the results of the reliability of physical fitness tests calculated by the test-retest method. When reviewing the stability values, it was found that the lowest correlation value shown by the results was (0.822) for the 50-meter sprint test, and since this is the lowest value, which at the same time is greater than 0.70. As well as since the maximum value that the reliability reaches is the correct one, and when reviewing the values of the significance level accompanying the stability, it turns out that all of them were less than 0.05, which supports the hypothesis of accepting the reliability between the two tests. Therefore, it is concluded that these tests are reliable through the results of this exploratory sample.

3. Results

3.1 First Research question:

What are the levels of some health-related physical fitness elements among junior footballers at Al-Faisaly Club Academy?

Table 4: Basic descriptive statistical indicators for the tests of some elements of physical fitness related to health among junior footballers in Al-Faisali Club Academy (n = 123)

Teests	Measurement unit	Minimum	Max	M	SD	Skewness	Kurtosis
Stomach repeat (30 sec)	Times	16	28	21.79	2.58	.174	-.286
Horizontal jump from stability	M	1.20	2.60	1.83	0.35	.474	-.559
zigzag jogging with ball 30m	Sec	5.50	11.80	7.30	1.64	.991	.274
Running (50m)	Sec	8.11	17.00	11.70	2.30	.373	-.929
Running (1000m)	Min	4.60	6.80	5.42	0.54	.632	-.235
Flex the trunk forward from long sitting	Cm	7.00	16.50	12.27	2.70	-.094	-1.334
Right-hand grip	Kg	23.00	49.00	36.59	6.67	-.430	-.822
Left-hand grip	Kg	18.00	40.00	28.29	5.76	-.132	-.641

Table (4) shows the values of some descriptive statistical indicators for the tests of some elements of physical fitness related to health among junior footballers at Al-Faisali Club Academy. The last two columns in the table refer to two important indicators describing the distribution of the data of the variables of the tests and how close they are to the behavior of the normal (ideal) distribution of the data, which are the skewness and kurtosis indicators. By reviewing the values of the skewness coefficient, it is found that the largest value of skewness appeared in the zigzag jogging test with the ball 30 m, as it reached (0.991), and since this value is the largest among the other skewness values and that the values of this indicator are derived from the raw data, it indicates a close distribution of the data of the tests of fitness elements The physical value was derived from the normal distribution because the largest value was confined between the two values (-3 to +3) as well as for the second indicator, which is kurtosis. It is noted that the largest value of this indicator appeared in the test of bending the trunk forward from long sitting as well, and since the large value of this indicator did not exceed the reference values coefficient of kurtosis (-3 to +3) Also, this indicator provides a description that is close to a normal distribution of the data of the tests of some health-related fitness elements among the juniors of Al-Faisaly Club Academy in football.

Table 5: Decimal percentile criteria for health-related fitness tests (n = 123)

Percentile	**Health-related fitness tests**							
	Stomach repeat (30 sec)	Horizontal jump from stability	zigzag jogging with ball 30m	Running (50m)	Running (1000m)	Flex the trunk forward from long sitting	Right-hand grip	Left-hand grip
10	19	1.42	11.80	17.00	6.80	9.00	26.00	19.00
20	20	1.46	9.50	15.00	6.16	9.50	29.80	22.80

Percentile	Health-related fitness tests							
	Stomach repeat (30 sec)	Horizontal jump from stability	zigzag jogging with ball 30m	Running (50m)	Running (1000m)	Flex the trunk forward from long sitting	Right-hand grip	Left-hand grip
30	20	1.56	8.60	14.00	5.80	10.50	32.20	25.00
40	21	1.70	8.28	13.00	5.70	11.50	35.60	28.00
50	22	1.80	7.20	12.20	5.50	12.00	39.00	29.00
60	22	1.90	7.00	11.50	5.30	14.00	40.00	30.00
70	23	2.00	6.30	10.60	5.20	14.50	41.00	31.00
80	24	2.15	6.10	9.90	5.10	15.00	41.00	33.00
90	25	2.40	5.88	9.50	4.98	15.50	44.00	35.60
100	28	2.60	5.64	8.90	4.80	16.50	49.00	40.00

Table (5) indicates the results of the decimal places for fitness tests related to health. By reviewing the results related to the stomach repeat test, it is clear that (10%) of the research sample members have achieved (19) times or less, and that the best value in this test has reached (28) times, which was the maximum value.

As for the Horizontal jump from stability, the results showed that (10%) of the research sample had achieved a jump distance of (1.42) meters or less, while the largest performance value for the research sample members reached (2.60) meters, and the rest of the decimal percentile values ranged between these two values

In the zigzag running test with the ball for 30 seconds, it was noted that (10%) of the students achieved the value (11.80), while the best category was among the research sample members in this test, which reached (5.64)

In the 50-meter running test, it was found that (10%) of the research sample members achieved a value (17.00), while the maximum value achieved by the research sample members was (8.90) seconds.

In the 1000-meter running test, it was found that (10%) of the research sample individuals achieved the value (6.80) minutes, while the value (4.80) minutes is the best result in performing this test.

As for the test of flexing the trunk forward from long sitting, the results showed that (10%) of the research sample achieved the value (9.00), while the maximum value in this test was the value (16.50) cm.

In the right-hand grip strength test, it was found that (10%) of the research sample achieved the value (26.0) and that the value of the greatest force exerted by some of the research sample members was (49.0) kg.

In the left-hand strength test, it was found that (10%) of the research sample individuals achieved the value (19.0) and that the value of the greatest force exerted by some members of the research sample amounted to (40.0) kg.

3.2 The second question

Are there differences in the levels of fitness related to health among junior footballers in Al-Faisali Club Academy due to chronological age?

Table 6: Means and standard deviations of physical fitness tests for junior footballers at Al-Faisaly Club Academy, distributed by chronological age (n = 123)

Tests	Age category	N	M	SD
Stomach repeat (30 sec)	9 – 11 years	46	22.13	2.54
	12 – 14 years	41	20.76	2.61
	15 – 17 years	36	22.53	2.29
Horizontal jump from stability	9 – 11 years	46	1.52	0.14
	12 – 14 years	41	1.92	0.32
	15 – 17 years	36	2.11	0.24

Tests	Age category	N	M	SD
zigzag jogging with ball 30m	9 – 11 years	46	8.92	1.35
	12 – 14 years	41	6.66	1.01
	15 – 17 years	36	5.97	0.33
Running (50m)	9 – 11 years	46	13.19	1.57
	12 – 14 years	41	11.80	2.51
	15 – 17 years	36	9.67	1.00
Running (1000m)	9 – 11 years	46	5.50	0.57
	12 – 14 years	41	5.46	0.56
	15 – 17 years	36	5.28	0.45
Flex the trunk forward from long sitting	9 – 11 years	46	10.32	1.55
	12 – 14 years	41	12.27	2.84
	15 – 17 years	36	14.76	1.34
Right-hand grip	9 – 11 years	46	31.43	6.08
	12 – 14 years	41	38.17	5.63
	15 – 17 years	36	41.39	3.11
Left-hand grip	9 – 11 years	46	24.28	5.60
	12 – 14 years	41	28.98	4.14
	15 – 17 years	36	32.64	3.81

Table (6) reflects the values of the means and standard deviations of the physical fitness tests for junior footballers at Al-Faisali Club Academy, distributed according to chronological age. These mean scores are meaningful or statistically significant at the level of significance (α≤0.05). One way ANOVA analysis was used as shown in table (7).

Table 7: One-way analysis of variance (ANOVA) of physical fitness tests for junior footballers at Al-Faisali Club Academy, distributed by chronological age (n = 123)

Tests	Source of variation	Sum of squares	Df	Sum of squares	F	Sig
Stomach repeat (30 sec)	Between groups	68.753	2	34.377	5.532	.005
	Within groups	745.751	120	6.215		
	Total	814.504	122			
Horizontal jump from stability	Between groups	7.716	2	3.858	65.731	.000
	Within groups	7.043	120	.059		
	Total	14.760	122			
zigzag jogging with ball 30m	Between groups	201.174	2	100.587	95.124	.000
	Within groups	126.892	120	1.057		
	Total	328.066	122			
Running (50m)	Between groups	250.024	2	125.012	37.778	.000
	Within groups	397.098	120	3.309		
	Total	647.122	122			
Running (1000m)	Between groups	1.123	2	.562	1.976	.143
	Within groups	34.096	120	.284		
	Total	35.219	122			
Flex the trunk forward from long sitting	Between groups	398.894	2	199.447	48.551	.000
	Within groups	492.964	120	4.108		
	Total	891.859	122			
Right-hand grip	Between groups	2154.010	2	1077.005	39.551	.000
	Within groups	3267.665	120	27.231		
	Total	5421.675	122			
Left-hand grip	Between groups	1438.856	2	719.428	33.120	.000
	Within groups	2606.607	120	21.722		
	Total	4045.463	122			

Table (7) shows a one-way analysis of the variance of physical fitness tests for junior footballers at Al-Faisali Club Academy, distributed by chronological age, and by reviewing the significance level values shown in the last column of the table and comparing these values with the value (0.05), it turns out that there is one test, which is running 1000 meters The value of its significance level (0.143) is greater than 0.05, which means that the averages of this test do not differ according to the chronological age of football juniors at Al-Faisali Club Academy

As for the rest of the significance level values, they were less than 0.05, which indicates and suggests differences between the averages of the other seven tests according to the categories of the chronological age variable. To determine the age groups whose averages differ in each of the seven tests (other than the 1000-meter running test), the least significant difference (LSD) test was used. The following table shows the results of this test Table (8) the results of the least significant difference (LSD) test to determine the age groups whose averages differ in physical fitness tests (statistically significant) for junior footballers at Al-Faisali Club Academy (n = 123) (Table 8)

Table 8: Least Significant Difference (LSD) posthoc analysis of physical fitness tests for junior footballers at Al-Faisali Club Academy, distributed by chronological age (n = 123)

Tests	Mean	Age category	12-14 years	15-17 years
Stomach repeat (30 sec	22.13	9 – 11 years	*	
	20.76	12 – 14 years		
	22.53	15 – 17 years	*	
Horizontal jump from stability	1.52	9 – 11 years	*	*
	1.92	12 – 14 years		*
	2.11	15 – 17 years		
zigzag jogging with ball 30m	8.92	9 – 11 years	*	*
	6.66	12 – 14 years		*
	5.97	15 – 17 years		
Running (50m)	13.19	9 – 11 years	*	*
	11.80	12 – 14 years		*
	9.67	15 – 17 years		
Flex the trunk forward from long sitting	10.32	9 – 11 years	*	*
	12.27	12 – 14 years		*
	14.76	15 – 17 years		
Right-hand grip	31.43	9 – 11 years	*	*
	38.17	12 – 14 years		*
	41.39	15 – 17 years		
Left-hand grip	24.28	9 – 11 years	*	*
	28.98	12 – 14 years		*
	32.64	15 – 17 years		

*It indicates that the means of the two groups differ statistically significant at the 0.05 significance level

By reviewing the results of the mean differences in the table, it is found that they were as follows:
In the 30-second stomach repetition test, the differences were between the juniors of the age group (12-14) years and the other two groups, so the significance was in favor of the other two age groups because their mean values were greater compared to the average age group (12-14) years, as shown in Table (8).

As for the rest of the tests in the table, the differences were between each two age groups so that the significance is in favor of the age group whose mean score is the largest in the jump test from stability, the forward flex the trunk forward from long sitting, and the right and left grip strength test, while the significance is in favor of the lower mean scores between the two groups comparisons in the 30m and 50m sprint tests

3.3 Third research questions

Are there differences in the fitness levels related to health among junior footballers in Al-Faisaly Club Academy due to weight?

Table 9: Means and standard deviations of physical fitness tests for junior footballers at Al-Faisaly Club Academy, distributed by weight (n = 123)

Tests	Weight category	N	M	SD
Stomach repeat (30 sec)	50 kg or less	59	21.54	2.53
	More than 50 to 60 kgs	18	21.78	2.26
	More than 60 to 70 kgs	46	22.11	2.77
Horizontal jump from stability	50 kg or less	59	1.53	0.15
	More than 50 to 60 kgs	18	2.25	0.17
	More than 60 to 70 kgs	46	2.03	0.25
zigzag jogging with ball 30m	50 kg or less	59	8.68	1.34
	More than 50 to 60 kgs	18	6.32	0.51
	More than 60 to 70 kgs	46	5.93	0.32
Running (50m)	50 kg or less	59	13.58	1.59
	More than 50 to 60 kgs	18	11.54	1.14
	More than 60 to 70 kgs	46	9.35	0.60
Running (1000m)	50 kg or less	59	5.43	0.53
	More than 50 to 60 kgs	18	5.51	0.74
	More than 60 to 70 kgs	46	5.37	0.46
Flex the trunk forward from long sitting	50 kg or less	59	10.15	1.48
	More than 50 to 60 kgs	18	12.89	2.93
	More than 60 to 70 kgs	46	14.75	1.19
Right-hand grip	50 kg or less	59	31.58	5.65
	More than 50 to 60 kgs	18	39.33	3.60
	More than 60 to 70 kgs	46	41.96	3.00
Left-hand grip	50 kg or less	59	24.54	5.18
	More than 50 to 60 kgs	18	30.00	3.94
	More than 60 to 70 kgs	46	32.43	3.50

Table (9) shows the values of the mean scores and standard deviations of the physical fitness tests for junior footballers at Al-Faisali Club Academy, distributed by weight category. The differences in the values of these averages are meaningful or statistically significant at the significance level ($\alpha \leq 0.05$). One way ANOVA was used, and Table (10) shows that:

Table 10: One-way analysis of variance (ANOVA) of physical fitness tests for junior footballers at Al-Faisali Club Academy, distributed by weight (n = 123)

Tests	Source of variation	Sum of squares	Df	Sum of squares	F	Sig
Stomach repeat (30 sec)	Between groups	8.292	2	4.146	.617	.541
	Within groups	806.212	120	6.718		
	Total	814.504	122			
Horizontal jump from stability	Between groups	10.276	2	5.138	137.505	.000
	Within groups	4.484	120	.037		
	Total	14.760	122			
zigzag jogging with ball 30m	Between groups	215.412	2	107.706	114.730	.000
	Within groups	112.654	120	.939		
	Total	328.066	122			
Running (50m)	Between groups	462.455	2	231.228	150.256	.000
	Within groups	184.667	120	1.539		
	Total	647.122	122			

Tests	Source of variation	Sum of squares	Df	Sum of squares	F	Sig
Running (1000m)	Between groups	.289	2	.144	.496	.610
	Within groups	34.930	120	.291		
	Total	35.219	122			
Flex the trunk forward from long sitting	Between groups	555.619	2	277.809	99.147	.000
	Within groups	336.240	120	2.802		
	Total	891.859	122			
Right-hand grip	Between groups	2943.355	2	1471.677	71.258	.000
	Within groups	2478.320	120	20.653		
	Total	5421.675	122			
Left-hand grip	Between groups	1671.515	2	835.757	42.246	.000
	Within groups	2373.948	120	19.783		
	Total	4045.463	122			

Table (10) shows a one-way analysis of variance for the physical fitness tests of football juniors at Al-Faisali Club Academy, distributed according to the weight variable, and by reviewing the values of the significance level shown in the last column of the table and comparing these values with the value (0.05), it turns out that there are two tests, namely, the repetition of the stomach 30 seconds And the 1000-meter running test, the value of the significance level of each of them, respectively (0.541) and (0.610), is greater than 0.05, which means that the averages of these two tests do not differ according to the weight category of football juniors at Al-Faisali Club Academy. As for the rest of the significance level values, they were less than 0.05, which indicates and suggests differences between the averages of the other six tests according to the weight variable categories

To determine the weight categories whose averages differ in each of the six tests (other than the 30-second stomach repetition test and the 1000-meter run test), the least significant difference test (LSD) was used. The results presented in table (11) shows the least significant difference test (LSD) to determine the weight categories whose averages differ in physical fitness tests (statistically significant) for junior footballers at Al-Faisali Club Academy (n = 123)

Table 11: Least Significant Difference (LSD) posthoc analysis of physical fitness tests for junior footballers at Al-Faisali Club Academy, distributed by chronological age (n = 123)

Tests	M	Weight category	More than 50 to 60 kgs	More than 60 to 70 kgs
Horizontal jump from stability	1.53	50 kg or less	*	*
	2.25	More than 50 to 60 kgs		*
	2.03	More than 60 to 70 kgs		
zigzag jogging with ball 30m	8.68	50 kg or less	*	*
	6.32	More than 50 to 60 kgs		
	5.93	More than 60 to 70 kgs		
Running (50m)	13.58	50 kg or less	*	*
	11.54	More than 50 to 60 kgs		*
	9.35	More than 60 to 70 kgs		
Flex the trunk forward from long sitting	10.15	50 kg or less	*	*
	12.89	More than 50 to 60 kgs		*
	14.75	More than 60 to 70 kgs		
Right-hand grip	31.58	50 kg or less	*	*
	39.33	More than 50 to 60 kgs		*
	41.96	More than 60 to 70 kgs		
Left-hand grip	24.54	50 kg or less	*	*
	30.00	More than 50 to 60 kgs		*
	32.43	More than 60 to 70 kgs		

* It indicates that the means of the two groups differ statistically significant at the 0.05 level

By reviewing the results of the mean differences in the previous table, it is found that they were as follows:

In the zigzag running test for a distance of 30 meters, the differences were between the juniors of the weight category (50 kg and less) and the category (greater than 50-60 kg), so that the significance was in favor of the category (greater than 50-60 kg) because the value of their arithmetic mean was the lowest compared to the average of the category (Also, on the same test, differences appeared between the category (50 kg and less) and the category (greater than 60-70 kg), so that the significance was in favor of the category (greater than 50-60 kg) because the value of its arithmetic averages was the lowest compared to the average of the category (50 kg or less) and as shown in the previous table

As for the rest of the tests in the table, differences were present between each two age groups, so that the significance is in favor of the age group whose arithmetic average is greater in the jump test from stability, the test for bending the trunk forward from long sitting, and the right and left grip strength test, while the significance is in favor of the lowest arithmetic mean between The two comparative categories in the 50m sprint test

3.4 The fourth research question:

Are there differences in the levels of physical fitness related to health among junior footballers in Al-Faisali Club Academy due to height?

Table 12: Means and standard deviations of physical fitness tests for junior footballers at Al-Faisali Club Academy, distributed according to height (n = 123)

Tests	Height categories	N	M	SD
Stomach repeat (30 sec)	Less than 150 cm	53	21.42	2.68
	150 – less than 160 cm	27	22.00	2.32
	160 cm or more	43	22.12	2.62
Horizontal jump from stability	Less than 150 cm	53	1.60	0.25
	150 – less than 160 cm	27	1.86	0.34
	160 cm or more	43	2.09	0.26
zigzag jogging with ball 30m	Less than 150 cm	53	8.24	1.08
	150 – less than 160 cm	27	7.58	2.31
	160 cm or more	43	5.97	0.32
Running (50m)	Less than 150 cm	53	13.57	1.51
	150 – less than 160 cm	27	11.31	2.10
	160 cm or more	43	9.63	0.96
Running (1000m)	Less than 150 cm	53	5.55	0.65
	150 – less than 160 cm	27	5.32	0.22
	160 cm or more	43	5.33	0.51
Flex the trunk forward from long sitting	Less than 150 cm	53	10.19	1.28
	150 – less than 160 cm	27	12.20	2.93
	160 cm or more	43	14.87	1.23
Right-hand grip	Less than 150 cm	53	31.49	5.39
	150 – less than 160 cm	27	39.04	6.25
	160 cm or more	43	41.35	3.01
Left-hand grip	Less than 150 cm	53	23.30	3.70
	150 – less than 160 cm	27	31.81	4.38
	160 cm or more	43	32.23	3.50

Table (12) shows the values of the mean scores and standard deviations of the physical fitness tests for junior footballers at Al-Faisali Club Academy, distributed according to the categories of the height variable. By reviewing these values, it is found that they are not equal between the categories of the

height variable shown in the table in each of the fitness tests. To determine whether the differences in the values of these averages are meaningful or statistically significant at the level of significance (α ≤ 0.05), the one-way analysis of variance (ANOVA) was used, and the table (13) shows that:

Table 13: One-way analysis of variance (ANOVA) of physical fitness tests for junior footballers at Al-Faisali Club Academy, distributed by height (n = 123)

Tests	Source of variation	Sum of squares	Df	Sum of squares	F	Sig
Stomach repeat (30 sec)	Between groups	13.218	2	6.609	.990	.375
	Within groups	801.287	120	6.677		
	Total	814.504	122			
Horizontal jump from stability	Between groups	5.767	2	2.883	38.474	.000
	Within groups	8.993	120	.075		
	Total	14.760	122			
zigzag jogging with ball 30m	Between groups	124.632	2	62.316	36.758	.000
	Within groups	203.434	120	1.695		
	Total	328.066	122			
Running (50m)	Between groups	374.588	2	187.294	82.468	.000
	Within groups	272.534	120	2.271		
	Total	647.122	122			
Running (1000m)	Between groups	1.538	2	.769	2.740	.069
	Within groups	33.681	120	.281		
	Total	35.219	122			
Flex the trunk forward from long sitting	Between groups	520.026	2	260.013	83.913	.000
	Within groups	371.833	120	3.099		
	Total	891.859	122			
Right-hand grip	Between groups	2513.699	2	1256.850	51.865	.000
	Within groups	2907.976	120	24.233		
	Total	5421.675	122			
Left-hand grip	Between groups	2322.545	2	1161.273	80.882	.000
	Within groups	1722.918	120	14.358		
	Total	4045.463	122			

Table (13) shows a one-way analysis of variance for physical fitness tests for junior footballers at Al-Faisali Club Academy, distributed according to the height variable. By reviewing the values of the significance level shown in the last column of the table and comparing these values with the value (0.05), it turns out that there are two tests: the repetition of the stomach 30 seconds and the 1000-meter running test. The value of the significance level of each of them, respectively (0.375) and (0.069) is greater than 0.05, which means that the means of these two tests do not differ according to the height category of football juniors at Al-Faisali Club Academy. As for the rest of the significance level values, they were less than 0.05, which indicates and suggests differences between the averages of the other six tests according to the categories of the variable length.

To determine the length categories whose averages differ in each of the six tests (other than the 30-second stomach repetition test and the 1000-meter running test), the Least Significant Difference (LSD) test was used. The following table shows the results of this test (Table 14).

Table 14: Results of the least significant difference (LSD) test to determine the height categories whose averages differ in fitness tests (statistically significant) for junior footballers at Al-Faisali Club Academy (n = 123)

Tests	M	Height category	150 – less than 160cm	160 cm or more
Horizontal jump from stability	1.60	Less than 150 cm	*	*
	1.86	150 – less than 160 cm		*
	2.09	160 cm or more		
zigzag jogging with ball 30m	8.24	Less than 150 cm	*	*
	7.58	150 – less than 160 cm		*
	5.97	160 cm or more		
Running (50m)	13.57	Less than 150 cm	*	*
	11.31	150 – less than 160 cm		*
	9.63	160 cm or more		
Flex the trunk forward from long sitting	10.19	Less than 150 cm	*	*
	12.20	150 – less than 160 cm		*
	14.87	160 cm or more		
Right-hand grip	31.49	Less than 150 cm	*	*
	39.04	150 – less than 160 cm		*
	41.35	160 cm or more		
Left-hand grip	23.30	Less than 150 cm	*	*
	31.81	150 – less than 160 cm		
	32.23	160 cm or more		

* It indicates that the means of the two groups differ statistically significant at the 0.05 level

By reviewing the results of the average differences in the table, it is found that they were as follows:
In the left fist strength test, the differences between the juniors of the height category (less than 150 cm) and the category (150 - less than 160 cm), so that the significance was in favor of the category (150 - less than 160 cm) because the value of their mean score was greater compared to the mean of the category (less than 160 cm). Also, in the same test, differences appeared between the category (less than 150 cm) and the category (160 cm and longer), so that the significance was in favor of the category (160 cm and longer) because the value of its arithmetic mean was greater compared to the average of the category (less than 150 cm). As shown in table (14)

As for the rest of the tests in the table, there were differences between each of the two length categories, so that the significance is in favor of the length category whose arithmetic average is the largest in the jump test from stability, the test of bending the trunk forward from long sitting, and the right and left grip strength tests, while the significance is in favor of the lowest arithmetic mean between The two comparative categories in the 30m zigzag running test and the 50m sprint test.

4. Discussion

4.1 Discussing the results related to the first study question, which states: What are the levels of some health-related physical fitness elements among junior footballers at Al-Faisali Club Academy?

The results in the tables (4 and 5) indicated that the test results give an indicator close to the normal distribution of the data of the tests of some elements of physical fitness among the players in the study sample and that the decimal percentile scores and the corresponding scores in the tests, and from here it can be said that construction has been reached Standard levels for assessing the level of health-related physical fitness elements for Al-Faisali Football Club Academy players and that these standard levels can be used to evaluate players of similar age, gender, height and weight. They are similar in ability, gender and age, and then these characteristics or results are analyzed statistically to reach standard levels based on logical scientific analysis.

The researcher believes that these standard levels are necessary to discover talented players who have a future through the adoption of these standard levels of judgment and prediction of the future of the emerging player in football, and this is consistent with what was indicated by the study of Abu Shehab (2001), and the study of Ahmed Hazem (2017), the study of Basem (2008), and a study of Lehan Hard (1992), which aimed to build and define standard levels for some elements of physical fitness by conducting evaluation, diagnosis, evaluation, analysis, classification and other measurement and evaluation tools.

4.2 Discussing the results related to the second study question, which states: Are there differences in the levels of physical fitness among junior footballers in the Al-Faisali Club Academy due to the chronological age?

The results in the tables (6, 7, and 8) indicated that there are statistically significant differences at the level of significance ($\alpha \leq 0.05$) in the level of physical fitness elements for Al-Faisali Football Club Academy players, they are attributed to the chronological age variable, as table (6) shows that there are differences in the values of the mean scores and standard deviations of the fitness tests of the junior soccer player, table (8) shows that there are differences between juniors, between every two age groups, and in favor of the older group. It was shown in Table (7) that the running test (1000m) to measure the component of respiratory periodic endurance that there are no differences according to the chronological age of the player. It is at one level, and at this stage, the person enjoys movement, activity and the ability to withstand fatigue, and this was demonstrated by the results of this study.

The researcher believes that the existence of differences in favor of the older age group is a logical thing. The difference in standard levels in favor of the older players due to the growth of physical and mental abilities and the factor of experience and practice also has a role in creating these differences, and this was confirmed by the study of Al-Hadabi (2001) and the study of Abdul Rahman (2012) that there is a development and superiority in the level of physical fitness during the upper age stage.

The researcher also believes that the process of biological development in building body tissues and various functional devices grow and develop from year to year and this affects the levels and physical abilities of the players and physical measurements, and the duration of training is greater than the younger age group and this confirms that the levels of physical fitness are different and in favor of the older age group.

4.3 Discussing the results related to the third study question, which states: Are there differences in the levels of physical fitness among junior footballers in the Al-Faisali Club Academy due to weight?

The results shown in the tables (9, 10, and 11) showed that there are differences between the young players due to the weight of the player, as the significance was for the largest weight for six tests, except for the stomach test for 30 seconds and the 1000m running test to measure the endurance component. There were no statistically significant differences for these two tests. The researcher referred this result to the fact that football players focus on the element of endurance and muscular strength, so there is a common denominator which is the absence of differences between the players in the element of endurance and strength of the stomach muscles. For the weight variable, these results are in agreement with the results of the study of Bishr (2012) and the study of David (2003), which showed that there are no differences between students for some tests except for the flexibility test.

The researcher also believes that weight affects physical fitness tests, specifically in the component of agility, kinetic and transitional speed, as well as grip strength, and this was confirmed by Milo Slov (2001) that the correlation of physical measurements has an effective and effective relationship in physical and skill performance to raise the level of players and reach them to the best results.

4.4 Discussing the results related to the fourth study question, which states: Are there differences in the levels of physical fitness among junior footballers in Al-Faisali Club Academy due to height?

The results shown in the tables (12, 13, and 14) showed that in the repeated tests of the strength of the stomach muscles and running for a distance of 1000 m, there were no individual differences between the players due to the height variable, while there were differences between the averages of the six tests according to the height variable and in favor of the tallest category and through these results it turns out that the variable of length affects positively for the six tests (explosive force, agility, transitional speed, and grip strength for the right and left hand). This same result was when studying the weight variable. The researcher attributes this result to the fact that the biological characteristics and physical growth characteristics of the players affect the result of the physical tests, and this result is consistent with the results of the study Al-Hadabi (2001) and the study of Al-Haliq and Ali (2011), which showed that there are differences between the results of the physical tests attributed to the study variables

5. Conclusions

In light of the study results and their discussion, the researcher concludes the following:

- Standard levels were built to assess some elements of fitness related to health among junior footballers.
- There are differences in all the tests due to the study variables except for the 1000m running test and the 30-second stomach repeat test.

6. Recommendations

In light of the study objectives and results, the researcher recommends the following:

1. Adoption of the standard levels that have been built as a basis for determining the level of fitness for young footballers.
2. Building standard levels to measure the physical fitness elements of other games, specifically for juniors.
3. Focusing on the standard levels to guide young people to the sport of the future in which they will be creative.

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