

Some Cognitive Skills As An Indicator For Predicting Mental Flexibility And Performance Using A Technique Regression

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I-Introducing the search:

I-1 Introduction and importance of research

Table tennis is one of the mass games that is practiced by all segments of society. This game has advantages that made it take a great place among people. Among these advantages is that it does not need a large number of players. The family is young and old, and it does not need a long time to learn, and its tools are available in most parts of the world and can be played in outdoor or indoor playgrounds, as it contains multiple aspects and a large number of variables at all levels of skill, physical, mental, and others. The cognitive aspect is one of the most important aspects determining the level of performance where Cognitive skills form a strong and single connection among themselves. The researcher may seek to prepare a profile of cognitive skills and performance according to the battery of knowledge.HRPWhich is one of the means that is used for the first time, as it has the ability to find an ideal correlation between those skills, which contributes to raising the level of players' performance.

Psychology is one of the modern sciences that has been so popular with people that psychological knowledge has become one of the most common branches of human knowledge among people. It has also become a fundamental basis for understanding many educational, social, economic, health, political, sports and other problems. It has many theoretical and applied branches, and there is no doubt that the multiplicity of branches of psychology is a product of the human ability to practice many human activities and his ability to adapt to different life situations..

There is a great interrelationship between psychology and the various sports and motor activities of humans and athletes in particular, and

psychological matters have a large, important and influential role in achieving an advanced level in various competitions.,Each sport has its own psychological requirements and pillars from which to achieve the best results,In the game of table tennis, which is one of the important mass games that are practiced by all classes of society, it contains multiple aspects and skill levels, physical, mental and physical. The cognitive aspect(mental and psychological)One of the most important abilities that a table tennis player must have is in determining his level of performance. He also needs characteristics that distinguish the player in dealing with the ball and racket on the one hand, and on the other hand, his abilities to read the opponent's thoughts and respond to his expected and unexpected reactions. The player here also needs to be distinguished. A group of intelligence types, including the English scientist Howard Garner in general1983In the multiple theory of intelligence, which says that there are many intelligences and not only two abilities, namely, language communication and logical thinking, which have traditionally been considered the only indicators of intelligence approved in IQ tests.IQ)),Add toDistinguished cognitive processing, high level of attention and processing speed that qualifies him to be among the distinguished players in this sport.

Tests and electronic programs began to take a degree of interest from researchers in this field because of the ease of practice and speed of obtaining results and accuracy and saving effort and time, which encouraged the researcher to reflect on finding the most modern, economic and comprehensive, seeking the availability of the latest in the world, especially since the previous systems had them Leadership and still(Vienna Test System, Cogni Plus System, Rehacom System), as every system has foundations on which it is built and has its origin and advantages. There is no integrated system. We are in a world full

of variables. Scientists seek to create and add tests and programs that differ in their features from one system to another and from one world to another, except for the theories that scientists adopt on which tests and programs depend. In the brain's triple software bagHRPWhich is characterized by high accuracy linked to its networknetworkInternational in keeping with what is being updated Its tests are based on mental health, flexibility and performance and consist of two types of cognitive mental programs that are based on the development of mental abilities.

The importance of the research lies in the detection and evaluation of the mental and cognitive abilities of the players, on which all applied external skills depend. This method also serves the specialists in this field and the coaches in evaluating their players and knowing the strengths and weaknesses according to these abilities using a modern method used for the first time in Iraq.

1-2 Research problem:-

Table tennis is one of the mass games with fast motor performance. It requires attention, intelligence and processing speed, and this is what the nature of this game imposes on us. All of this depends on how the brain works as a system for arranging and organizing information on its own. The mental and cognitive abilities are very important in the occurrence of a prior expectation of the movement and act according to it, as there are in the mind multiple motor programs stored in advance, and the player must choose the appropriate program according to a sound behavior through the researcher's observation and follow-up to many local and international tournaments and consultation with the supervisor, being an expert In the field of table tennis and for the scientific fact, that there is a close link, rather the most important one, between the mental and cognitive abilities and the motor skills of table tennis players, especially as it is the main controller of the proper motor performance, and from here the research problem is determined in the following question:

- Do youIs there a relationship between cognitive skills, mental flexibility and performance?

3-1 research aims:-

1. Predicting mental flexibility and performance according to someCognitive skillsFor young ranked players in table tennis.

4-1 Research hypotheses:-

1. There is a significant relationship between cognitive skillsMental flexibility and performanceFor young ranked players in table tennis.

1-5 Research areas:-

1. **human field:** Young ranked players in table tennis.
2. **time domain:** 25-26/3/2022 - 1/6/2022.
3. **spatial domain:-**Hall of the National Center for Sports Talent Care-Ministry of Youth and sports.

3-Research methodology and field procedures:-

3-1 Research Methodology

In view of the requirements of the research problem, the researcher used the descriptive approach in the style of correlational relations as it is the best method to address the research problem.and descriptive method" It is the method in which the researcher intends to describe a phenomenon in order to reach the causes of this phenomenon and the factors that control it in order to draw conclusions and generalize them.(Wadih Yassin)

3-2community and sample research:-

The research problem identified the nature of the community and they are the young ranked players in table tennis for the year2021-2022According to the book of the Iraqi Table Tennis Federation and the rankings through the National Team Qualifiers Championship, the top five are ranked(The team consists of3players+2reserve player)And the top five rankers were dealt with by testing them with the mental flexibility and performance batteryHRPAnd link the results of the tests to their classification level, and the table(1)Shows the specification of the sample.

Rating score	Posts	the age	player name
first classifier	Arab champion - West Asian champion - formerly a player in the Iranian league - a	20year	Amir Thamer

	player in the Egyptian league now - a tournament(32)Asian Championship in Qatar.		
second classifier	West Asian Championship - Arab Championship	18year	Anwar Moayed
Third Classifier	West Asian Championship - player in the Egyptian League	20year	Ghaith Fadel
Fourth Classifier	West Asian Championship in Oman - Asian Championship in Qatar	20year	Jiar Nozad
Fifth Classifier	Iraq International Championship	19year	Waiting for Fadel

3-3 Means of collecting information, tools and devices used in the research:-

- Arab and foreign sources.
- International information web(Internet).
- personal interviews(viewed supplement-1) .
- Observation.
- exploratory experience.
- Auxiliary staff(viewed supplement-2) .
- Statistical bagSPSS.
- Mental flexibility and performance systemHRP .
- cameras number2To document visits and tests.

3-4 field procedures :-

3-4-1 equip the system :-

For the purpose of preparing a model for cognitive skills, the researcher intended to identify the systems working in this direction, and the options were focused between the questionnaire forms and some cognitive devices such as(Vienna, Rihacom, Cogni plus)Since all of these systems are somewhat old and do not include all cognitive skills, in addition to the defects and difficulty of the outputs, as well as the desire to search for what is new and keep pace with the successive scientific developments, the researcher conducted personal interviews with experts in the field of psychology and participated in international sites related to these topics. These attempts were crowned with success in identifying a system that is the latest in the world and the most comprehensive, which deals with multiple aspects of diagnosis and training for all skills..M.Dr. Hoda Jamil Abdel Ghani-Responsible for the Psychological Laboratory at the Psychological and Educational Research Center at the Ministry of

Higher Education and Scientific Research-System topic has been raisedHRPAnd attempts to import it from the origin, and the attempts were successful, and this system was purchased for the first time in Iraq and the neighboring region. The researcher also trained on the way the system works and its applications, in addition to interpreting the results through multiple sessions at the center, which culminated in a certificate of participation in a training course for(a programHRPMental flexibility and performance)held in the same centre Thus, the researcher possessed the necessary skills to apply the system to members of the researcher's community.

3-4-2 system components:-

The system is an electronic laboratory that includes a set of tests and training packages that can be dealt with in diagnostic or training tests that are included in pre and post tests. (In the case of experimental research)Three main axes, from which the name of the laboratory came((HRPWhich:

1. Cognitive healthCognitive Health
2. FlexibilityResilience
3. the performancePperformance

This system contains the following tests:-

- intelligence:It contains two tests:
 - 1.Mensa Cross-Cultural Intelligence Test:**culture fair**
 - 2.Extensive Mensa Test**full-scale**.
- Attention batteryAttention batteryIt contains three tests:
 - 1.focus attentionAttension Focus
 - 2.flexibility of attentionAttension Flex
 - 3.public attentionAttension General
- Processing speed testProcessing speed
- working memoryWorking Memory

- Make decisionDecision Making
- emotional intelligenceEmotional intelligence
- Cognitive flexibilityCognitive resilience
- Mental health and contains three tests::
 1. DepressionDepression
 2. worryAnxiety
 3. Psychological BurnoutBurnout

The researcher dealt with the diagnostic aspect of the system as a whole, in the sense of revealing the results of each member of the community and indicating his level in each of these tests, meaning that the researcher did not deal with the training aspect of the system, and thus a pre-test was conducted only in order to be considered the descriptive test without comparing it with the post-test.

The formal nature of this system requires complete knowledge of the interpretation of the results, which do not appear in the form of tables, but rather a set of curves and drawings, which can be explained by the following:-

In the attention test, which includes three results:(Focusing attention - flexibility of attention - general attention)The results can be interpreted as follows:-

- In the left direction, the percentage of answers is shown correct.
- In the right direction, the grade of the raw laboratory is shown
And in the direction of the black arrow that indicates the correct answers that can be

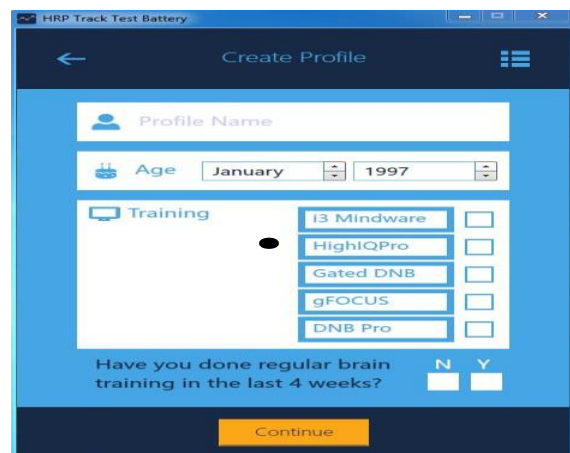
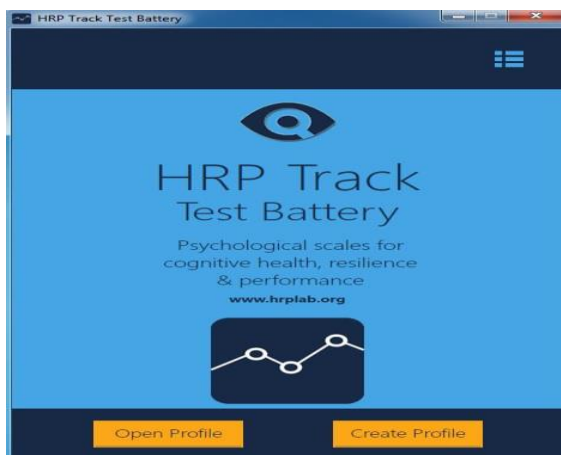
dealt with as any degree for the purpose of comparison with other individuals.

- The red color in the figure constitutes the wrong answers, and increasing them means increasing the error rate.
- The green color represents the correct answers, and increasing them means increasing the percentage of correctness.
- The closer the black arrow to the right, the more correct answers than wrong.
- The raw score varies from one test to another, and accordingly the percentage of errors varies100%That is equivalent to the full raw score on the left.
- The results are displayed in the examinee's personal file as pre-testspre-test.

the exams:

I-. system tests(HRP)Cognitive:

Before starting the tests, some things must be provided that will help facilitate the test in the required and ideal way and obtain realistic results as much as possible.,After opening the window for creating a file for the first time for the tester from an icon on the desktop(Gtrack)This information is automatically stored within the program parts as a viewable window to know its details at other times.()Then, we enter the name and age of the laboratory, and the first alternative is chosen from the five alternatives, the profile(I3 MindwareWhich the researcher intended as the subject of his message as a preparation for the other four alternatives related to training. The question is also answered: Have you ever filled out a profile file for you in the last four weeks within this system?

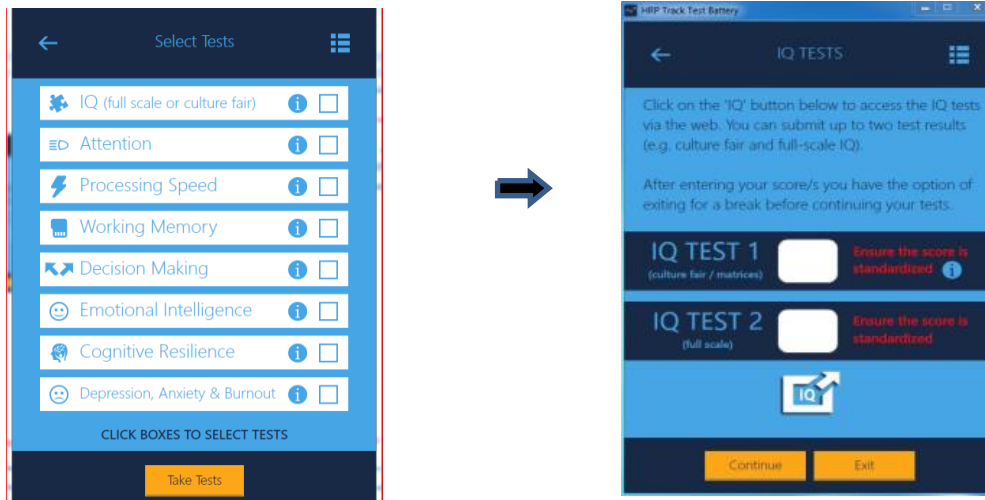


appearance(1)

Shows how to open a profile

After that, an explanatory window appears that briefly talks about the next step, which contains eight alternatives that the researcher intended in his study,

namely:(IQ tests,Attention tests,Processing speed,working memory,Make decision,emotional intelligence,Cognitive flexibility,Psychological health),Then an introductory window appears with a simplified explanation of the next step, from which the system tests begin, as in the figure(1) .



appearance(2)

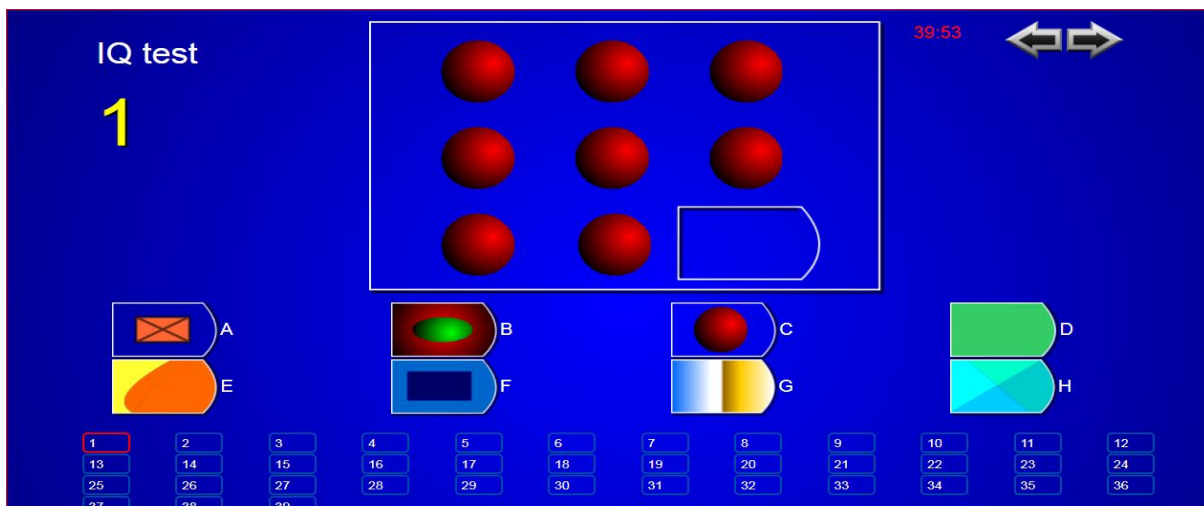
Explains the eight alternatives and begins the test

intelligence :(intelligence)

In this battery, the fluid or liquid intelligence test consists of two types::

In this type of test, it does not require experience in a specific language or introduction to a cultural background and is similar to matrix testsRavenIt contains(39)A paragraph that ranges from easy to more difficult and is answered within(40)Min In this test, you must click on the most logical alternative, Fig.(2) .

1- cross cultures : culture fair

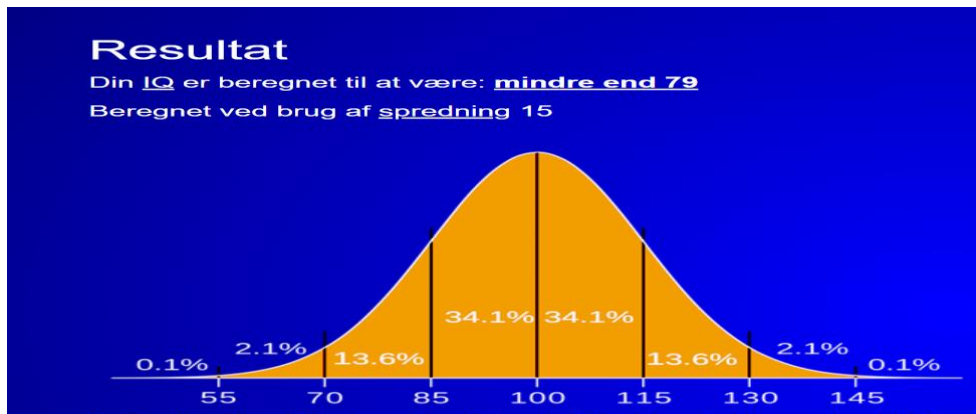


appearance(3)

Demonstrates a cross-cultural test

After completing the first part of the fluid intelligence test, the degree of passing the test appears to us. It is entered after the completion of the second section of the test to complete the remaining

steps. The result is a graphic curve sandwiched between two values on the right, a higher value(145)On the left, a minimum value(55), appearance(3) .



appearance(4)

Describes the results of a cross-cultural test

2- Widely:full-scale

In this test it is required to determine the age of the laboratory and contains36a paragraph that takes25Accurate and graded from easy to more difficult, shape(5) .

24:52

التمرين 1

		?

حدد إجابتك

A

B

C

D

E

F

التالي إجابة

appearance(5)

Demonstrates a large-scale test

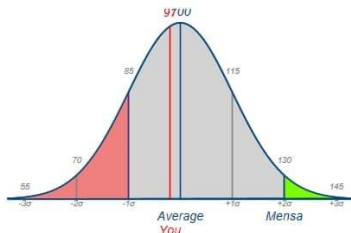
Also, our result appears at the end of the test paragraphs, representing the second value of the first test, so that we can then complete the rest of the tests, as they are based on the two values of the first test, Fig.(5) (Thaer, Khaled:2010, s13-14).

IQ Test

Made by Mensa Norway

Result of IQ Test

Your IQ was measured to
97



Your IQ was measured to 97 which is equivalent to the 42 percentile, with a standard deviation of 15.

Are you smart enough for Mensa?

appearance(6)

Demonstrates test results extensively

- ❖ Attention battery: Attention battery (Maysa, p49-53)

The attention test consists of three parts, starting with a short session, to ensure that you understand the next task, which should not take more than (3) minutes and each experiment will display instructions at the top of the screen (location-direction) which changes periodically, determines the correct answer left or right, and according to what the arrow indicates within the test, as quickly and accurately as possible, and you must obtain a percentage (75%) from the correct answers to take the rest of the test.

The test result is stored automatically to join the rest of the results that appear to us at the end of the tests

in a detailed manner for each test, since the tests that follow the intelligence test are overlapping with each other in a successive manner..

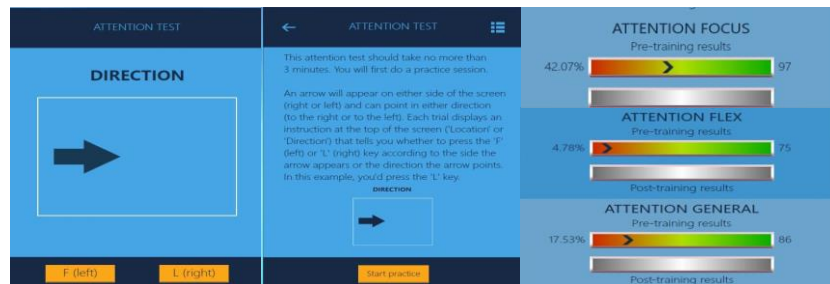
It consists of three areas:

1-focus attention Attention focus

2 -flexibility of attention: Attention flexibility

3-public attention Attention General

It is noticed that the laboratory is under the influence of pressure. And that the test taker is not tired, stressed or in physical pain. Also, he should not be in a bad mood or feel unwell, and the application of the test should be without giving others an opportunity to interfere with the answer, so it is preferable to be alone and for the tester to be willing to take the test seriously, and the program at the end of the test displays the result to the test taker.



appearance(7)

Demonstrates attention tests

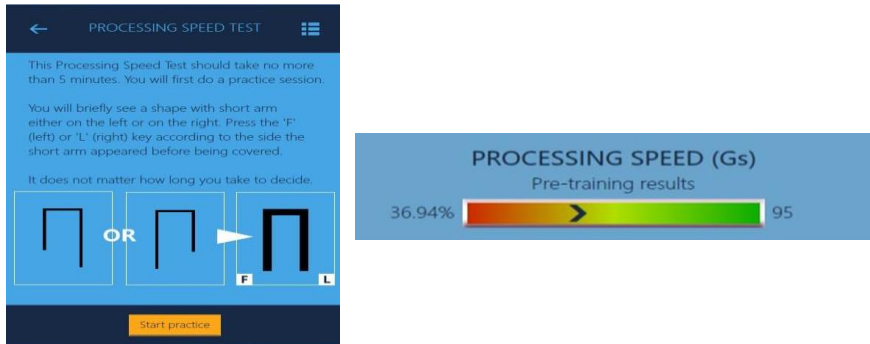
- ❖ Cognitive processing speed: cognitive processing speed

It is defined as the time period between entering the external stimulus and finding the optimal answer to that stimulus. If the processing speed is slow, it does not mean that we are less intelligent, but rather we will be slower to perform specific tasks. It may interfere with the executive skills, and therefore a

person with a slow processing speed will be difficult or will take more time. Therefore, he is not eligible to move to the rest of the battery tests.

The cognitive processing speed test consists of two parts, the test should not take more than(5)Minutes, the first training session you will see for a short time

a shape with a short arm either on the left or on the right we press a keyf (left)orL (right)According to the side on which the short arm appeared before covering it no matter how long it takes to make a decision, the result is in the form of a bar showing the raw value and percentage. .

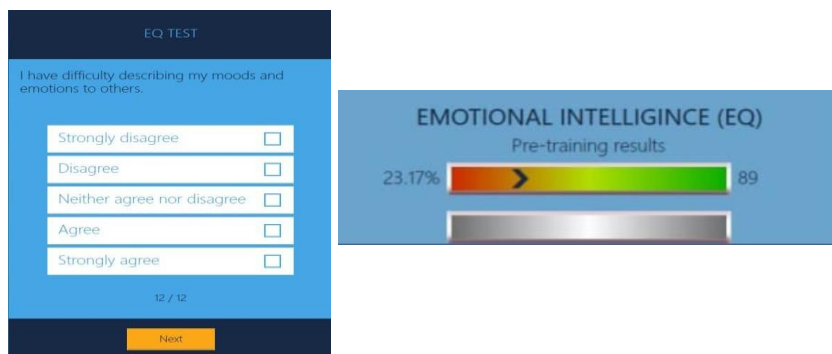


appearance(8)

Demonstrates processing speed test

❖ working memory:Working Memory
The term working memory refers to the product of emotional perusal, moment by moment, on the one hand, and the instantaneous retrieval of stored information, on the other hand.(utensils), remembering is affected by the level of the individual’s intelligence, individuals with weak minds have a weak memory and this is evident from the mental processes that make up memory activity, and on the contrary, we find that intelligent

individuals have a strong memoryThe working memory test consists of three parts, the first of which contains a rectangle with a set of squares inside it that misleads you squares in blue color and in different locations.(10)Minutes before each actual session is an educational session. In the second part of the test, a group of patterns appears for you. You have to know the symmetrical or symmetrical ones. It is determined by pressing continue to move to the last part of the test, which is the most important as it combines the first part and the second part by showing a misleading box followed by it. Symmetrical or asymmetrical pattern, then a misleading square in another place, then a pattern, and so on until a panel appears..



appearance(9)

Demonstrates test results extensively

As for the rest of the tests, which are:(Decision making - emotional intelligence - cognitive flexibility - mental health)It will be similar to an electronic questionnaire, that is, a set of questions

determined by the battery suitable for the person tested, as shown in the figure below:-

❖ **Make decision:**

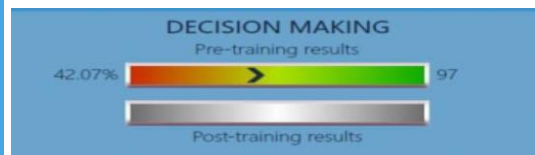
It consists of 13 paragraphs. Each paragraph contains 5 answer alternatives, the tester chooses one of them, and the final result appears at the end of the test.



appearance(10)

Describe the decision-making test and its results

- ❖ emotional intelligence:



It consists of 12 paragraphs. Each paragraph contains 5 answer alternatives. The tester answers one of them and the final result appears at the end of the test. When the researcher asks to extract the result, it is in the form of a colored bar containing the raw score and percentage of the correct answer and is not limited to a specific time for the test.

appearance(11)

Explain emotional intelligence test and its results

- ❖ Cognitive flexibility:

and contains 10 paragraphs of five alternatives, as in the previous tests in terms of the method of answering and the appearance of the result, and this test does not require a specific time for the answer.

COGNITIVE RESILIENCE TEST

Failure, loss, and major obstacles are demotivating for me.

Strongly disagree

Disagree

Neither agree nor disagree

Agree

Strongly agree

2 / 10

Next



appearance(12)

Explains the cognitive flexibility test and its results

- worry
- Psychological Burnout

These three variables are combined into a single scale consisting of 16 paragraphs, all the paragraphs are answered without the time factor, and the results appear individually.

- ❖ Psychological health: It contains three areas:
 - Depression

DAB TEST

Over the last TWO weeks how often have you been bothered by the following problems?

Poor appetite or overeating.

Not at all

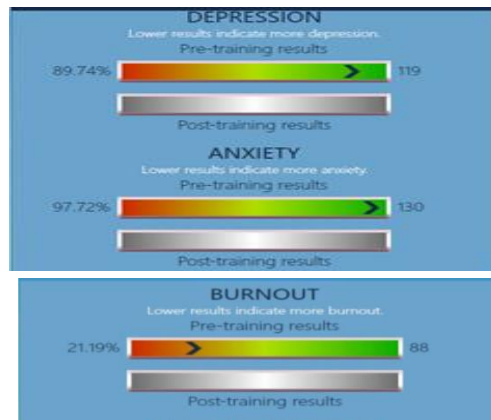
Several days

More than half the days

Nearly every day

1 / 16

Next



appearance(13)

Explains the mental health test and its results

Since this system is of British origin, so all its details are in English until entering the eight exams, as the first four exams, which are (IQ tests, Attention tests, Processing speed, and working memory) It has a mock environment that can be dealt with by those who are not fluent in the English language. As for the other four tests, which are: (Make decision, Cognitive flexibility, emotional intelligence, and mental

health) Its environment is not fictitious, i.e. in the form of a software questionnaire form in the English language, and since some of the sample members are not fluent in the English language, the researcher pulled these forms in paper and processed them linguistically by presenting them to translation experts and converting them into Arabic with isolating each test in a special folder. That's before the exams start (Nihad, Nabil:74:2015).

3-4-3 survey study:-

For the purpose of verifying the work steps and reassurance about the method of application, the problems and obstacles that may encounter any study and the time required to complete each test and from each member of the community, the researcher conducted an exploratory study of players from the Al-Diwaniyah Sports Club in table tennis, and they are each of (Laith Haider Farhan, Louay arranged Abdel Hussein) This is on Tuesday, 12/16/2021 in the housing youth forum hall, as this survey produced a set of information, the most important of which is:

1. The time required to conduct the full system tests on one player is on average 90 minutes, which causes fatigue and boredom in the laboratory, and thus the researcher divided the test into three sessions, interspersed with a period of rest and eating some juices and fruits to restore activity.
2. Conducting the test needs a quiet and secluded place and not to be disturbed, and this is what the researcher worked on in the main experiment.
3. The need to check each of the three stages of the answer appeared in the first part of it to make sure that there is no defect in the answer mechanism.
4. There was a need for a simplified explanation of the system before starting the performance by the sample and assuring them that these tests are not for competitive purposes among themselves, for the purpose of bringing the players to a state of relaxation.
5. The need to follow up on the roaming of the tester appeared in his answers, through a program (Any Desk) which enables the researcher to link the answering computer with his personal computer and across the distances so that the researcher follows the work sequence without notifying the test person and at the same time intervenes if the need for some directions.
6. There was a need for an assistant work team of no more than two people, as well as a researcher and the supervisor.
7. The electronic nature of the system requires the presence of a high-speed line, and thus the researcher introduced a device (modem 4G).

3-4-4 main experience:-

The researcher, with the assistant work team and the supervisor, conducted the main experiment, which lasted on Friday and Saturday 25-26/3/2022. On the first day, tests were conducted for the players (Anwar Moayad, Muntazer Fadel) on the hall of the National Center for the Care of Sports Talent in the Ministry of Youth and Sports, being their training place.

On the second day, tests were conducted on each of the players (Amir Thamer, Jiar Nawzad, Ghaith Fadel) on the closed Al-Shaljiah hall, which is their training place, as the researcher prepared the place and opened the program interface in the computers, and then explained the mechanism of the tests and how to apply them by the players and with indirect supervision to prevent any confusion or a state of lack of focus, which affects the accuracy of the desired results. The researcher took into account that the sample predetermined the appropriate day for the test in order to avoid any reasons that may be unknown to the researcher and be specific to the sample, meaning that they determine the time that suits them without pressure from the researcher, and taking into account the start of the tests before exercise to prevent the impact of stress on the results. The tests, that is, they answer while they are fully prepared, physically and psychologically, and the test situation has been arranged so that the player is left alone and without any noise or entry and exit during the test or any other sources of inconvenience, as well as providing diverse nutrition and drinking to provide the highest levels of relaxation during the performance of the tests, and after completion the results were stored and pulled out and get it done. Then treat it statistically.

3-5 Statistical means:

Use the researcher program (Microsoft Excel) and the statistical bag (SPSS) to extract all:

1. Measures of Central Tendency.
2. Scatterometers.
3. correlation coefficient.
4. Multiple correlation coefficient.
5. ordinal regression.

4-Presentation, analysis and discussion of results:

4-1 Presenting, analyzing and discussing the description of the studied variables:-

Dealing with a small number of samples may raise the question that what type of statistics is appropriate for this case, is it parameter statistics or non-parametric statistics, and since statisticians have set conditions that must be met for the use of parameter

statistics, which in our case is the sample number is the focus of the question and to answer that, the researcher adopted what he put (Glass) and the (Hopkins) who he: (The imposition of the sample number can be violated without any consequences) (Muhammad Jassim and others:12:2010) Therefore,

the researcher does not find a substitute for the use of parameter statistics, whose function is the arithmetic mean and the standard deviation, and the laws built on them help us in this. There is homogeneity among the sample members as shown by the coefficient of variation..

Schedule(2)

Describe the variables of the cognitive system

Variables	less value	highest value	Arithmetic mean	standard error	standard deviation	skew modulus	kurtosis coefficient	Variation coefficient
Cross-cultural fluid intelligence	95	99	97.2	0.73	1.64	-0.52	-1.69	0.02
Fluid intelligence on a large scale	91	114	102	4.17	9.33	0.3	-1.64	0.09
focus attention	94	105	97.8	1.88	4.21	1.74	3.6	0.04
flexibility of attention	75	117	100.2	6.87	15.35	-1.29	2.87	0.15
public attention	86	107	99	3.59	8.03	-1.25	2	0.08
Processing speed	95	100	96	1	2.24	2.24	5	0.02
working memory	113	127	117.8	2.71	6.06	1.11	-0.37	0.05
Make decision	96	104	99.6	1.63	3.65	0.48	-2.85	0.04
emotional smartness	85	113	99.8	5.46	12.21	-0.05	-2.38	0.12
Cognitive flexibility	93	110	102	3.45	7.71	0.15	-2.56	0.08
Depression	82	122	99	8.33	18.63	0.41	-2.67	0.19
worry	84	121	100.4	7.49	16.74	0.17	-2.43	0.17
Psychological Burnout	88	116	94.8	5.31	11.88	2.21	4.9	0.13
The final grade	95.91	103.4	100.47	1.24	2.76	-1.37	2.76	0.03

Table shows (2) The values of the arithmetic means for each of the variables, which means the data center point that suggests to the reader the level of performance initially. As the researcher resorted to using one of the measures of central tendency, which is the arithmetic mean, to describe the values of the variables and express their values with one value. (standard deviation) For the purpose of sensing the spread of values around the arithmetic mean by comparing the value of the deviation with the mean, if the mean represents the data well, most of the data will accumulate close to the mean and therefore the value of the standard deviation is small compared to the value of the mean. The standard deviation values are considered acceptable when they do not exceed a quarter of the arithmetic mean value (First Quarter)

(Authoring Committee:2007:16-117) It is clear from the table that the standard deviation values for all variables were small compared to the arithmetic mean, and therefore the mean expresses well the true values, i.e. the attempts taken by the players, which achieved close values, which indicates a good choice of the mean as a model for attempts. This is what we find clearly in the variables) Depression - anxiety - flexibility of thinking) And respectively, in terms of the higher value of dispersion, while the lowest value of dispersion is for the variables (Cross-cultural fluid intelligence - processing speed - final score) respectively, in terms of the lowest value, while the value of the variables varied in the range between them.

The researcher resorted to the measures of the normal distribution (skewness) and the (kurtosis) to describe the characteristics of the recurring distribution of the studied variables more comprehensively, as their use does not go beyond the limit of description, as the skewness describes the symmetry of the distribution around the arithmetic mean and in any direction the skewness of that distribution, where it can be to the right of the mean is positive or to the left of it is negative (Mansfield:1987:44).

It is clear from the table that the skew values were different between them between positive and negative, as a variable was achieved (Processing speed) The highest positive skew value is .(2.23) followed by a variable (The final result) as negative skewness with a value of (1.10-) What happened changed? (worry) The least torsion in the positive direction is .(0.02) followed by a variable (Cross-cultural fluid intelligence) in the negative direction (0.70-), while the rest of the values of the variables ranged between them.

As for kurtosis, it expresses the degree of data accumulation for its mean, or more accurately, its repetition within the distribution range. (Groeneveld, Meeden:1984:391) It is clear from the table that the value of the variable (Processing speed) You have obtained the highest kurtosis value (5) followed by a variable (The final result) worth (2.23), which means that they are

pointed values, that is, combined near the arithmetic mean, while the lowest value of kurtosis of the variables (Cross-cultural fluid intelligence - decision making) respectively in terms of depreciation of kurtosis in values of (2.29-, 1.74-) As for the variables, (Cognitive flexibility - emotional intelligence - broad fluid intelligence - anxiety - depression - working memory) I got the values (0.74-, 0.43-, 0.39-, 0.32-, 0.32-, 0.13-) And, respectively, in terms of the highest value, meaning that it did not exceed the value of (± 1) This means that they are normally distributed values, neither flat nor tapered.

The researcher also used a measure of dispersion (Variation coefficient) To compare the dispersion of variables with each other, as the coefficient of variation measures the variance of the values of the variables independently of the unit of measure used for them, as the coefficient of variation cancels the unit of measure by dividing the standard deviations by the arithmetic mean value (Abdi:169). The values of the coefficient of variation varied for the studied variables, and the smallest value of the difference reached (0.02) for my change (Cross-cultural fluid intelligence - processing speed) While the highest value of the difference was (0.19) for variable (Depression), since all values are less than (0.30) This indicates that there is no high dispersion for any of the variables mentioned.

Schedule(3)

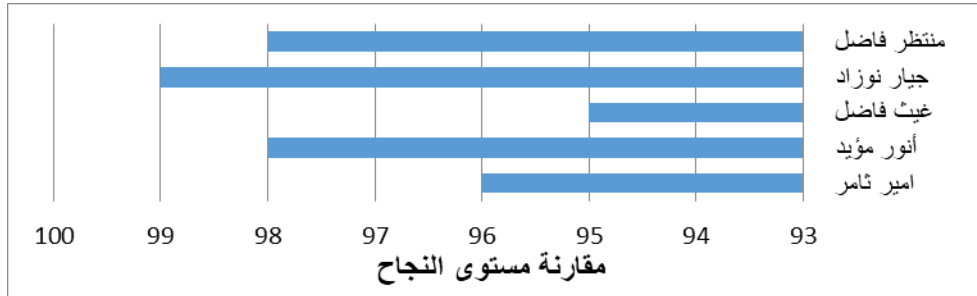
Differences of ranked players in a cross-cultural fluid intelligence test

the sample	Raw grade	square value*	mistake percentage
Amir Thamer	96	0.111	0.998
Anwar Moayed	98		
Ghaith Fadel	95		
Jiar Nozad	99		
Waiting for Fadel	98		

*Table value of ka at degree of freedom (5-1=4) and level of significance (0.05) she (9.49)

Table shows (3) The values of the scores obtained by the players in the cross-cultural fluid intelligence test, as it was the highest score in the value of (99) And the lowest score is worth (95) The results of the players varied between those values, and the error rate was (0.99) at the level of significance (0.05) Which means that there are no

moral differences between the players in this test, and this seems natural, as this type of intelligence depends on logical thinking in solving problems in isolation from the acquired knowledge and experience, and that intelligence exists for everyone, but in varying proportions, and since the players are categorized their ages are close There are no significant differences in the level of their intelligence without previous knowledge and experience.



It is clear from the

appearance(14)

Comparing the level of success of a cross-cultural fluid intelligence test

figure(14)Comparing the success rates of the players in the fluid intelligence test based on the raw score, as the nature of the test requires the researcher to adopt it, as the players' ranking according to the results was from the highest value to the lowest value of my agency.(Jiar Nawzad - Anwar Moayed - Muntazer Fadel - Amir Thamer - Ghaith Fadel) .

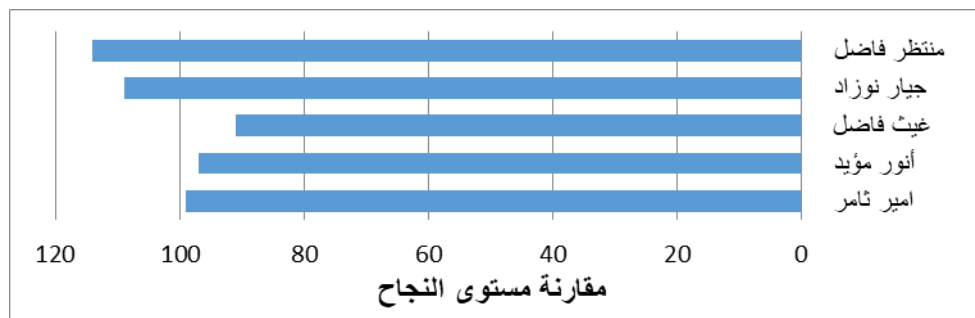
Schedule(4)

Differences of ranked players in a large-scale fluid intelligence test

the sample	Raw grade	square value	mistake percentage
Amir Thamer	99	4.765	0.312
Anwar Moayed	97		
Ghaith Fadel	91		
Jiar Nozad	109		
Waiting for Fadel	114		

Table shows(4)Evaluate the scores obtained by players in the fluid intelligence test on a large scale, as it was the highest score with a value of(114)And the lowest score is worth(91)While the results of the players varied between those values, and the error

rate was(0.31)at the level of significance(0.05)Which means that there are no moral differences or differentiation between the players in this test, which cannot be relied upon in the classification process for the players..



appearance(15)

Comparing the success level of a large-scale fluid intelligence test

It is clear from the figure(15th)Comparing the success rates of the players in the fluid intelligence test on a large scale based on the raw score, as the nature of the test requires the researcher to adopt it, and the players' ranking according to the results was from the highest value to the lowest value.(Waiting

for Fadel-Jiar Nozad - Amir Thamir-Anwar Moayed-Ghaith Fadel) .

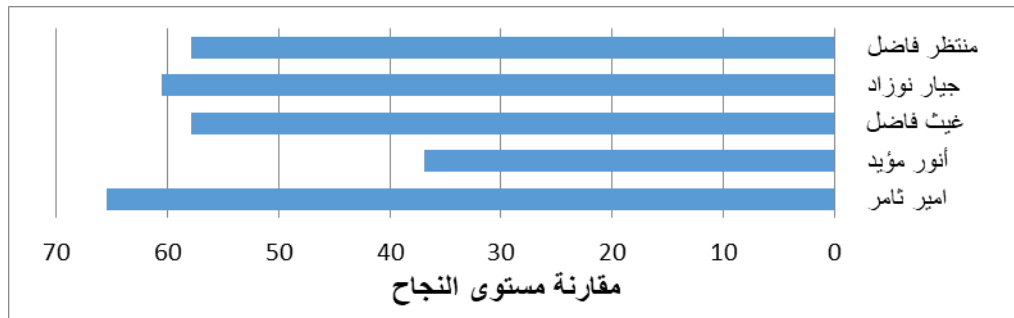
Schedule(5)

Differences of ranked players in the attention test

mistake percentage	square value	Error percentage	Raw grade	the sample
0.948	0.723	34.46	94	Amir Thamer
		63.06	105	Anwar Moayed
		42.07	97	Ghaith Fadel
		39.49	96	Jiar Nozad
		42.07	97	Waiting for Fadel

Table shows(5)The values of the scores obtained by the players in the attention concentration test, as it was the highest score in the value of(105)and lowest value score(94)While the results of the players varied between those values, and this test included the percentage of error, which means that the higher this

percentage, the higher the test result. As for the error rate, it was(0.94)at the level of significance(0.05)This means that there are no moral differences or differentiation between the players in this test, which cannot be relied upon in the classification process for the players..



appearance(16)

Comparison of the success level of the attention concentration test

It is clear from the figure(16)Comparing the success rates of players in the attention concentration test based on the percentage of error compared to the

overall percentage(100%)And the ranking of the players according to the results was from the lowest value to the highest value of my agency(Anwar Moayed-Waiting for Fadel-Ghaith Fadel-Jiar Nozad - Amir Thamir) .

Schedule(6)

Differences of ranked players in the attention flexibility test

the sample	Raw grade	Error percentage	square value	mistake percentage
Amir Thamer	104	60.51	9.500	0.050
Anwar Moayed	103	57.93		
Ghaith Fadel	75	4.78		
Jiar Nozad	102	55.3		
Waiting for Fadel	117	87.15		

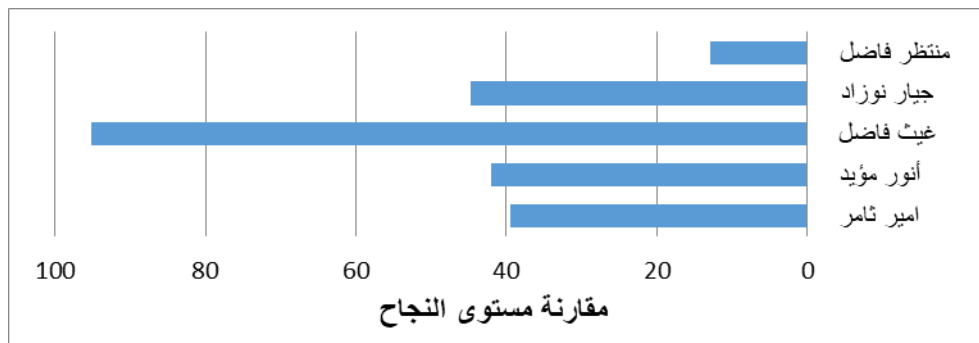
Table shows(6)The values of the scores obtained by the players in the attention flexibility test, as the highest score was the value of(117)followed by the value(104), while the lowest degree was the value

of(75)The results of the players varied between those values, and this test included the percentage of error, which means that the higher this percentage, the higher the test result. As for the error rate, it

was(0.05)at the level of significance(0.05)This means that there are moral differences or differentiation between the players in this test, which can be relied upon in the classification process for the players, and this can be explained as follows:

The flexibility of attention is one of the important and influential variables in all games, especially games that are characterized by the nature of speed, such as table tennis, which requires the player to speed up the response and reaction. By linking the old motor program drawn in the memory to a new situation during the game that the player has not previously recognized or dealt with, as responding to more than one stimulus at one time is not easy, as he needs an

efficient player with high experience who can direct all his senses towards multiple stimuli, whether audio or visual, and that's what he mentioned(Yarub Khion)In the hypothesis of distribuability and flexibility of stimuli distribution, that the susceptibility to attention changes according to the variables of the stimulus and the task to be dealt with. It is decisive within fractions of a second, but if the level of the two stimuli is greater than the individual's ability to deal with them, an overlap will occur between them, which leads to the emergence of incorrect movements and responses.(expresses:2010: 75-76).



appearance(17) Comparison of the success level of the attention concentration test

It is clear from the figure(17)Comparing the success rates of players in the attention flexibility test based on the percentage of error compared to the overall percentage(100%), which is evident from the

figure(17)There is clear and noticeable moral differences and differences in the calculated values among the players, as their ranking according to the results was from the lowest value to the highest value of my agencies.(Waiting for Fadel-Amir Thamer-Anwar Moayed-Jiar Nozad-Ghaith Fadel) .

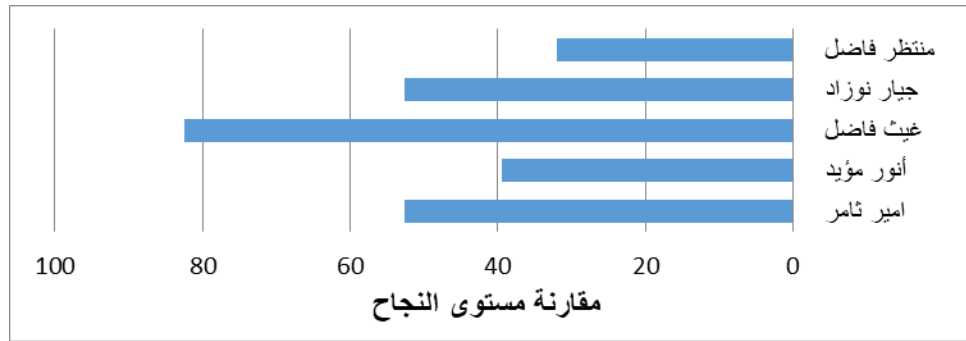
Schedule(7)

Differences of ranked players on the General Attention Test

the sample	Raw grade	Error percentage	square value	mistake percentage
Amir Thamer	99	47.34	2.606	0.625
Anwar Moayed	104	60.51		
Ghaith Fadel	86	17.53		
Jiar Nozad	99	47.34		
Waiting for Fadel	107	67.96		

Table shows(7)Evaluate the scores obtained by the players in the general attention test, as the highest score was the value of(107)And the lowest score is worth(86)While the results of the players varied between those values, and this test naturally included the percentage of error, which means that the higher

this percentage, the higher the test result. As for the error rate, it was(0.62)at the level of significance(0.05)This means that there are no moral differences or differentiation between the players in this test, which cannot be relied upon in the classification process for the players..



appearance(18)
Comparing the success level of the general attention test

It is clear from the figure(18)Comparing the success rates of players in a test of general attention based on the percentage of error compared to the overall

percentage(100%)And the players were ranked according to the calculated values of the results from the lowest value to the highest agency value(Waiting for Fadel-Anwar Moayed-Amir Thamer-Jiar Nozad-Ghaith Fadel) .

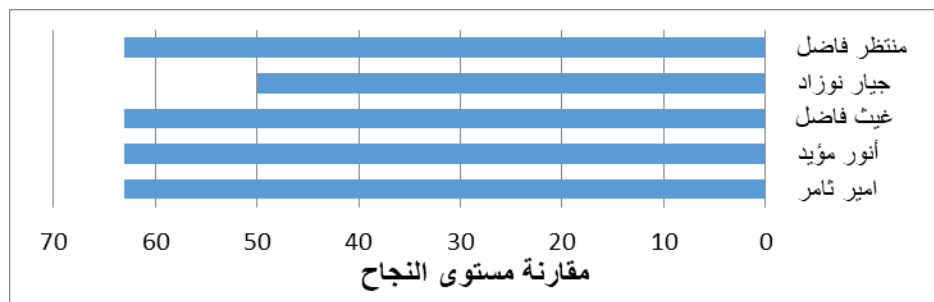
Schedule(8)

Differences of ranked players in the processing speed test

the sample	Raw grade	Error percentage	square value	mistake percentage
Amir Thamer	95	36.94	0.208	0.994
Anwar Moayed	95	36.94		
Ghaith Fadel	95	36.94		
Jiar Nozad	100	50		
Waiting for Fadel	95	36.94		

Table shows(8)The values of the scores obtained by the players in the processing speed test, as the highest score was the value of(100)Followed by the rest of the players with the same calculated value(95)By its nature, this test included the percentage of error, which means that the higher this percentage, the

higher the test result. As for the error rate, it was(0.99)at the level of significance(0.05)This means that there are no moral differences or differentiation between the players in this test, which cannot be relied upon in the classification process for the players..



appearance(19)
Comparison of success level to test processing speed

It is clear from the figure(19)Comparing the success rates of players in the processing speed test based on the percentage of error compared to the overall percentage(100%)And the players were ranked according to the calculated values of the results from the lowest value to the highest agency value(Waiting

for Fadel-Anwar Moayed-Amir Thamer-Jiar Nozad-Ghaith Fadel) .

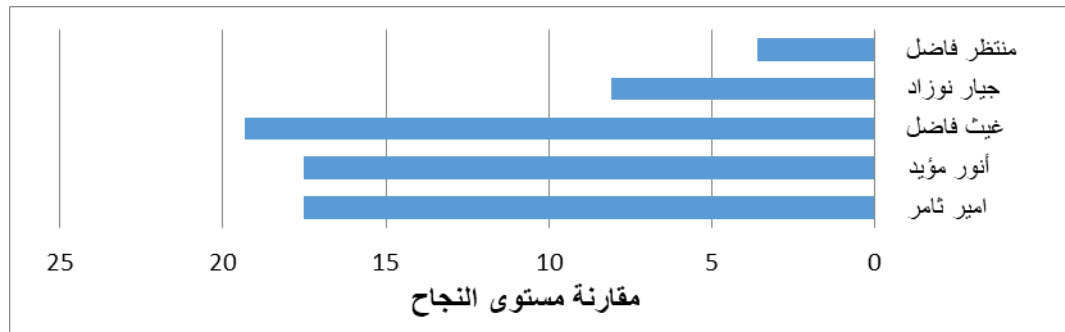
Differences of ranked players on the working memory test

Schedule(9)

the sample	Raw grade	Error percentage	square value	mistake percentage
Amir Thamer	114	82.47	1.246	0.870
Anwar Moayed	114	82.47		
Ghaith Fadel	113	80.69		
Jiar Nozad	121	91.92		
Waiting for Fadel	127	96.41		

Table shows(9)The values of the scores obtained by the players in the working memory test, as the highest score was the value of(127), and the lowest score value of(113)While the results of the players varied between these values, as this test included, by its nature, the percentage of error, which means that

the higher this percentage, the higher the test result. As for the error rate, it was(0.87)at the level of significance(0.05)This means that there are no moral differences or differentiation between the players in this test, which cannot be relied upon in the classification process for the players..



appearance(20)

Comparing the level of success of the working memory test

It is clear from the figure(20)Comparing the success rates of players in the processing speed test based on

the percentage of error compared to the overall percentage(100%)And the players were ranked according to the calculated values of the results from the lowest value to the highest agency value(Waiting for Fadel-Jiar Nozad-Anwar Moayed-Amir Thamer-Ghaith Fadel) .

Schedule(10)

Differences of ranked players on the decision-making test

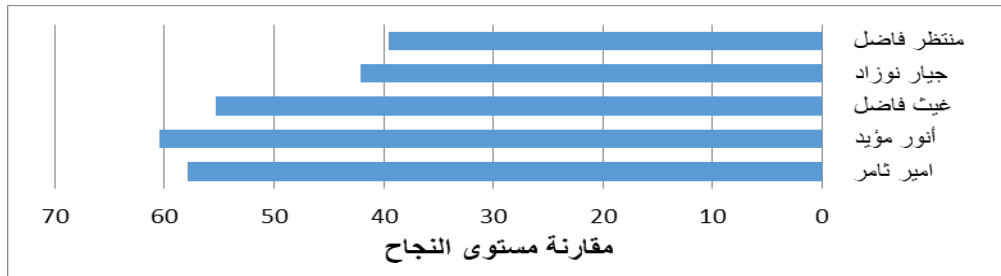
the sample	Raw grade	Error percentage	square value	mistake percentage
Amir Thamer	97	42.07	0.534	0.970
Anwar Moayed	96	39.49		
Ghaith Fadel	98	44.7		
Jiar Nozad	103	57.93		
Waiting for Fadel	104	60.51		

Table shows(10)Evaluate the scores obtained by the players in the decision-making test, as it was the

highest score in the value of(104), and the lowest score value of(96)While the results of the players

varied between these values, as this test included, by its nature, the percentage of error, which means that the higher this percentage, the higher the test result. As for the error rate, it was(0.97)at the level of

significance(0.05)This means that there are no moral differences or differentiation between the players in this test, which cannot be relied upon in the classification process for the players..



appearance(21)

Comparing the level of success of the decision-making test

It is clear from the figure(21)Comparing the success rates of players in a decision-making test based on the percentage of error compared to the overall

percentage(100%)And the players were ranked according to the calculated values of the results from the lowest value to the highest agency value(Waiting for Fadel-Jiar Nozad-Ghaith Fadel-Amir Thamer-Anwar Moayed) .

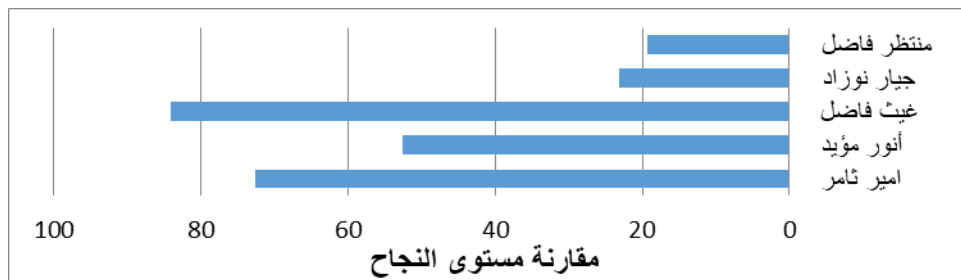
Schedule(11)

Differences of ranked players in the emotional intelligence test

the sample	Raw grade	Error percentage	square value	mistake percentage
Amir Thamer	91	27.43	5.979	0.200
Anwar Moayed	99	47.34		
Ghaith Fadel	85	15.87		
Jiar Nozad	111	76.83		
Waiting for Fadel	113	80.69		

Table shows(11)The values of the scores obtained by the players in the emotional intelligence test, as it was the highest score in the value of(113), and the lowest score value of(85)While the results of the players varied between these values, as this test included, by its nature, the percentage of error, which means that the higher this percentage, the higher the

test result. As for the error rate, it was(0.20)at the level of significance(0.05)This means that there are no moral differences or differentiation between the players in this test, which cannot be relied upon in the classification process for the players..



appearance(22)**Comparing the level of success of the emotional intelligence test**

It is clear from the figure(22)Comparing the success rates of players in an emotional intelligence test based on the percentage of error compared to the overall percentage(100%)And the players were

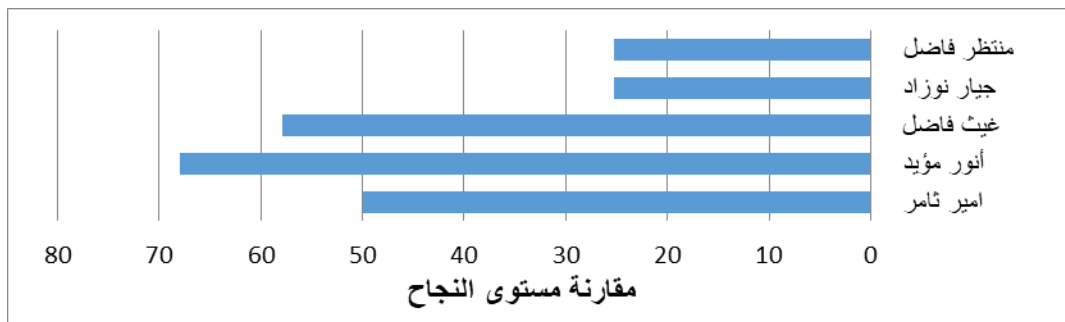
the sample	Raw grade	Error percentage	square value	mistake percentage
Amir Thamer	100	50	2.333333	0.674706985
Anwar Moayed	93	32.04		
Ghaith Fadel	97	42.07		
Jiar Nozad	110	74.75		
Waiting for Fadel	110	74.75		

Table shows(12)The values of the scores obtained by the players in the cognitive flexibility test, as it was the highest score with a value of(110), and the lowest score value of(93)While the results of the players varied between these values, as this test included, by its nature, the percentage of error, which means that

ranked according to the calculated values of the results from the lowest value to the highest agency value(Waiting for Fadel-Jiar Nozad-Anwar Moayed-Amir Thamer-Ghaith Fadel) .

Schedule(12)**Differences of ranked players in the cognitive flexibility test**

the higher this percentage, the higher the test result. As for the error rate, it was(0.67)at the level of significance(0.05)This means that there are no moral differences or differentiation between the players in this test, which cannot be relied upon in the classification process for the players..

**appearance(23)****Comparing the level of success of the emotional intelligence test**

It is clear from the figure(23)Comparing the success rates of players in the cognitive flexibility test based on the percentage of error compared to the overall percentage(100%)And the players were ranked

according to the calculated values of the results from the lowest value to the highest agency value(Waiting for Fadel-Jiar Nozad-Amir Thamer-Ghaith Fadel-Anwar Moayed) .

Schedule(13)**Differences of ranked players in the depression test**

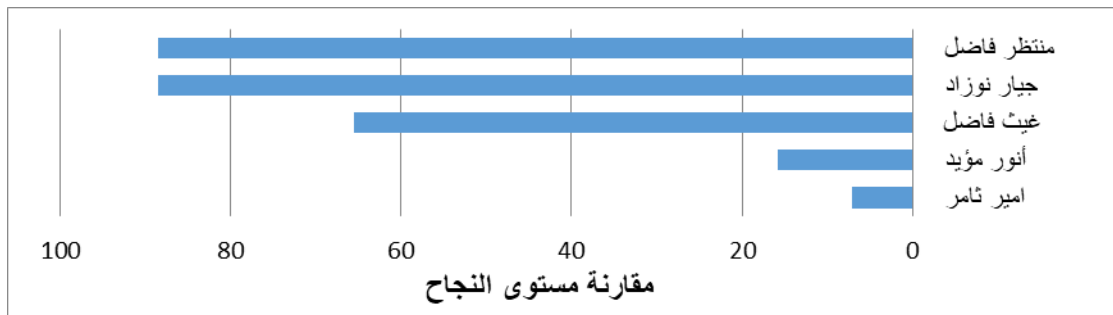
the sample	Raw grade	Error percentage	square value	mistake percentage
Amir Thamer	122	92.88	14.020	0.007
Anwar Moayed	115	84.13		
Ghaith Fadel	94	34.46		

Jiar Nozad	82	11.51		
Waiting for Fadel	82	11.51		

Table shows (13) Evaluate the scores obtained by the players in the depression test, as it was the highest score in the value of(122)followed by the value(115), while the lowest degree was the value of(82)The results of the players varied between those values, and this test included the percentage of error, which means that the higher this percentage, the higher the test result. As for the error rate, it was(0.00)at the level of significance(0.05)This means that there are moral differences or differentiation between the players in this test, which can be relied upon in the classification process for the players, and this can be explained as follows:

Depression is one of the most important variables affecting the player's performance. It is an emotional state, either temporary or permanent, in which the individual feels constriction, sadness and distress,

and feelings of worry, gloom and doom are common, as well as feelings of anxiety, despair and helplessness. This condition is accompanied by specific symptoms related to mood, cognitive and behavioral aspects, including lack of interests. Sleep and appetite disturbances, in addition to rapid fatigue, poor concentration, and a feeling of lack of efficiency(Indian:11:2003), All of these reasons combined in turn affect the efficiency of the player, and perhaps the most important of its products is the speed of fatigue and poor concentration, which are two very important and influential factors in the performance. The player, especially the table tennis player, must enjoy high fitness and stability with the stability of focus because this game is one of the fast games that You need double effort, high reaction speed and great tactical skills.



appearance(24)

Comparing the level of success of the depression test

It is clear from the figure(24)Comparing success rates of players on a depression test based on the percentage of error compared to the overall score(100%), which is evident from the

figure(24)There is clear and noticeable moral differences and differences in the calculated values among the players, as their ranking according to the results was from the lowest value to the highest value of my agencies.(Amir Thamer-Anwar Moayed-Ghaith Fadel-Jiar Nozad-Waiting for Fadel) .

Schedule(14)

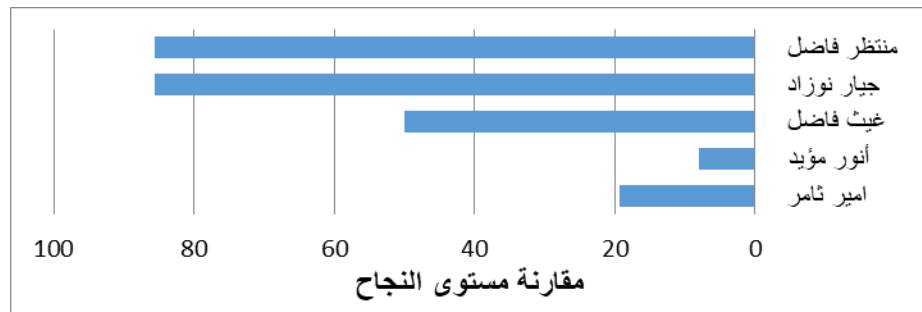
Differences of ranked players in the anxiety test

the sample	Raw grade	Error percentage	square value	mistake percentage
Amir Thamer	113	80.69	11.16733	0.024746438
Anwar Moayed	121	91.92		
Ghaith Fadel	100	50		
Jiar Nozad	84	14.31		
Waiting for Fadel	84	14.31		

Table shows(14)Evaluate the scores obtained by the players in the anxiety test, as it was the highest score in the value of(121)followed by the value(113), while it was the lowest value(84)The results of the players varied between those values, and this test included the percentage of error, which means that the higher this percentage, the higher the test result. As for the error rate, it was(0.02)at the level of significance(0.05)This means that there are moral differences or differentiation between the players in this test, which can be relied upon in the classification process for the players, and this can be explained as follows:

Anxiety is the most emotion related to sports performance, and this feeling often occurs in response to fears and conflicts that result from actual or expected frustration of the efforts made. Respiratory, and thyroid gland (Mohammed Hassan:1987: 47), and (Ratib) refers to anxiety that it is one of the most important psychological phenomena that affect the performance of athletes, and that this effect may be positive that motivates athletes to exert more effort, or negatively hinders their performance (Ratib: 78:1995). Perhaps the most important of them is the cognitive anxiety that occurs

as a result of the negative impact on the expected success, or through the negative impact of the player's self-evaluation from some individuals, such as the coach, for example. This type of anxiety weakens the player's ability to pay attention and focus during the competition due to the increase in unwanted negative thoughts (Martens, Kobins ,Bamon:1990:6-9,Al-Azzawi and Al-Anbaki (Iyad, Mansour) indicated:1988), Al-Talib and Alois (Nizar, Kamil: 66:1993), and Allawi (Muhammad Hassan: 15), to the extent of the impact of anxiety on sports achievement, as they considered anxiety a double-edged sword as it is a positive motive to influence sports achievement and is called (easy anxiety) for achievement or negatively affects athletic achievement and is called (disabled anxiety) for athletic achievement,This is what was proven by a studymaknae (2000), which aimed to identify the levels of psychological anxiety before the sports competition among table tennis players in Jordan. The results showed that the players with a low level of psychological anxiety, cognitive anxiety and physical anxiety have achieved a higher sporting achievement than the high level players. Low level owners (Adnan et al.: 1063:2012).



appearance (25)

Comparison of success level for anxiety test

It is clear from the figure(25)Comparing the success rates of players in the anxiety test based on the percentage of error compared to the overall percentage(100%), which is evident from the figure(25)There is clear and noticeable moral differences and differences in the calculated values

among the players, as their ranking according to the results was from the lowest value to the highest value of my agencies.(Anwar Moayed-Amir Thamer-Ghaith Fadel-Jiar Nozad-Waiting for Fadel) .

Schedule(15)

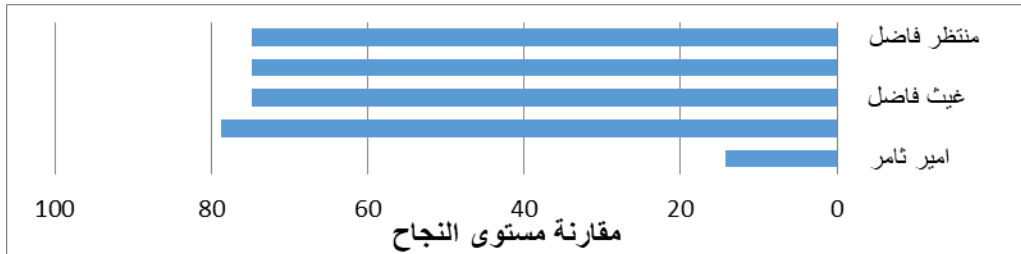
Differences of ranked players in the burnout test

the sample	Raw grade	Error percentage	square value	mistake percentage
Amir Thamer	116	85.69	5.957806	0.202321591
Anwar Moayed	88	21.19		
Ghaith Fadel	90	25.25		
Jiar Nozad	90	25.25		

Waiting for Fadel	90	25.25	
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Table shows(15th)The values of the scores obtained by the players in the burnout test, as it was the highest score with a value of(116), and the lowest score value of(88)The rest of the players are followed by the same calculated value(90)By its nature, this test included the percentage of error, which means that

the higher this percentage, the higher the test result. As for the error rate, it was(0.20)at the level of significance(0.05)This means that there are no moral differences or differentiation between the players in this test, which cannot be relied upon in the classification process for the players..



appearance(26)

Comparison of the success level of the burnout test

It is clear from the figure(26)Comparing the success rates of players in the burnout test based on the percentage of error compared to the total percentage(100%)And the players were ranked

according to the calculated values of the results from the lowest value to the highest agency value(Amir Thamer-Ghaith Fadel-Jiar Nozad-Waiting for Fadel-Anwar Moayed) .

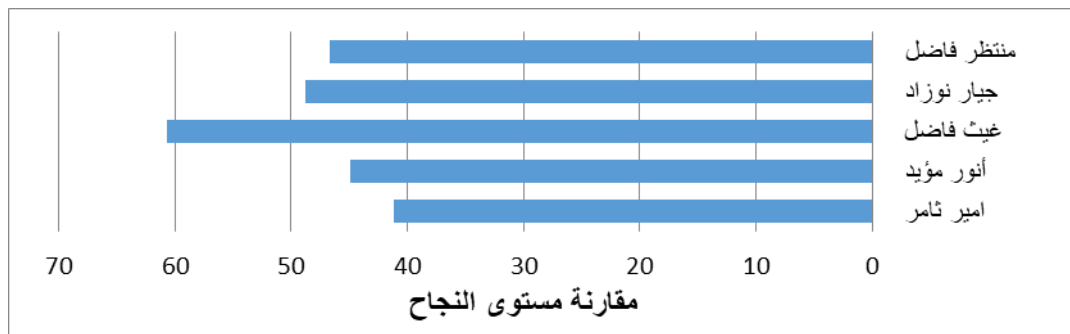
Schedule(16)

Differences of the ranked players in the final score

the sample	Raw grade	Error percentage	square value	mistake percentage
Amir Thamer	103	58.86	0.304352	0.989531538
Anwar Moayed	101	55.07		
Ghaith Fadel	95	39.26		
Jiar Nozad	100	51.2		
Waiting for Fadel	101	53.37		

Table shows(16)Evaluate the scores obtained by the players in the final result, as it was the highest score valued(103), and the lowest score value of(95)While the results of the players varied between these values, as this test included, by its nature, the percentage of error, which means that the higher this percentage,

the higher the test result. As for the error rate, it was(0.98)at the level of significance(0.05)This means that there are no moral differences or differentiation between the players in this test, which cannot be relied upon in the classification process for the players..



appearance(27)

Comparing the level of success in the final result

It is clear from the figure(27)Comparing the success rates of the players in the final score based on the percentage of error compared to the overall percentage(100%)And the players were ranked according to the calculated values of the results from the lowest value to the highest agency value(Amir Thamer-Anwar Moayed-Waiting for Fadel-Jiar Nozad-Ghaith Fadel) .

predictive equation

$$\text{(Skill performance)} = 26.0615 + 0.490996 * \text{(Attention flexibility)} + 0.266861 * \text{(Depression)} - 0.0981087 * \text{(Anxiety)}$$

5- Conclusions and recommendations

5-1 Conclusions

- 1- It was found that there are differences between the players classified with the variables (Attention Flexibility - Depression - Anxiety).

Arabic and foreign sources

Arabic sources:

1. Iyad Abdel Karim Al-Azzawi, Mansour Jamil Al-Anbaki:The relationship of psychological anxiety to the level of achievement in the conditions of local and international competitions for the national team for weightlifting, research of the Fourth Scientific Sports Conference of the Colleges of Physical Education in Iraq, c.2, Baghdad ,1988 .
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- 2- The variable (depression) had the highest effect on the achievement level of the ranked players among the three variables.
- 3- The variable (Attention Flexibility) had the least effect on the achievement level of the ranked players among the three variables .
- 4- Mental flexibility and performance were predicted according to cognitive skills.

5.2 Recommendations

- 1- The need to emphasize the psychological state of the players before and during the competition.
- 2- Coaches should avoid psychological pressure on players during training and competition.
- 3- Adoption of the three variables affecting the level of achievement in subsequent studies.
- 4- Adopting the equation in the study to predict mental flexibility and performance according to cognitive skills.

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Appendix(1)

personal interviews

T	The name	Specialization	Workplace
1.	a.Dr. Wissam Salah Abdel Hussein	Kinetic learning - racket games	College of Physical Education and Sports Sciences - University of Karbala
2.	a.Dr. Raafat Abdulhadi	Psychology - football	College of Physical Education and Sports Sciences - University of Al-Qadisiyah
3.	a.M.Dr. Hoda Jamil Abdulghani	psychology	Psychological Laboratory Officer, University of Baghdad

Appendix(2)

Auxiliary staff

T	The name	Specialization	Workplace
1.	Hello Hindawi Howeidi	Physical Education and Sports Science	President of the Diwaniyah Table Tennis Association
2.	Hadi Issa's roar	Master student	College of Physical Education and Sports Sciences - University of Al-Qadisiyah
3.	Ali Abdul-Kazim Aziz	Master student	College of Physical Education and Sports Sciences - University of Al-Qadisiyah
4.	hello hassan abdullah	Master student	College of Physical Education and Sports Sciences - University of Al-Qadisiyah