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## **Study Individual differences of Force speed according to variables (Age and gender) Of football Players junior Category - A field study on wilaya Of Boumerdes Association Clubs**

**Sahnoun m'hammed <sup>1\*</sup>, Ikene soumaya <sup>2</sup>**

<sup>1</sup>University of Algiers 3(Algeria) , sahnoun.ieps@yahoo.fr

<sup>2</sup>University of Algiers 3 (Algeria) , soumayaikene@gmail.com

### **Abstract:**

The study aimed to determine the individual differences of force speed according to the variables (age and gender) of football 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 force speed 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 force speed of football 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 force speed 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 force speed in various Other individual and team sports

**Keywords:** force speed , variables (age and gender) , football players

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*\*Corresponding author*



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## **1. INTRODUCTION**

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. football is a competitive team sport based on the principle of team spirit, which has popularity in the world in general and Algeria in particular. Nowadays, it is significantly manifested in the level of the players, especially in physical, technical, tactical and cognitive dimensions, as well as how to develop the power speed. Excellence in sports competitions comes only through the players' possession of muscular strength, as it is an important determinant of the athlete's success, 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.

Force speed, is 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 win the game.( Amr Allah Al-Busati, 2000, p74)

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 football players force speed' according to age and gender junior Category

- **Partial questions:**



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- Are there individual differences in force speed between junior players according to age?
- Are there individual differences in force speed between junior male players and senior female football players?.

## **2. Hypotheses:**

### **2.1 General hypothese:**

There are individual differences in the football players force speed according to age and gender junior Category

### **2.2 Partial Hypotheses:**

There are individual differences in force speed among junior football players according to age.

There are individual differences in the force speed between the junior male football players and the Senior female football players.

## **3. Research Aims:**

Identifying the individual differences in the force speed of football Female and male players;

Identifying the individual differences in the force speed according to the age of football players.

## **4. Define concepts:**

### **4.1 Force speed:**

The force speed 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. power speed 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 sport activity. Abu Al-Ala 1997 defined it as "the maximum effort that can be produced to perform a single voluntary muscle contraction." (Mohamed jaber Bariqa, Ihab Fawzy El-Badawy, 2005, p98).

### **4.2 Football :**

Is a collective sport played by two teams of eleven players (including a goalkeeper), pass a ball using their foot with the aim of throwing it into the goal of the other team. A standard match consists of two periods of 45 minutes, and the team that scores more goals wins.

### **4.3 The junior Category:**

The Category extending from (16-18 years) is a very crucial and important period in an individual's life, that's why the Scientists called it the delayed



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adolescence period, and it is just the balance acquired consolidating stage from the previous one and confirming it. (Nouri Al-Hafiz Al-Tafweeh, 1998, p170).

## **5. Previous and similar studies**

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

**General hypothesis:** The football players Under 20 years Old physical fitness level are 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 players and the results of their physical fitness components tests.

The method used: the descriptive method using comparative style.

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 test's and measurement's results.

The most important results obtained:

There are statistically differences between the results of first-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 analytical method.

## **7. Search Fields:**

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 2022-2023.

**7.3 Location:** Boumerdes football association Clubs.

## **8. Tools used in the search:**



The field tests are:

### **8.1 JUMP-MD Device Test :**

The aim of the test: The aim of the test is to measure the force speed of the lower limbs.

#### **Measuring method:**

Put the thread clip into the rubber plate.

Placing the belt around the player's waist in a correctly in order to obtain a credible result, after that 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

#### **Work method :**

Turn the disc in order to tighten the thread , then press the ON/C button, the player makes the first jump.

Press the SAT button, then record the first jump measurement

Pull the dangling part of the thread 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**

**The aim of the test:** To measure upper body muscle strength and power speed

**Tools:** 3 kg medicine ball, measuring tape, 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 his back attached to the wall.

#### **Throwing the medicine ball from above the head:**

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

#### **How to do the test:**

- 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.**



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The independent variable (force speed characteristic), the dependent variable represented by (age and gender).

**10. How to do statistical analysis:**

The researcher used the T Student test, in order 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 in the waist between 17-year-old and 18-year-old players**

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

| Sample | 17-years                                     | 18-years                                     | Number<br>Of Samples | Statistica<br>l significance | calculate<br>d 'T' | Statistica<br>l discussion<br>'T' | statistically<br>significant |
|--------|--|--|----------------------|------------------------------|--------------------|-----------------------------------|------------------------------|
|        | Standard<br>deviation<br>arithmeti<br>c mean | Standard<br>deviation<br>arithmeti<br>c mean |                      |                              |                    |                                   |                              |
|        | 3.06<br>43.7<br>5                            | 3.75<br>48.5                                 | 16                   | 0.05                         | 2.78               | 2.14                              |                              |

**Analysis and discussion of the results:**

when we look at result in the table we find that the arithmetic mean of jump-md test 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 jumb-md test in the waist between 17 and 18 year old players.

These results provide the scientific report for the coach through which he depend on in order to be able to know the player's individual capabilities and to elaborate 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 jumb-md test between 17 and 18 year old players

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

| Sample | 17-years           |                       | 18-years           |                       | Number<br>Of Samples | Statistical<br>significance | calculated<br>'T' | Tabular<br>'T' | Statistical<br>discussion    |
|--------|--------------------|-----------------------|--------------------|-----------------------|----------------------|-----------------------------|-------------------|----------------|------------------------------|
|        | arithmetic<br>mean | Standard<br>deviation | arithmetic<br>mean | Standard<br>deviation |                      |                             |                   |                |                              |
|        | 60.13              | 9.11                  | 68.25              | 4.89                  | 16                   | 0.05                        | 2.23              | 2.14           | statistically<br>significant |

from the table's results, We Can see that the arithmetic mean of the jumb-md 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 among the Junior players according



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to age.

**11.3 Presentation and discussion of the Medical ball throwing test from a sitting position between 17 and 18 year old players**

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

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

**Analysis and discussion of the results:**

The strength of the hands is the main factor for doing the movement, as the football 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 is 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 of these differences 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**

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

| Sample | 17-years           |                 | 18-years           |                 | Number Of Samples | Statistical significance | calculated 'T' | Tabular 'T' | Statistical discussion    |
|--------|--------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|----------------|-------------|---------------------------|
|        | Standard deviation | arithmetic mean | Standard deviation | arithmetic mean |                   |                          |                |             |                           |
|        | 32.8               | 427.5           | 17.73              | 515             | 16                | 0.05                     | 6.63           | 2.14        | statistically significant |

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 muscular strength level of the players.



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**11.5 Presentation and discussion of the JUMP-MD test in the waist results between Male And Female**

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

|        | male               | female             | Number Of Samples | Statistical significance | calculated 'T' | Tabular 'T' | Statistical discussion    |
|--------|--------------------|--------------------|-------------------|--------------------------|----------------|-------------|---------------------------|
| Sample | arithmetic mean    | arithmetic mean    | 16                | 0.05                     | 2.40           | 2.14        | statistically significant |
|        | Standard deviation | Standard deviation |                   |                          |                |             |                           |
|        | 42                 | 46                 |                   |                          |                |             |                           |
|        | 2.98               | 3.20               |                   |                          |                |             |                           |

From the results of the table, We Can see that the arithmetic mean of the JUMP-MD test in the waist between the Malesplayers 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 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 between Male And Female.**

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

| Sample | male               |                 | female             |                 | Number Of Samples | Statistical significance | calculated 'T' | Tabular 'T' | Statistical discussion       |
|--------|--------------------|-----------------|--------------------|-----------------|-------------------|--------------------------|----------------|-------------|------------------------------|
|        | Standard deviation | arithmetic mean | Standard deviation | arithmetic mean |                   |                          |                |             |                              |
|        | 10.38              | 65.13           | 6.67               | 67.38           | 16                | 0.05                     | 0.70           | 2.14        | No statistically significant |

**Analysis and discussion of the results:**

The importance of the force speed of the legs for football 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 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 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 that flexibility is taken into consideration in planning muscle strength programs for male and female players.



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**11.7 Presentation and discussion of the Medical ball throwing from a Sitting position Test between Male And Female.**

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

|        | male            | female             | Number Of Samples  | Statistical significance | calculated 'T' | Tabular 'T' | Statistical discussion |    |      |      |      |                           |
|--------|-----------------|--------------------|--------------------|--------------------------|----------------|-------------|------------------------|----|------|------|------|---------------------------|
| Sample | arithmetic mean | Standard deviation | Standard deviation | 40                       | 350            | 13          | 307                    | 16 | 0.05 | 2.18 | 2.14 | statistically significant |

**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 40As 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.**

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

|        | male               | female             | Number Of Samples | Statistical significanc e | calculated 'T' | Tabular 'T' | Statistical discussion    |
|--------|--------------------|--------------------|-------------------|---------------------------|----------------|-------------|---------------------------|
| Sample | Standard deviation | Standard deviation | 16                | 0.05                      | 5.93           | 2.14        | statistically significant |
|        | arithmetic mean    | arithmetic mean    |                   |                           |                |             |                           |
|        | 513                | 428.7              |                   |                           |                |             |                           |

**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 standing position 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 athlete's level to the highest.

**12. Comparing the results with the hypotheses:**



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### **12.1 Comparing the results with the First hypotheses :**

Which states that: there are statistically significant differences for the force speed between Junior players according to age. when taking the results and analyzing them, the researcher reached through the force speed tests 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.( haddad Ibrahim,2015, p123)

### **12.2 Comparing the results with the Second hypotheses :**

Which states that There are statistically significant differences for the force speed between male football players and female football players. By taking results and analyzing them, we noticed that male players out performed the female players, that is, there is a difference in the force speed, according to what was said and through the results reached, there are statistically significant differences in the force speed between the middle male and female football players. This indicates that in adolescence there are differences between the Genders.( nocolas babaulet, 2009,p68)

### **12-3- General hypotheses:**

about the general hypothesis, which states that there are statistically significant differences for the force speed of Junior football 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, also between the same Gender as well.( Ahmed Bastawisi,1996, p152)

## **13. Conclusion**

We conclude from the researcher's findings that there are statistically significant differences for the force speed between middle players according to age when taking the results obtained and analyzing them, We noticed that football players of 18 years old outperformed players of 17 years old, and there are also statistically significant differences of force speed between middle male and female football players., and this indicates



that there are statistically significant differences in the force speed of middle football players, depending on age and gender.

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