

Study Individual differences of Explosive Force according to variables (Age and gender) Of Handball Players junior Category - A field study on wilaya Of Algiers Association Clubs.

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Received: 23/01/2022 Accepted: 14/05/2022 Published: 23/02/2023

Abstract:

The study aimed to determine the individual differences of explosive power according to the variables (age and gender) of handball players of the middle class, and the researcher used the descriptive and analytical approach, and the research sample included (16) players divided into 8 players 18 years old and 08 players 16 years old and from Each category 04 males and 04 females were chosen in an intentional way. The researcher used explosive force tests for the upper and lower extremities, and the statistical program Spss was used to analyze the results of the study. In the end, it was concluded that there are individual differences in the explosive power of handball players according to the difference in age and gender, a middle class, and accordingly the researcher recommended the need to pay more attention to the explosive power of the players during training sessions and to work on individual training according to the capabilities of each player, and to conduct more studies on the explosive power in various Other individual and team sports.

Key words: explosive power , variables (age and gender) , handball players

1-Introduction and problematic:

Sports training aims to reach the individual athlete to the highest levels of sports achievement in the events or sport in which the player specializes. It must organize and coordinate the athlete individual's life style and daily way of life, including work, study, rest and meal times in order to match the high effort of training and contribute In upgrading the level to the maximum extent possible.

Handball is a competitive team sport based on the principle of team spirit, Which Has popularity in the world in general and Algeria in particular and has developed Significantly at the present time, and this development appears in the level of the players physically, technically, tactically and cognitively, and the degree level of the athlete is reflected in how he develops the explosive power. Excellence in sports competitions comes only through the players' possession of muscular strength, as it is an important determinant of the athlete's excellence, and it contributes to the achievement of any type of physical effort, as it is the influence that results in movement and the main factor for the production of this movement with which the individual can move a device or tool or external resistance.

Explosive power, which in turn means the ability of the neuromuscular system to produce maximum voluntary muscle work, also means the ability of the muscle to overcome or confront external resistance and to achieve the full mark in the competition, the player must produce the maximum voluntary muscle work to throw the opponent on the rug and win.

And following the physical and technical exercises and watching the majority of official competitions, we found that to achieve the highest results, good strength must be gained, but does this strength differ between age and gender in the same category, and in the senior stage the stage where the coaches finish developing the muscular strength of the players, and from here we ask the following question :

- Are there individual differences in the explosive power of handball players according to age and gender, junior Category?

- **Partial questions:**

- Are there individual differences in explosive power between junior players according to age?
- Are there individual differences in explosive power between junior male players and junior female handball players?

2-Hypotheses:

2-1-General hypotheses:

There are individual differences in the explosive power of handball players according to age and gender, junior Category

2-2- Partial Hypotheses:

- There are individual differences in explosive power among junior handball players according to age.
- There are individual differences in the explosive power between the junior male handball players and the junior female handball players.

3-Research Aims:

- Identifying the individual differences in the explosive power of handball Female and male players.
- Identifying the individual differences in explosive power according to the age of handball players.

4- Define concepts:

4-1- Explosive power: The explosive power is the individual's ability to achieve a greater increase in power in the shortest **amount of time**, meaning an increase in power during a certain unit of time. Explosive power plays an important role in achieving speed, according to "Prof. Schmidt bleicher", and this characteristic is important and clear when achieving good results in many aspects of sports activity.

Abu Al-Ala 1997 defined it as "the maximum effort that can be produced to perform a single voluntary muscle contraction."

4-2-Handball: is a team sport in which two teams of seven players each (six out court players and a goalkeeper) pass a ball using their hands with the aim of throwing it into the goal of the other team. A standard match consists of two periods of 30 minutes, and the team that scores more goals wins.

4-3-The junior Category: The Category extending from (17-18 years) is a very crucial and important **period** in an individual's life, and it is what Scientists call the stage of late adolescence, and it is only but the stage of consolidating the balance acquired from the previous stage and confirming it.

5-Previous and similar studies

Haddad Ibrahim Study: A study of the differences in physical fitness levels among junior Football players.

General hypothesis: The level of physical fitness of football players Under 20 years Old is affected by their age.

Partial Hypotheses:

- There are statistically significant differences in some of physical fitness components between first-year football players and third-year players in the category Under 20 years old.
- There is no statistically significant correlation between the age of the player and the results of their physical fitness components tests.

The method used: the descriptive method in a comparative method.

The research sample: 52 players, the sample was chosen in an **intentional** way.

Study tools:

- Standardized physical and motor tests.
- Body measurements.
- A form for recording the results of tests and measurements

The most important results obtained:

- There are statistically differences between the results of year players and third-year players in some components of physical fitness.
- There is a correlation between the junior players and the tests results of some physical fitness components.

6-Research method: descriptive method

7-Search Fields:

7-1- The research sample: This sample was chosen in an intentional way, and it consisted of 16 male and female players divided into 8 players U18 junior and 08 players U17 junior, and from each category 04 males and 04 females.

7-2-Date: The study was conducted in the schooler year 2020-2021.

7-3-Location: USMA Handball Club.

8- Tools used in the search:

The field tests are represented in the following:

8-1- JUMP-MD Device Test:

aim of the test: The aim of the test is to measure the explosive force of the lower extremities

Measuring method:

- Put the thread clip into the rubber plate.
- Placing the belt around the player's waist in a tight manner to obtain a credible result, Then the player stands in the middle of the rubber board
- Rotate the disc in the direction of the arrow, then the player jumps straight up

How it Work :

- Turn the disc in order to tighten the string , then press the ON/C button, then the player makes the first jump.
- Press the SAT button, then record the automatic jump measurement
- Pull the dangling part of the string and do the second jump after about 5 seconds.
- The screen shows us the measurement values of the two jumps
- When making the second attempt, repeat the same steps after erasing the values of the previous two jumps from the device with the ON/C button There is no OFF button on this device, but the shutdown is automatic if the device is not used after one minute

8-2- Medical ball throwing test from a sitting position

aim of the test: To measure upper body muscle strength and explosive power

Tools: 3 kg medicine ball, tape measure, registration form.

Test steps:

The athlete sits on the ground with his legs fully extended and open it a little, and placing the forearms in a way parallel to the ground, and the athlete throws the medicine ball with maximum force while maintaining Hisback attached to the wall.

8-3- Throwing the medicine ball over the head:

Tools: 3kg medicine ball, measuring tape, registration form

How to do the test:

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- The athlete stands on the starting line with his feet slightly open and facing the direction and place of the throw.

- Hold the ball with the hands behind the head and then throw the ball hard to reach the maximum distance

9- Determine the study variables.

The independent variable (explosive Power characteristic), the dependent variable represented by (age and gender).

10- How to do statistical analysis:

The researcher used the T Student test, and the use of these tools was to prove the statistically significant differences.

11- Presentation and discussion of the results:

11-1-Presentation and discussion of the results of the JUMP-MD test for hands in the waist between 17-year-old and 18-year-old players

Sample	17-years		18-years		Number Of Samples	Statistical significance	calculate d 'T'	Tabular 'T'	Statistical discussion
	arithmeti c mean	Standard deviation	arithmetic mean	Standard deviation					
	43.75	3.06	48.5	3.75					

Table No. 1: Shows the results of the jump-md test with placing hands in the waist between 17 and 18 year old players

Analysis and discussion of the results:

when we look at result in the table we find that the arithmetic mean of jump-md test with placing hands in the waist For 17 years old is 43,75 and the Standard deviation is 3,05 , and for 18 years old players the arithmetic mean is 48.5 and the Standard deviation is 2.78 And The Calculated “T” Is 2.78

Referring to Student's t-distribution at 14 degree of freedom and Statistical significance of 0.05, the tabular 'T' is =2.14.

From it, we find that the calculated 'T' is greater than the tabular 'T' at the Statistical significance of 0.05, which indicates that there are statistically significant differences in the scores of the jump-md test of hands in the waist between 17 and 18 year old players.

These results provide the coach with the scientific report on these capabilities on which he Depend on in order to be able to know the capabilities of individual players and to write a training program that maintains these differences and increases the chances To develop their muscular abilities for the legs.

11-2-Presentation and discussion of the results of the jump-md test hands extended between 17 and 18 year old players

	17-years	18-years	Number Of Samples	Statistical significance	calculate d 'T'	Tabular 'T'	Statistical discussion

Sample	arithmetic mean	Standard deviation	arithmetic mean	Standard deviation	16	0.05	2.23	2.14	statistically significant
	60.13	9.11	68.25	4.89					

Table No. 2: Shows the results of the jump-md test with hands extended between 17 and 18 year old players

from the results of the table We Can see that the arithmetic mean of the jumb-md test hands extended result between the 17 year old players is 60.13 and the standard deviation is 9.11, as for the arithmetic mean For 18-year-old players is 68.25 and the standard deviation 4.89.

The calculated 'T' value was = 2.48 and by reference to Student's t-distribution at 14 degree of freedom and the Statistical significance is 0.05, the tabular 'T' is = 2.14.

From it, we find that the calculated 'T' is greater than the tabular 'T' at the significance level of 0.05, which indicates that there are statistically significant differences in the scores of the jumb-md test hands extended among the Junior players according to age.

11-3- Presentation and discussion of the Medical ball throwing test from a sitting position between 17 and 18 year old players

Sample	17-years		18-years		Number Of Samples	Statistical significance	calculate d 'T'	Tabular 'T'	Statistical discussion
	arithmetic mean	Standard deviation	arithmetic mean	Standard deviation					
	311	16	348	14	16	0.05	2.48	2.14	statistically significant

Table No. 3: Shows the results of Medical ball throwing test from a sitting position between 17 and 18 year old players

Analysis and discussion of the results:

The strength of the hands is the main factor for doing the movement, as the handball player has different skills to control the competition, and his lack of good arm muscles exposes him to early fatigue, and therefore it can be said that the ability of the arms is important and can only be detected using scientific tests and evaluation through tests.

from the results of the table We Can see that the arithmetic mean of the Medical ball throwing test from a sitting position between the 17 year old players is 310 and the standard deviation is 16, as for the arithmetic mean For 18-year-old players is 348 and the standard deviation 41.

The calculated 'T' value was = 2.48 and by reference to Student's t-distribution at 14 degree of freedom and the Statistical significance is 0.05, the tabular 'T' is = 2.14.

The researcher attributes the reason for these differences to being related to the difference in the age and training age of the players. Therefore, the coaches should respect the age difference when planning the annual training.

11-4- Presentation and discussion of the Medical ball throwing test from a standing position between 17 and 18 year old players

	17-years	18-years	Number Of	Statistical	calculate	Tabular	Statistical

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Sample					Samples	significance	d 'T'	'T'	discussion
	arithmetic mean	Standard deviation	arithmeti c mean	Standard deviation	16	0.05	6.63	2.14	statistically significant
	427.5	32.8	515	17.73					

Table No. 4: results of Medical ball throwing test from a standing position between 17 and 18 year old players

from the results of the table We Can see that the arithmetic mean of the medical ball throwing test from standing position between the 17 year old players is 427.5 and the standard deviation is 32.84, as for the arithmetic mean For 18-year-old players is 515 and the standard deviation 17.73.

The calculated 'T' value was = 6.63 and by reference to Student's t-distribution at 14 degree of freedom and the Statistical significance is 0.05, the tabular 'T' is = 2.14.

From it, we find that the calculated 'T' is greater than the tabular 'T' at the significance level of 0.05, which indicates that there are statistically significant differences in the scores of the medical ball throwing test from standing position among the Junior players according to age.

Through the results, the coach must respect the differences in the training age and age of the players to achieve a good physical level and reach the goal from the training process, which is to have the highest levels of muscular strength among the players.

11-5- Presentation and discussion of the results of the JUMP-MD test for hands in the waist between Male And Female

Sample	male		female		Number Of Samples	Statistical significance	calculate d 'T'	Tabular 'T'	Statistical discussion
	arithmetic mean	Standard deviation	arithmeti c mean	Standard deviation					
	42	2.98	46	3.20	16	0.05	2.40	2.14	statistically significant

Table No. 5: results of the JUMP-MD test for hands in the waist between Male And Female

from the results of the table We Can see that the arithmetic mean of the JUMP-MD test for hands in the waist between the Males players is 46 and the standard deviation is 3.20. as for the arithmetic mean Female is 42 and the standard deviation 2.98.

The calculated 'T' value was = 2.40 and by reference to Student's t-distribution at 14 degree of freedom and the Statistical significance is 0.05, the tabular 'T' is = 2.14.

From it, we find that the calculated 'T' is greater than the tabular 'T' at the significance level of 0.05, which indicates that there are statistically significant differences in the scores of the JUMP-MD test for hands in the waist between Male And Female.

The researcher attributes the reason for these statistically significant differences in the test results to being related to the physical measurements of the players, and through it the coach can take these differences into consideration when programming the muscular strength classes for the players, lower limbs.

11-6- Presentation and discussion of the results of the JUMP-MD test hands extended between Male And Female.

Sample	male		female		Number Of Samples	Statistical significance	calculate d 'T'	Tabular 'T'	Statistical discussion
	arithmeti c mean	Standard deviation	arithmeti c mean	Standard deviation					
	65.13	10.38	67.38	6.67					

Table No. 6: the results of the JUMP-MD test hands extended between Male And Female

Analysis and discussion of the results:

The importance of the explosive power of the legs for handball players does not differ according to gender, as it is an important factor for the player to make a good movement, and this is what requires the coach to take into account the development of the muscular strength of the lower limbs and make it an integral part of the training program.

from the results of the table, We Can see that the arithmetic mean of the JUMP-MD test hands extended between Male And Female. between the Males players is 67.38 and the standard deviation is 6.67. as for the arithmetic mean Female is 65.13 and the standard deviation 10.38. The calculated 'T' value was = 0.70 and by reference to Student's t-distribution at 14 degree of freedom and the Statistical significance is 0.05, the tabular 'T' is 2.14, From it, we find that the calculated 'T' is less than the tabular 'T' at the significance level of 0.05, which indicates that there is no statistically significant differences in the scores of the JUMP-MD test hands extended between Male And Female.

The flexibility of the girls' torso was a key factor in their superiority over the males in this test, and this is evidence of the consideration of flexibility in planning muscle strength programs for male and female players.

11-7- Presentation and discussion of the Medical ball throwing from a Sitting position Test between Male And Female.

Sample	male		female		Number Of Samples	Statistical significance	calculate d 'T'	Tabular 'T'	Statistical discussion
	arithmeti c mean	Standard deviation	arithmeti c mean	Standard deviation					
	307	13	350	40					

Table No.7 :the results of the Medical ball throwing from a Sitting position between Male And Female

Analysis and discussion of the results:

from the results of the table We Can see that the arithmetic mean of the Medical ball throwing from a Sitting position Test between the Males players is 350 and the standard deviation is 40 As for the arithmetic mean Female is 307 and the standard deviation 13.

The calculated 'T' value was = 2.82 and by reference to Student's t-distribution at 14 degree of freedom and the Statistical significance is 0.05, the tabular 'T' is = 2.14.

From it, we find that the calculated 'T' is greater than the tabular 'T' at the significance level of 0.05, which indicates that there are statistically significant differences in the scores of the Medical ball throwing from a Sitting position Test between Male And Female.

The researcher attributed the reason for these statistically significant differences in the test results to the fact that they are related to the physical measurements and the size of the biceps muscle between the two genders.

11-8- Presentation and discussion of the Medical ball throwing from a standing position Test between Male And Female.

Sample	male		female		Number Of Samples	Statistical significance	calculate d 'T'	Tabular 'T'	Statistical discussion
	arithmeti c mean	Standard deviation	arithmeti c mean	Standard deviation					
	513	19.22	428.7	35.65	16	0.05	5.93	2.14	statistically significant

Table No.8: the results of the Medical ball throwing from a standing position between Male And Female

Analysis and discussion of the results:

from the results of the table We Can see that the arithmetic mean of the Medical ball throwing from a standingposition Test between the Males players is 513 and the standard deviation is 19.22 , as for the arithmetic mean Female is 482.7 and the standard deviation 35.63.

The calculated 'T' value was = 5.93 and by reference to Student's t-distribution at 14 degree of freedom and the Statistical significance is 0.05, the tabular 'T' is = 2.14.

From it, we find that the calculated 'T' is greater than the tabular 'T' at the significance level of 0.05, which indicates that there are statistically significant differences in the scores of the Medical ball throwing from a standingposition Test between Male And Female.

The Clear significant differences in the test results have an effective relationship to the physical measurements they have an influential importance in physical performance to raise the level of the athlete to thehighest.

12- Comparing the results with the hypotheses:

12-1- Comparing the results with the First hypotheses :

Which states that there are statistically significant differences for the explosive power between Junior players according to age.

when taking the results and analyzing them, the researcher reached through tests of explosive power to confirm the first hypothesis. This is consistent with the study of Haddad Ibrahim in the Institute of Physical Education and Sports, which found that there are statistically significant differences in strength in the same category according to age.

12-2- Comparing the results with the Second hypotheses :

Which states that There are statistically significant differences for the explosive power between male handball players and female handball players. By taking results and analyzing them, we noticed that male players outperformed the female players, that is, there is a difference in the explosive power, and in light of what was said and through the results reached, there are statistically

significant differences in the explosive power between the middle male and female handball players. This indicates that in adolescence there are differences between the Genders.

12-3- General hypotheses:

With regard to the general hypothesis, which states that there are statistically significant differences for the explosive power of Junior handball players, according to age and gender. Through the results obtained, the researcher confirmed the general hypothesis and its validity, and this confirms what Ahmed Bastawisi mentioned that it is the highest stage of maturity, There are individual differences in levels, not only between the Genders, but between the same Gender as well.

conclusion

We conclude from the researcher's findings that there are statistically significant differences for the explosive power between middle players according to age when taking the results obtained and analyzing them, We noticed that handball players of 18 years of age outperformed players of 17 years, and there are also statistically significant differences of explosive power between middle male and female handball players. Female handball players, and this indicates that there are statistically significant differences in the explosive power of middle handball players, regardless of age and gender.

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