

Design and standardization of testing for the most important physical requirements - skill and muscle quality prediction for young handball players

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Abstract

The study included four chapters and the most important thing that came in the first chapter is the importance of research by designing and building tests for the most important physical and skill requirements through which we can predict the quality of working muscles and the percentage of fat in the player, and through that we can add the practical and theoretical importance that the Iraqi scientific library needs And handball workers as literature according to the designed test, which enables the sports coach to identify the level of his players using the predicted grades and criteria, which contributes to raising the players' performance and raising the level of the game., As for the research problem, the researcher noted the lack of tests and standard levels that help the coach determine the player's level Actual and that this will affect the existence of objective criteria in the evaluation process and dependence on self and personal evaluation in the process of training and competition, and also noted that most of the existing tests have collected with them tests that do not take into account the physiological side of the player, which is one of the aspects that must be taken care of in order for the test to be Designed with certified privacy in sports activities and close to the state of play, it can give a clear calendar picture A prophecy in selecting players and preparing training programs. As for the research objectives, they were to design and codify tests that measure the most important physical - skill requirements of young handball players. Find equations for prediction by knowing the values of the most important physical requirements - skill in terms of working muscle quality and fat percentage for young handball players.

As for the third chapter, it includes the descriptive approach in the method of relational relationships, due to its suitability to the nature of the problem, while the fourth chapter is a presentation, analysis and discussion of the findings of the researchers.

While the fifth chapter included the most important conclusions and recommendations, namely:

- 1- 1 - Designing and codifying a test to measure according to the performance requirements (skill - physical) and are considered tools for the values of the player's level.
- 2- This test can be adopted as a means of evaluation by coaches before entering training programs to prepare players.
- 3- Standardized test scores and levels were found to serve as objective evidence for the trainer in assessing the individual's level in relation to the group to which he belongs.
- 4- Finding a general indicator for the test through an equation that gives direct numerical indicators to assess the level of performance.

As for the recommendations that the researchers reached, they are:

- 1- Using the test that was designed, codified, and set standards for assessing players 'levels by coaches and handball specialists.

- 2- The use of this test as a means of observing the individual differences between the players during the preparation periods and before entering the competitions.
- 3- Using this test as criteria in the selection process for players for clubs or teams.

Definition of research

Introduction and importance of the research

The development of the level of performance and the achievements that we are witnessing in various events and sports came as a result of the development of sports science, and the adoption of scientific methods with high efficiency and influence in order to benefit from tests and measurements. In addition to tools and assistive devices and the correct investment of human energies.

Therefore, the development of the handball game came as a result of keeping pace with developments in the field of training, so those interested in the game began to harness all potentials and abilities to reach the high level in performance and achieve the best achievement. By relying on studies and research, benefiting from other sciences, investigation and taking into account the aspects that help in developing the level of the game and preparing players in terms of physical, skill, planning and psychological aspects, all without neglecting any aspect of the basic game. Therefore, this requires real efforts by coaches and players alike to reach the required level by following modern scientific methods that are distinguished by their effectiveness, skills and different basic movement ranges that depend on the physical and skill requirements of the player to achieve the best results.

The prediction process in the sports field is constantly in need of updating the test, it is the true and expressive standard for players to possess what qualifies them to represent their sports teams. There must be methods and tests that work to determine the levels of players and determine the state of training and these means are the presence of physical, skill and physiological tests and measurements that the coach applies to evaluate and predict the player's condition. The level reached, and due to the lack of this test in the handball game, according to the researcher's knowledge, which led to researchers' interest in designing new standardized tests that have scientific foundations consistent with their development. And this works to know the level of players' progress and predict their future performance, as the prediction in the sports field is that the coach predicts the level of his player and what this level will reach in the future based on certain determinants of the independent variables that will affect the level and thus will be able to determine his training approach according to For the information he has made and will improve the selection of his players in a scientific way.

From the above, the importance of research in developing this game was clear, not out of thin air, but through tireless scientific efforts and continuous follow-up of the players' physical, skill and physiological levels through continuous tests of various types. From this test, special tests that serve the prior knowledge of the level of players and based on the levels they provide during the previous test and scientific indicators allow the

specialist to judge the future level of the player, and through the design and construction of tests for the players. The most important physical and skill requirements through which we can predict the quality of working muscles and the percentage of fat in the player, and through that we can add practical and theoretical importance to the Iraqi scientific library and workers in the field of handball as literature according to the designed test, which enables the sports coach to determine the level of his players using the expected value criteria And standards that contribute to raising the performance of players and raising the level of the game.

Research problem

Whenever the test conducted by the coach is codified and has scientific foundations, the more predictions about the outcome of the match and the evaluation of the team are correct, and through the work of the researcher as a teacher and a follower of handball clubs, in addition to his review of many studies and research in the game of handball, the researcher noticed the lack of tests and standard levels It helps the coach to determine the actual player's level and that this will affect the existence of objective criteria in the evaluation process and rely on self and personal evaluation in the training and competition process. He also notes that most of the existing tests have collected tests that do not take into account the physiological aspect of the player, which is one of the aspects that It must be taken care of so that the designed test has a specificity approved in sports activities and close to the state of play can give a clear evaluation picture to predict the selection of players and prepare valid and scientific training programs that help coaches and players in the progress and development of the game in the future, so the researchers decided to enter into this problem and work on designing A test of the most important physical requirements - skill and a prediction of the quality of working muscles for use in the sports field For young handball players.

Research aims

- 1- Determining the most important physical and skill requirements for young handball players.
- 2- Design a test that measures the most important physical - skill requirements of young handball players.
- 3- Standardizing a test for the most important physical and skill requirements for young handball players.
- 4- Measuring the muscle quality of young handball players.
- 5- Finding the prediction equation by knowing the values of the most important physical requirements - skill in terms of muscle quality for young handball players.

Research areas

- 1- Human field: youth handball club players aged 17-19 years.
- 2- Time range: 11/18/2020 to 5/30/2021
- 3- Spatial domain: the closed halls of the clubs covered by the research.

Research methodology and field procedures

Research Methodology

Each research has its own method, which the researcher uses in order to reach the scientific facts, and the method is the correct scientific path that the researcher takes to solve his research problem. The nature of the research problem.

Research community and sample

One of the things to be taken into account in scientific research is to choose a sample that represents the original community honestly and truly, as the process of selecting the sample is closely related to the nature of the research taken from the sample as it represents the part that represents the original community or the model that the researcher conducts as a whole and the focus of his work on it.

Where the research community was represented by the handball players of the youth group in the southern region, who were deliberately chosen, representing nine clubs, namely the Club (Naft Al Janoub, Municipalities of Basra, Al Khaleej, Al Nasr, Qalat Sukkar, Al Kut, Al Samawah, Naft Maysan, and Tigris), and those registered in the records of the Iraqi Federation Handball center.

Where the original research community of the research sample reached (143) players, of whom (7) players were excluded due to non-attendance, where the percentage of community representation was (95.10%), as for the sample to confirm the scientific foundations, it reached (36) players from the youth and advanced categories. Thus, the total number of the research community was (179) players, representing (96.08%) of the total community of the sample, as shown in Table (1).

Table (1) shows the preparation and details of the research sample on which the test was performed

total summation For the sample		Goalkeepers	The players Excluded	Legalization sample		A sample to ascertain the scientific basis for the tests		The original research community	Sample details
The ratio	the number			The ratio	the number	Persistence	Honesty		Effectiveness

96.08 %	179	18	7	95.10 %	136	18	36	143	Handball players (youth)
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The means, devices and tools that will be used to help collect information and carry out the research

Means of gathering information

The researchers used a different set of auxiliary means appropriate to the nature of the work, as (the means of collecting information are among the basic requirements of the research and are the main outlet for collecting data, whether digital, theoretical or exploratory information required in solving the research problem).

Therefore, the researcher relied on the following means in collecting information, including:

- 1- Arab and foreign sources.
- 2- International Information Network (Internet).

Questionnaire forms: The questionnaire is "one of the important tools in scientific research, and it is used in a wide range in order to obtain data or information about a phenomenon."

Therefore, the researcher used more than one questionnaire for the research requirements, which are as follows:

- 1- A questionnaire form was developed for the opinions of experts and specialists to determine the most important physical and skill requirements of young handball players
- 2- Questionnaire to survey the opinions of experts on the validity of the designed test
- 3- Questionnaire polling the opinions of experts on the validity of the mathematical equation
- 4- Personal interviews with experts and specialists.
- 5- Test and measurement.
- 6- Data dump form
- 7- Helping staff

Hardware and tools

- 1- Legs 2.75 cm high.
- 2- Legal handball court.
- 3- Legal hand balls (12).
- 4- Electronic stopwatch number 2.
- 5- Whistle number 2.
- 6- Scaplet to measure muscle quality.

Test design steps

Preparing the initial version of the tests and presenting them to experts and specialists

In order to reach the research requirements, the researchers reviewed many Arab and foreign sources and references about the design and legalization of the test, and given the importance of the research problem to benefit from it in the training process, so the researcher prepared a paper questionnaire to determine the most important research requirements (physical - skill - physiological) for players Youth handball and its relative importance.

Then, the researchers took the opinion of experts and specialists in the field of sports and handball through the distribution of the questionnaire, which the researcher prepared for this purpose to acquire the validity of these requirements, as their number reached (29) experts and specialists in order to work on identifying the most important research requirements for football players The Young Hand, and after receiving the answers from specialists and stakeholders in this field, and after dialogue, exchanging views, adding and deleting some observations, the researchers reached the physical, skill and physiological requirements in their final form. What (Muhammad Hassan Allawi) asserts is that "the researcher has the right to choose the percentage he deems appropriate when choosing indicators."

In order to reach the completion of the research requirements, the researchers reviewed a lot of available Arab and foreign sources and references about the test design, and in order to ascertain the process of applying the test correctly and its suitability with the progress and development taking place in the sports field, especially in the game of handball, which was imposed on the researcher At the beginning of the matter to prepare the test in the initial form, after that the opinion of experts and specialists in the field of sports and handball was taken, as their number reached (22), experts and specialists in order to work to determine the appropriate test by distributing the questionnaire forms, which the researchers prepared for this purpose to acquire The validity of this test.

After receiving the answers by specialists in this field to express their opinions about the validity of the test and its suitability for the purpose for which it was prepared, and after discussion, dialogue and exchange of views after adding, deleting and amending some details and notes of the test under study, the researchers arrived at the test in its final form, where the percentage of agreement was 95%.

First test

- 1- Test name: Yasser's test of performance speed and defensive blocking skill.
- 2- The purpose of the test: To measure the speed of defensive moves with the skill of the defensive blocking wall in more than one defense center.
- 3- The tools: a handball court - two handballs hanging from two legs 2.75 cm high - a stopwatch - a whistle - a tape.

4- Level and Gender: Young Handball Players (17-19 Years).

Performance method:

Five points are placed to determine the course of the defensive move for the laboratory, three points are placed in front of the goal area line, which bear the numbers (5,3,1) and the distance between one point and another is (2m), while the two points (4,2) are also 2m away from the rest. The points are placed on the free throw line, and above each of them is a hanging ball at a height of (2.75 m). After hearing the whistle, the tester moves from point (1) to (2) and performs the defensive blocking wall by jumping and touching the suspended ball and then returning diagonally back and to point (3). Moving forward and diagonally towards point (4) as well as making a blocking wall, touching the ball and landing, then returning back and diagonally to point (5) and then returning with the same movement path to the starting point so that the performance path is in the shape of a letter (M).

Performance conditions:

- 1- The test is given for one time if it was performed correctly and if the laboratory does not adhere to the correct sequence of performing the test, retry.
- 2- The performance must be identical to the defensive performance and correct defensive moves.

Registration:

- 1- The total time of the performance is calculated in relation to the speed of performing the defensive moves, to the nearest (1/100) seconds, which is the time recorded from hearing the start signal until ending and returning to the starting point.
- 2- One second is added to each error during performance, such as not jumping.
- 3- The tester is assigned two points if the ball is touched by both hands.
- 4- The tester is given one score in case he touches the ball with one hand.
- 5- The tester is given a zero if he jumps and is unable to touch the ball.

Note: The highest score obtained by the laboratory in the skill of the defensive block is 8 degrees.

Calculating the total score for the test using the following indicators:

- 1- Skill performance index = $\frac{\text{actual skill performance score}}{\text{perfect skill performance score}} \times 100$.
- 2- Performance speed index = $\frac{\text{ideal performance speed}}{\text{actual performance speed}} \times 100$.
- 3- The general index of the test = $\frac{\text{the skill performance index} + \text{the speed performance index}}{2}$.

Exploratory experience

The first exploratory experiment conducted on the Tigris Sports Club youth handball players was conducted on Thursday, 12/17/2020, at (9) in the morning in the closed hall of the College of Physical Education and Sports Sciences - University of Maysan, whose purpose was to obtain data Through which the outcome of the equations was verified, nine players were selected and tested to perform the test in question.

Scientific basis for the tests:

- 1- In order to reach the most accurate results and in order to ensure the validity of the test, researchers must subject the test to the scientific foundations of validity, consistency and objectivity. This is what Sami Muhammad indicated (the test is a means that helps evaluate performance and compare its levels with its objective objectives, as it must enjoy high rates of honesty, stability and objectivity).
- 2- In spite of surveying the opinions of experts and specialists in the field of testing and measurement, consideration must be given to consistency, validity and objectivity as the scientific foundations for the test.

Stability test

The stability of the test in its general sense is "giving stability to the results obtained by the researcher if the experiment is repeated, that is, if the experiment is repeated on the same similar groups. The same results are given in the first experiment."

In order to verify the stability of the test used in the research, the researchers used the (test and retest) method, where the test was applied to a sample consisting of (18) players representing the Tigris youth club. The researcher repeated the test after (14) days.

The data was then processed statistically, where the researcher used the simple correlation coefficient (Pearson), as shown in Table (2).

Table (2) shows the arithmetic means, the standard deviations, and the calculated value of (t)

indication	The calculate d value (t)	second test		first test		Statistical processors the test
		-+p	s-	-+p	s-	
D.	0.832	5.472	76.005	7.048	74.198	first test

By observing the previous table, it was found that the test has acquired the characteristic of stability and stability, as stability is considered a basic condition of the scientific foundations because the correlation coefficient shows the results of repeated testing for the same sample, which indicates the test reliability coefficient only if the correlation is significant.

Test validity

- 1- Honesty is defined as "to what degree the test measures what was set for it." Therefore, the researchers used several types of validity to standardize the test, which are as follows:
- 2- Virtual honesty: The researchers used the (virtual) sincerity of the arbitrators, and this is considered to be the validity of the test, as it depends on the logic of the test contents and their relationship to the measured phenomenon.
- 3- As the test was presented to the experts and specialists in the sports field to ensure its validity, where (95%) of the experts and specialists agreed on the validity of the test as it measures what it was prepared for, and thus researchers have achieved one of the types of honesty.

Discriminatory honesty

It is "the ability of the scale to distinguish between two logically distinct groups with respect to the measured characteristic." Accordingly, the discriminatory honesty was calculated between two logically distinct groups represented by the number (18) players representing young players with handball and (18) players from the advanced players. The researchers selected them by the intentional method, and they are the Tigris Sports Club. As it is considered "one of the most important methods used to support the validity of the test is to study the possibility of testing to differentiate between two groups of significantly different level."

After obtaining the results, the researchers used a t-test for independent and equal samples, and noticed that there were statistically significant differences between the two groups and in favor of the advanced players group at the degree of freedom of n-2. As shown in Table (3).

Table (3) shows the degree of discriminatory honesty of the differences between young players and advanced players

indication	Values (T)	Standard error	Players applicants	Standard error	Players Young	Statistical means
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	calculated		-+p	s-		-+p	s-	the test
D.	5.120	1.139	4.832	84.512	1.661	7.048	74.198	first test

At a degree of freedom (34) and a level of significance equal to (0.05).

Self - honesty

Self-honesty is defined as “the validity of the experimental scores of the test in relation to the real scores that are freed from measurement errors, and thus these scores are a test of the test’s validity.” And honesty can be found here by calculating the square root of the reliability, and it depends on the basis that the reliability is based on the real scores of the test, as either It was re-applied to the same group of individuals, that is, the number of times, so the link between consistency and honesty is close.

$$\text{Therefore, the self-validity of the test} = \sqrt{\text{Stability coefficient}}$$

Reliability coefficient provided that the reliability is by retesting as in Table.(4)

Table (4) it shows the self-validity of the tests used for individuals of the research sample

self honesty	
0.912	Yasser's test to measure the speed of performing defensive moves with the skill of the defensive wall in more than one defensive center

Objectivity of the test

Objectivity is defined as “freedom from prejudice and intolerance, and not including personal factors in the judgments issued by the researcher. Or as Munther Al-Damen defines it as "dealing with facts without bias or issuing value judgments. The test was conducted under the supervision of arbitrators, taking into account the simulation of the same conditions and the method of testing the test. Correlation is high, which means that all tests have a high degree of objectivity.

The main experience

The researchers conducted the main experiment after completing the research requirements by distributing the questionnaire forms and taking the opinion of experts and specialists in this field to determine the test and know its validity in addition to subjecting it to scientific transactions and then conducting exploratory experiments to control the factors and variables that may affect the test procedure. As indicated as follows:

1. The researchers conducted the test on the South Oil Club in Basra Governorate on 20-21 / 1/2021 at nine in the morning, and the experiment lasted approximately two and a half hours.
2. The researchers conducted the test at the Gulf Club in Basra Governorate on 22-23/1/2021 at nine in the morning, and the experiment lasted approximately two and a half hours.
3. The researchers conducted the test on the Basra Municipality Club in Basra Governorate on 25-26 / 1/2021 at nine in the morning, and the experiment lasted approximately two and a half hours.
4. The researchers conducted the test on Al-Nasr Club in Dhi Qar Governorate on 28-29/ 1/2021 at nine in the morning, and the experiment lasted about two and a half hours.
5. The researchers conducted the test at Al-Nasr Club in Dhi Qar Governorate on 30-31 / 1/2021 at nine in the morning, and the experiment lasted approximately two and a half hours.
6. The researchers conducted the test on Al-Kut Club in Wasit Governorate on 2/3/2021 at nine o'clock in the morning, and the experiment lasted approximately two and a half hours.
7. The researchers conducted the test at Al-Samawah Club in Al-Samawah governorate on 5/6/2021 at nine in the morning, and the experiment lasted about two and a half hours.
8. The researchers conducted the test on the Maysan Oil Club in Maysan Governorate on February 8, 2021 at nine in the morning, and the experiment lasted approximately two and a half hours.

Statistical means

The researchers used the statistical program (SPSS - v25) based on the following laws:

- 1- Relative importance
- 2- Percentage
- 3- The arithmetic mean
- 4- Standard deviation
- 5- range
- 6- Contrast
- 1- 7 - Splitting
- 7- Torsion modulus
- 2- 9 - Standard error
- 3- 10- (F)
- 4- 11- Simple Correlation Coefficient (Pearson)
- 5- 12- The t-test of equal samples

Presentation, analysis and discussion of results:

Presentation, analysis and discussion of Yasser test results for speed performance and defensive blocking skill of the rationing sample

Table (5) shows the arithmetic means, standard deviations, range, variance, flatness, skew coefficient and standard error of Yasser's test of performance speed and the skill of the defensive wall.

Standard error	Coefficient of torsion	flatness	variance	Term	standard deviation	Arithmetic mean	Statistics test	(7)]No.
0.480	0.982	0.752	31.458	24.58	5.608	71.385	first test	1

Table (5) shows results from Yasser’s test of speed performance and defensive blocking wall skill, as the mean (71.385), standard deviation (5.608), range (24.58), variance (31.458), flatulence (0.752), torsion coefficient (0.982) and standard error (0.480). After extracting the results in Table (5), the relationship for finding the fixed number (5 * standard deviation / 50) (1) was extracted, and the standard degree (arithmetic mean (_+)) was extracted from the fixed number (sequentially), and the arithmetic mean represented the degree (50) In the standard score tables, as for the fixed amount, it represents the value that must be added or subtracted from the arithmetic mean, as the modified standard score is a degree of average (50) and its deviation is zero. Performance and skill of the defensive block.

Table (6) shows the raw score and the standard score in a sequential manner for Yasser testing of performance velocity and defensive barrier skill

Raw scores and Standard scores							
Raw	normative	Raw	normative	Raw	normative	Raw	normative
85.945	76	71.945	51	57.945	26	43.945	1
86.505	77	72.505	52	58.505	27	44.505	2
87.065	78	73.065	53	59.065	28	45.065	3
87.625	79	73.625	54	59.625	29	45.625	4
88.185	80	74.185	55	60.185	30	46.185	5
88.745	81	74.745	56	60.745	31	46.745	6
89.305	82	75.305	57	61.305	32	47.305	7
89.865	83	75.865	58	61.865	33	47.865	8
90.425	84	76.425	59	62.425	34	48.425	9
90.985	85	76.985	60	62.985	35	48.985	10
91.545	86	77.545	61	63.545	36	49.545	11
92.105	87	78.105	62	64.105	37	50.105	12

92.665	88	78.665	63	64,665	38	50,665	13
93.225	89	79.225	64	65.225	39	51.225	14
93.785	90	79.785	65	65,785	40	51.785	15
94.345	91	80.345	66	66.345	41	52.345	16
94.905	92	80.905	67	66.905	42	52.905	17
95.465	93	81.465	68	67.465	43	53.465	18
96.025	94	82.025	69	68.025	44	54.025	19
96.585	95	82,585	70	68.585	45	54,585	20
97.145	96	83.145	71	69.145	46	55.145	21
97.705	97	83.705	72	69.705	47	55,705	22
98.265	98	84.265	73	70.265	48	56.265	23
98.825	99	84.825	74	70.825	49	56,825	24
99.385	100	85.385	75	71.385	50	57,385	25

Table (7) shows the limits of the standard levels and the standard score modified in the sequential manner and the proportions determined for them in the curve of normal distribution, the number of players and the percentages for each level in a test that captures the speed of performance and the skill of the defensive wall.

Percentages	Number of Players	Standardized grades sequentially adjusted	Grades rough	Levels
%3.676	5	20 – 1	And below -54,585	Weak
%16.176	22	40 - 21	55.145 -65,785	Acceptable
%55.147	75	60 – 41	66.345 -76.985	Average
%19.852	27	80 - 61	77.545 -88.185	good
%5.147	7	100 - 81	88.745 -up	very good

It is evident from Table (7) in Yasser’s test of speed and skill of the defensive blocking wall that the level (weak) is determined by raw scores from (54.025 - and below), which corresponds to the standard score of (1-20) as the number of players (5) has achieved a percentage A percentage of (3.676%), and the (acceptable) level is determined by raw scores from (54.585-65.225), which corresponds to the standard score from (40-21). The number of players was (22) and they achieved a percentage of (16.176%), and the level (Average) determined by raw scores from (65.785 - 76.425), which corresponds to the standard score from (60 - 41), in which the number of players (75) players, have achieved a percentage of (55.147%), while the (good) level is determined by raw scores from (76.985 - 87,625) which corresponds to the standard score from (80 - 61), in which the number of players is (27) players and achieved a percentage of (19.852%), while the level (very good) is determined by raw scores from (88.185 and above), which corresponds to the standard score From (100 - 81), the number of players was (7), and they achieved a percentage of (5.147%).

Through Table (7), we find that the percentage of the research sample was confined between the levels (acceptable - average - good) in terms of the largest percentage concentrated at the level (average) during the test results.

Through the researchers' observation of the standard levels that appear in Table (7), the variation and difference of the members of the research sample are evidenced, as the researchers attribute this to the difference in levels to the disparity in the level of sports clubs in the southern region as well as the non-high level as this is due to different reasons and according to the test indicators that it gives, That the nature of the speed of performance plays an important role in addition to the skillful performance as a whole and the defensive moves with the defensive blocking wall, each one of these variables affects in one way or another the result that the test gives and thus confirms the extent of the link between the components of this test and the result of the test. The researcher said that the effect and inefficiency in any of the aforementioned variables reflected negatively on the performance result and on the test result (the speed of performance of defensive moves with the defensive blocking wall), and thus we can see the inverse relationship between the test result and the low level of measurement in any of the test variables, as well as Thus, the researcher believes that the link between the correct and proper skill performance and reaching the ideal performance depends on the physical ability and skill. The test meme and its codification came in giving numerical indicators indicating the actual level of the players and the method of their evaluation. The researcher also believes that the skill performance plays a fundamental and important role for the training process for the stage of preparing the players, that is, the weakness in the speed of the skill performance will affect the movements of the handball player significantly, and this What is confirmed by (Muhammad Tawfiq Al-Waili 1998), "The basic motor skills of the game are the backbone of the training process at the present time and in the preparation stage where it is difficult to correct errors later on, and the player who is not physically and skillfully prepared cannot control the ball and his movements well."

Conclusions and recommendations

Conclusions

Through the presentation, analysis and discussion of the results, the researchers reached the following:

- 1- Designing and regulating a test according to the performance requirements (physical - skill), and it is considered tools for the values of the player's level.
- 2- The coaches can adopt this test as a means of evaluation to enter into training programs to prepare players.
- 3- Standard grades and levels were found for each test that serve as a clear way for the trainer to assess the individual's level in relation to the group.

- 4- Finding general indicators for the test through equations that give direct numerical indicators to evaluate the level of performance.

Recommendations

- 1- Using the test that was designed, codified, and found standards for assessing players 'levels by coaches and handball specialists.
- 2- Using this test as a means of observing individual differences between players in preparation before and after entering into the training process.
- 3- The trainers must emphasize the training of skill performance in a complex way and link it to the performance time, which gives the indicator for the development of the physical characteristic.
- 4- Using prediction equations and preparing tables by the trainers depending on the application of the test before entering the preparation period.

Presentation, analysis and discussion of the results of the metadata of muscle quality and the percentage of right-sided fat in the ration sample

Table (8) shows the arithmetic mean, standard deviations, range, variance, flatulence, coefficient of torsion, and standard error of muscle quality in the ration sample

Standard error	Coefficient of torsion	flatness	variance	Term	standard deviation	Arithmetic mean	Test Statistics	No	
1.553	-0.059	-0.599	328.298	76.30	18.119	62.536	The quality of the biceps muscle	1	The quality of the muscles of the right part of the body
1.815	-0.061	-1.099	448.503	75.00	21.177	63.663	The quality of the triceps muscle	2	
1.866	-0.330	-1.329	473.885	70.30	21.768	71.836	Shoulder muscle quality	3	
1.622	-0.332	-0.694	357.846	76.40	18.916	61.830	Forearm muscle quality	4	
2.278	.1230	-1.401	705.796	80.30	26,566	59.247	Calf muscle quality	5	
2.279	0790	-1.479	706.690	78.60	26.583	60.588	Quadriceps quality	6	
2.070	-0.818	-0.764	583.048	74.60	24.146	77.369	Muscle quality in the	7	

							upper back		
1.727	-0.777	-0.899	405.934	65.40	20.147	80.973	Lower back muscle quality	8	
2.332	1080	-1.460	739.852	83.60	27.200	58.043	Hamstring muscle quality	9	
1.720	-0.375	-1.210	402.417	68.40	20.060	74.116	The quality of the chest muscle	10	

Cheap and analysis and discussion of correlation matrix for research variables:
 Table (9) shows the multiple correlation coefficient, contribution ratio and standard error of estimation between the first test and the muscle quality variable, the right side of the player.

Standard error of estimation	Contribution percentage	The link	Model
1.160	.9600	9800	1

Through Table ,(9) the value of the multiple correlation is shown, as it reached (0.980), the contribution rate was (0.960), and a standard error was (1.160), and in order to identify the regression coefficient for the contribution of independent variables (muscle quality) for the prediction (of skill-physical performance) as a dependent variable The researcher used the test (analysis of variance), as shown in Table 10

Table (1) shows the analysis of variance of the multiple regression to check the quality of compatibility of the multiple linear regression model for the performance Physical - skill and muscle quality right side

Indication level	(f) calculated	Average of squares	Degree of freedom	Sum of squares	Model	
.0000	302.652	407.837	10	4078.370	Regression	first test
		1.348	125	168.443	Residual	
			135	4246.813	Total	

Through Table (10) it is evident that the independent variables (muscle quality) are suitable for predicting (physical - skillful performance) of young handball players through the significant value (Fcalculated), which amounted to (302.652) with an error

rate of (0.000), and in order to reach the multiple regression line equation, the researcher used the test) TAs indicated in Table. (11)

Table (1) shows the values of the fixed limit and the tendency effect for physical performance - skill, muscle quality, right side, their standard errors, and the value of t calculated and the level of significance

Indication level	Calculated (t)	Standard error	B	Model	
.0000	29.827	1.891	56,410	(Constant)	1
.0000	12,985	.0400	.5200	The quality of the biceps muscle	first test
.4040	-0.837	.0650	-0.054	The quality of the triceps muscle	
.7110	.3710	0740	0270	Shoulder muscle quality	
.0000	5.220	.0500	-0.259	Forearm muscle quality	
1120	1.601	0450	0720	Calf muscle quality	
3150	1.008	0660	0670	Quadriceps quality	
.0340	-2.147	0490	-0.105	Muscle quality in the upper back	
8580	-0.179	04480	-0.009	Lower back muscle quality	
.8990	1270	.0380	.0050	Hamstring muscle quality	
9840	0210	1000	0020	The quality of the chest muscle	
0.000	24.679	0.001	0.023	Total right muscle quality	

Therefore, the predictive equation can be deduced using the multiple regression equation, as follows:

Test overall index = 56.410 + (biceps quality x arithmetic mean) - (triceps quality x arithmetic mean) + (shoulder quality x arithmetic mean) - (forearm quality x arithmetic mean) + (calf quality x arithmetic mean) The arithmetic mean (+) the quality of the quadriceps muscle x the arithmetic mean (-) the quality of the quadriceps muscle x the arithmetic mean (-) the quality of the muscle of the lower back x the arithmetic mean (+) the quality of the hamstring muscle x the arithmetic mean (+) the quality of the chest muscle x the arithmetic mean) = 71.328

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