

A comparative study of agility between rowing athletes and swimmers under 15 years old

Boucetta Mohamed El hadi¹ Benhiba Tadj Eddine²

¹ Setif 2 Mohamed Lamine Debaghine University, laboratory science of physical and sports activities and public health , mo.boucetta@univ-setif2.dz

² Chlef Hasiba Ben Bouali University, t.benhiba@univ-chlef.dz

Received: 02/08 /2023 Accepted:29/09 /2023 Published:31/12 /2023

Abstract:

The study aimed to try to find out the differences between rowing athletes and swimmers under 15 years old in terms of agility, and the research problem was about the level of agility between rowing athletes and swimmers.

In this study, the researcher relied on the comparative descriptive approach, and he used the applied T-test to measure agility as a data collection tool on two independent, equally divided samples, which consisted of 20 individuals from the two disciplines .After statistical treatment, using averages and t-test calculated for the two independent samples, the researcher concluded that the estimated level for the swimmers sample was average, but for the rowing athletes it was good, and there are statistically significant differences in agility between the two samples.

KEY WORDS : AGILITY ; SWIMMING ;ROWING

المخلص:

هدفت الدراسة الى محاولة معرفة الفروق بين رياضيي التجذيف والسباحين الأقل من 15 سنة في صفة الرشاقة، وتبلورت مشكلة البحث حول مستوى الرشاقة بين العينتين في الاختصاصين. واعتمد الباحث في هذه الدراسة على المنهج الوصفي المقارن، وقد كانت أداة جمع البيانات الخاصة بالباحث هي اختبار T المطبق لقياس الرشاقة كأداة جمع البيانات على عينتين قصديتين مقسمتين بالتساوي تمثلان 20 فرد من كلا الاختصاصين، وبعد المعالجة الاحصائية باستعمال الاختبار الاحصائي "ت" المحسوبة للعينتين المستقلتين، توصل الباحث الى ان المستوى التقديري بالنسبة لعينة السباحين كان تقدير متوسط، اما بالنسبة للتجذيف كان تقدير جيد، وبالتالي وجود فروق ذات دلالة احصائية في الرشاقة بين العينتين المدروستين في البحث.

الكلمات المفتاحية: الرشاقة؛ السباحة؛ التجذيف.

* Corresponding author.

1-Introduction:

It is known that man was created with individual differences that distinguish him from others and create a kind of differences that were and still are the reason for creating sports with their own limitations and multiple physical characteristics. This made the coaches resort to the selection process, especially for the youth groups, to guide them properly to an activity with requirements that are in line with their capabilities. The follower of the precise policy followed by the developed countries in bringing their champions to the ability of achievement and their ascension to the global podiums sees that the first of these steps is the process of correct guidance for the specialization that is commensurate with the individual, and this guidance is based on many scientific conditions and factors.

The physical structure plays a prominent role in showing capabilities and components of the body, and that the difference in the structural composition of the body and functional capabilities has a direct impact on athletic performance.

In this regard, bibliographic sources indicate that the global level requires from the beginning a successful selection and good preparation for long periods, because a champion is not born overnight, but rather it is a process linked to many factors to achieve desired results, In order to reach the elite athletes, athletes must be selected from the smaller groups The goal of selecting athletes is not limited to determining the fitness of a young player to play specific, but it transcends it to the possibility of acquiring his future potential for that game and therefore Possibility of owning the game's own tactics to achieve the desired results can be predicted In childhood, the best work and he is an elite player. (Djamel laadjal, and others, 2021:579)

These factors are determined according to the nature and characteristics of the sport and its physical characteristics. Perhaps the most important of the main physical characteristics are strength, speed, perseverance and agility. The latter has a great correlation with speed, as there is a direct relationship, so the greater the agility, the greater the speed, and the two characteristics complete each other.

Sports can be divided according to physical characteristics, duration and intensity of performance into three sections, there are aerobic sports that are characterized by being of a medium pace and for a long period of time, and there are anaerobic, non-structural sports that need strength and explosive speed in performance, and there are common sports between these two types, which are resistance sports or Lactic anaerobic sports in which lactic acid accumulates, such as swimming and rowing, which are characterized by being a combination of physical qualities such as strength, permanence, speed, and

agility. It ensures optimal use of health factors when directing training Athlete, to reach the athlete to a high level of health, and provides for retention At the highest level it reaches during the training season in terms of form Sports and the development of physical qualities, as well as helps to quickly adapt to the difficult external duties that may You encounter it when performing sports in special circumstances.

(Hamza Brahimi,Khaled Mesoudi ,2023:1018)

Agility is one of the important components of physical fitness on which performance depends. And for develop agility, you should work on acquiring Athlete for a large number of different motor skills, as well as performing motor skills acquired under multiple circumstances And various and different training environments in which many trainers work at the present time, Such as the aqueous medium in which the resistance to movement is twice that of the land, which may work To increase the balance of the athlete of various physical abilities and motor skills as much abundant. (djamel Edin Youcef khalifa , Mohamed Madani ,2021: 693) .Likewise, the characteristic of speed that is developed through plyometric exercises that make the muscle respond quickly, in which the muscle is stretched first and then followed by a rapid central contraction as a reaction to the production of active force in a short period of time, and this type of training helps in the development of motor skills. Like perseverance, strength, speed, and flexibility, which are considered, along with agility, among the most important components of fitness Physical, as well as one of the most important physical requirements for various sports, whose estimate varies from one individual to another, due to internal and external factors such as heredity, environment and motivation, although That they apply in the same way and with the same programs.

(Ilyes Djballi, Salim Bozio,2022:250)

In the light of (Issa and Bin Issa Faisal,2018: 84)'s study ,which was entitled Studying the differences in the agility characteristic of handball players for the senior division according to the playing positions, and the study of (Harash Muhammad Walid, born Hamo Mustafa 2022:116) which was entitled The relationship between physical measurements (height, weight) with speed among young swimmers, age group (12-15 years) , we went to formulate some questions to answer the problems created in the field of sports, to find out the differences between the agility characteristic of the rowing athlete, and the agility characteristic of swimmers less than 15 years old.

-The main question: What is the level of the rowing and swimming athlete in the agility class?

-The sub-question: Are there statistically significant differences between rowing athletes and swimmers under 15 years of age in terms of agility?

-Main hypothesis: Rowers and swimmers fall into the agility class at a medium rating.

-Sub-hypothesis: There are statistically significant differences between rowing sports and swimmers under 15 years of age in agility.

2- General objective of the study:

It is clear that every search has a goal seeking the truth, and in our study, we aim to focus on water sports, especially rowing, which is absent from the Algerian scientific scene.

To identify the level of rowing athletes and swimmers in terms of agility.

To identify the extent to which there are statistically significant differences between rowing athletes and swimmers under 15 years old in agility.

Moreover the ultimate goal is to support future studies, especially in these topics that are absent from the national scene, with the principle of cumulativeness and continuity in scientific research at the level of Algeria.

The importance of this research is complemented by the use of its results by coaches in their training courses, for good selection, also raising the level of athletic achievement in special competitions in sports.

Providing assistance to researchers in other studies, and facilitating work for them in this specialty, because science is cumulative.

3- Procedural definition of the concepts mentioned in the research:

- **Agility:** the researcher (Rasham Jamal Al-Din, 2023: 100) defines it as the ability to change the positions, speed, or directions of the body on the ground or in the air with precision, smoothness, and sound timing.

Agility The ability to coordinate well the movements of all parts of the body or a specific part of it, such as hands, feet or head.

-**swimming:** the researcher (Yahya Al-Sayyid Ismail Al-Hawi, 2004, p. 13) defines it as one of the water sports whose goals differ between saving oneself from drowning or practicing for pleasure or for competition or treatment, and in all cases the person uses the movement of the limbs of the body or the entire body To move through the surface of the water in movements that are either sequential or symmetrical.

(Ghazali abed Elkader, mokhtari abd hamid, 2021: 258)

The researchers conclude that swimming is one of the activities in which the individual uses his entire body to move in a water medium different from the medium he is accustomed too.

-rowing: the book Le (Barche At Speed Rower, Competitive Rowing 2017 Wayback Machine 2009) defines it as an Olympic sport represented in pushing the boat with oars, where the person holds the oars of the boat and moves them forward and backward in order to move the boat.

the rowing is sport over the waters of lakes, rivers, water bodies and even small waterfalls. It has dedicated trails such as 2,000-meter flats, waterfall descents, and marathons on wadis.

Rowing is divided into two disciplines: sculling and sweep rowing. In sculling, each rower holds two oars—one in each hand, while in sweep rowing each rower holds one oar with both hands. There are several boat classes in which athletes may compete, ranging from single sculls, occupied by one person, to shells with eight rowers and a coxswain, called eights. There are a wide variety of course types and formats of racing, but most elite and championship level racing is conducted on calm water courses 2 kilometres (1.2 mi) long with several lanes marked using buoys. .

4- The methodological procedures used in the study

4-1 Method and tools:

-Curriculum: We used the comparative descriptive approach due to its suitability to the nature of the study. The characteristic to be measured is agility, and the latter is the variable of the study that is compared between two different samples. Any comparison of a physical characteristic between two samples requires a comparative descriptive approach.

-Executive procedures: The researcher collected the first sample of rowing athletes on 15 June and after preparing the test site in the port of Annaba, he conducted the T-test for agility with them, and after writing down the initial results, he repeated the test on 18 June 2023 and wrote down the best results in the note card. On 19 June 2023, he collected a sample of 10 swimmers, and after preparing the test site in the stadium attached to the Olympic swimming pool, he performed a T-test for agility on them, and wrote down the results in

the notes card, and then on 22 June 2023, he repeated the test and wrote down the best results. After completing the collection of all the data from the two samples, and using statistical methods and statistical procedures, he compared the numbers of the two specialists in terms of fitness, deduced some answers to the hypotheses, and then gave suggestions and recommendations about what is going on about the subject of the study.

-the sample: the society are all athletes who practice rowing for the state of Annaba and are less than 15 years old, as well as swimmers belonging to the state swimming association of the state of Annaba and who are less than 15 years old.

Rowing athletes under 15 years old who belong to the Hippon Sup Annaba team, the rowing branch, which numbered 20 people.

Also, swimmers under 15 years old belonging to the Hippon Sub Annaba swimming branch, and their number was 20 individuals. Thus, the total sample is 40 individuals from both specialists.

-Domains: Spatial field is the annex of the Olympic swimming pool of the May 19, 1945 boat in Annaba for swimmers, the port of Annaba for rowing athletes. Time range is the test lasted for a week, from 15 June 2023 to 22 June 2023.

Doing the test on the first part of the sample, who are rowing athletes, on 15 June 2023, then re-testing to confirm the results on 18 June 2023.

Doing the test on the second part of the sample, who are the swimmers, on 19 June 2023, and re-testing to confirm the results on 22 June 2023.

Human sphere: researcher, rowing team coach, swimming team coach, rowing athletes, swimmers.

-Data collection tool: By using the comparative descriptive approach, and given the study variable to be measured, which is the agility characteristic, the best tool for data collection is the use of the test applied to the sample in the field directly, and in order to measure the agility characteristic of rowing athletes and swimmers, we used the following test:

T-test for agility:

pre-test:

Explain the test procedures to the subject. Perform screening of health risks and obtain informed consent. Prepare forms and record basic information such as age, height, body weight, gender, test conditions. Measure and mark out test area. Perform an appropriate warm-up.

The aim of the test:

to measure agility, especially in directions at an angle of 90°

Tools:

Flat and non-slip floor / 4 cones / Stop Watch / measuring tape

Performance method:

When the signal is heard, the time starts and the player runs forward a distance of 10 Y (9.15m) and touches the funnel with his right hand.

The player runs to the left side with side steps for a distance of 5 Y (4.6 m) to touch the funnel with the left hand.

The player runs to the right side with side steps for a distance of 10 Y (9.15 m) to touch the funnel with the right hand.

The player runs again to the left side with side steps a distance of 5 Y (4.6 m) to touch the funnel in the center with the left hand.

The player sprints backwards to pass the funnel they started at and the clock stops.

Score calculation:

The time is calculated from the moment of starting when the signal is heard until the completion of the stages and passing through the funnel from which the player started, and the time is calculated in seconds.

The player gives two attempts and calculates the best attempt or the least time, taking into account giving a two-minute rest period between the two attempts.

comments:

Ensure that the participants face forwards when shuffling and do not cross the feet over one another. For safety, a spotter should be positioned a few meters behind cone A to catch players in case they fall while running backward through the finish.

reliability:

the type of surface that is used should be consistent to ensure good test-retest reliability.

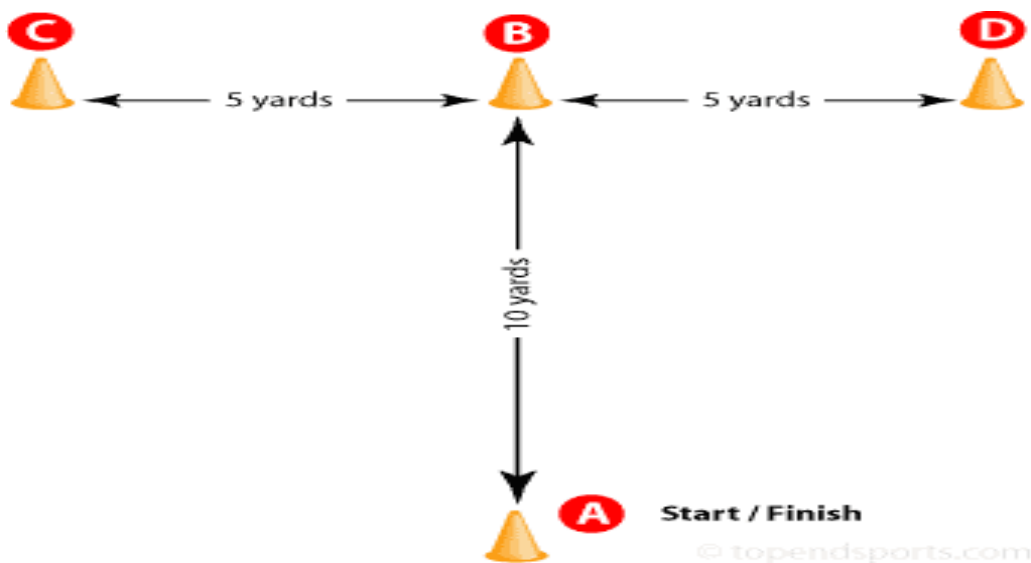
advantages:

This is a simple agility test to perform, requiring limited equipment and space.

disadvantages:

Only one person can perform the test at a time.

Figure No (01) shows the T-test to measure the characteristic of agility



-The scientific foundations of the tool

Psychometric characteristics of the test:

-Honesty: The objective of the T-test is to measure the agility of the body and the speed of the motor performance of the athletes. That is, this test indicates that the greater the agility, the shorter the track time, which is the goal for which it was set. This type of validity is considered apparent validity and an agreed upon correlation criterion by measuring time in speed and agility tests when the individual finishes the track.

-Stability: The T test has very reliable results, as it gives almost the same results every time we do the test and repeat it, especially when using the sensor that detects any movement with accuracy, The count begins when the athlete passes through the starting line and ends with his passage from the same line after completing the track The degree of reliability of the T-test was 0.98 in three controls, which proves that it is a stable and reliable test, according to the study of Kainoa and other researchers (Journal of strength and conditioning research).

Test stability and validity:

The researcher calculated the stability coefficient for the test by applying the scale, on a sample of 8 athletes (rowing, swimming). The sample consisted of 8 athletes from other than the basic study, as the period between the first and second measurement was 10 days, and table number (01) shows that Table (01): shows the first and second measurement on an exploratory sample to confirm the stability of the test

The test	First measurement		The second measurement		Factor link (R)	Self-honesty
	Arithmetic average	Standard deviation	Arithmetic average	Standard deviation		
T test for agility	11.53	0.48	11.73	0.53	0.73	0.85

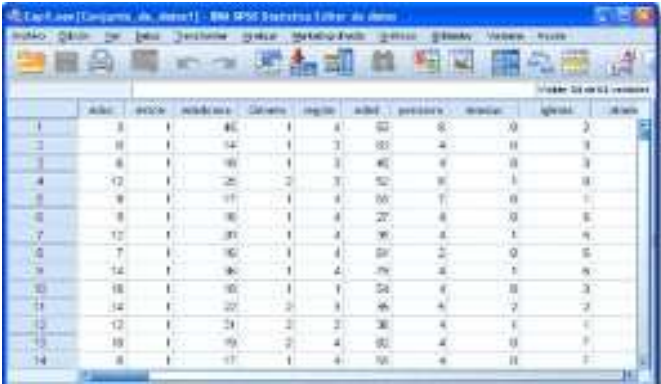
After taking an exploratory sample of 8 individuals from outside the study sample, and after doing the test and re-testing after 10 days, these results and data appeared to us. It is clear to us from the table (01) that the correlation coefficient between the first measurement and the second measurement of the T test for agility was (0.73), which is statistically significant at the level (0.05), and this indicates the stability of the scale.

-Objectivity: The results are considered devoid of subjectivity, as the results are quantitative and reflect a calculated time. And the time taken in the track represents the speed and agility of the athlete without an increase or decrease, and also the timer or the sensors measure the movement from the beginning to the end and the psychological aspect has nothing to do with the subject, and therefore it is a sound test that gives sound results far from bias and subjectivity.

-Statistical methods: The data were processed by calculating the arithmetic mean, standard deviation, and also relying on the interquartiles and the «T» test

calculated for the two independent samples, and the data were processed by means of the SPSS version 23 program.

Figure No (02) shows picture of SPSS program



4-2 Presentation and Analysis of Results:

Table (02): shows the results of the T test for agility on the two samples (in seconds)

swimming team sample 20 people Best time out of 3 attempts (in seconds)				Rowing team sample 20 people Best time out of 3 attempts (in seconds)			
01/	11,87	01/	11,82	11/	11,10	01/	11,41
02/	11,50	02/	11,97	12/	10,58	02/	11,14
03/	11,73	03/	12,06	13/	11,28	03/	11,56
04/	11,42	04/	12,05	14/	10,56	04/	11,43
05/	11,57	05/	11,33	15/	11,89	05/	12,78
06/	12,00	06/	12,01	16/	10,43	06/	11,41
07/	10,90	07/	10,88	17/	11,08	07/	11,27
08/	10,98	08/	11,12	18/	10,91	08/	11,56
09/	12,18	09/	12,33	19/	10,25	09/	10,84

A comparative study of agility between rowing athletes and swimmers under 15 years old

Boucetta Mohamed Elhadi , Benhiba Tadj Eddine

10/	12,03	10/	12,13	20/	11,97	10/	12,14
-----	-------	-----	-------	-----	-------	-----	-------

The results of the T-test for agility on 40 individuals from the two samples, the swimming sample 20 individuals and the rowing sample 20 individuals
The results were in seconds and express the average of the attempts, and the best attempt was taken, i.e. the least time

-Presentation and discussion of the results of the first hypothesis:
The first hypothesis: the level of rowing athletes and swimmers in terms of agility is at an average estimate

Table N (03) shows the level of rowing athletes and swimmers under 15 years old in terms of agility (n = 40).

Statistical methods	Arithmetic average	Standard deviation	measruing unit	Standards				
sports type				weak	middle	good	excellent	
Rowing athletes	11.27	0.61	second	greater than 12.50	Between 11:50 and 12:50	between 10,50 and 11,50	Less than 10,50	good
swimmers	11.69	0.45	second	greater than 12.50	Between 11:50 and 12:50	between 10,50 and 11,50	Less than 10,50	middle

Source: Issa and Bin Issa Faisal (2018), A study of the differences in the agility characteristic of handball players for the senior division according to the

playing centers ,(Al-Maiden for Sports, Social and Human Studies, Issue 01 January 2018)

It is clear to us through Table (03), which shows the level of rowing athletes and swimmers in terms of agility, that the level of rowing athletes falls at a good estimate, as the arithmetic mean value was 11.27 with a standard deviation of 0.61, while the level of swimmers falls at an average estimate, as the arithmetic mean value for them reached 11.69 with a standard deviation of 0.45

Among them, the first hypothesis was not fulfilled, so the estimate of the swimmers under 15 years of age in the fitness category is “average” because 11.69 is between 11.50 and 12.50, and this field falls in an average estimate, but the second part of the hypothesis was not achieved because the estimate of rowing athletes In terms of agility, it was good, because 11.27 is confined between 10.50 and 11.50, and this field represents a good estimate. This means that the first hypothesis, which was in its content that both samples fall at an incorrect mean estimate.

-Presentation and discussion of the results of the first hypothesis:
The second hypothesis: There are statistically significant differences between rowing athletes and swimmers in terms of agility.

Table No. (04) shows a study of the differences between rowing athletes and swimmers in terms of agility (n = 40).

	SMA	standard deviation	The calculated T value	degrees of freedom	p-value	significance level	indication
Rowing athletes	11.27	0.61	2.41	38	0.021	0.05	Indicator
swimmers	11.69	0.45					

Indicator When the P value is less than or equal to the significance level 0.05
It is clear to us through Table No. (04), which represents a study of the differences between rowing athletes and swimmers in terms of agility. The

arithmetic mean for rowing athletes was 11.27 at a standard deviation of 0.61, while the arithmetic mean for swimmers was 11.69 at a standard deviation of 0.45, while the calculated t value was 2.41 at a degree of freedom of 38, and when comparing the value of p, which amounted to 0.021, we find it less than the value of Significance level 0.05, which confirms the existence of statistically significant differences between rowing athletes and swimmers, in favor of rowing athletes.

Thus, the sub-hypothesis of our study was achieved by the existence of statistically significant differences between the two study samples in the agility characteristic, and this confirms the first hypothesis in the existence of a difference in estimates according to the two samples that represent different specializations in relation to the agility characteristic, one of which was with a good estimate and the other with a medium estimate, and agility accordingly It is an unstable characteristic, as it differs according to the specifics of the specific specialization, so getting used to something and constantly repeating it is one of the reasons for developing this characteristic. (Annan, 1995, p. 107)

4-3 Discussion and interpretation of the results:

the researcher concluded that the estimated level for the swimmers sample was average, but for the rowing athletes it was good. Thus, there are statistically significant differences in fitness between the two samples, because swimming is a cyclical sport and does not require a sudden change of body movement in another direction except for the starting position and rotation with the wall at every turn but rowing it needs greater control over the movement and balance of the body, and these conditions develop from the attribute of agility for the athlete, and this was confirmed by the study of (Mihoubi Issa and Bin Issa Faisal 2018), which dealt with the differences in the attribute of agility from one specialty to another.

Conclusion:

In conclusion, we know that each specialty has its terms , and In our study, we learned that agility is a physical characteristic and the agility of its estimated value from one specialty to another, as in our study, we took storage, and the details of rowing, we got the results that we mentioned earlier.

Based on this, we gave some suggestions and recommendations regarding this topic and what is useful for future studies of this kind

Expanding the study of the characteristics of rowing sport poor information and research in this regard in the national.

arena Diversifying research that deals with some nationally marginalized sports, and encouraging progress in their studies.

Not limiting research to the variables and disciplines themselves, and offering rewards to researchers who create new problems in the scientific arena, especially at the national level.

Carrying out scientific courses and workshops to exchange what is new about topics and recent research titles. Based on the results of this research, develop selection methods for specialists, diversify special training exercises adapted to each specialty, depending on the results obtained.

References used in the research:

Abdel-Qader Ghazali, Makhtari Abdel-Hamid (2021) The role of coaches in the process of selection and sports guidance for juniors in the sport of swimming for Chlef state associations, *Journal of Ettafawek in Science and Techniques of Physical and Sports Activities* / Volume: 06 / Issue: 02-2021, p: 258.

Ahmed Khater, Ali Al-Beik (1976) *Measurement in the Mathematical Field*, Cairo, Dar Al-Maaref.

Ali Khalifa Al-Anshari and others, "Modern Techniques for Selecting Young Talents in Swimming", 3rd Edition, Libyan Arab Republic, 2008

Djamel Laajel, and others 2021, selection and direction and its relationship to determining the level of sports performance among handball players less than 15 years old, *Journal of Ettafawek in Science and Techniques of Physical and Sports Activities* / Volume: 06 / Issue: 02-2021, p: 579.

Djamel Edin Youcef Khalifa , Mohamed Madani 2022, Eight weeks based on water to improve the agility of football attackers under 20 years old, *Journal of Ettafawek in Science and Techniques of Physical and Sports Activities* / Volume: 07 / Issue: 01-2022, p: 693.

Elias Jabali and Salim Bozio 2020, comparison of some elements of physical fitness (endurance, strength, speed, agility) among middle school students, "a comparison at the level of some averages of the municipalities of Khenchela and Biskra". *Journal of Psychological and Educational Sciences*. 8 (1), Algeria: University of El-Oued, Algiers.260-249.

Hamza Brahimi, Khaled Mesoudi 2023, the effect of physical effort according to energy sources in improving some elements of muscle strength among a group of young amateur athletes, *Journal of Ettafawek in Science and Techniques of Physical and Sports Activities* / Volume: 08 / Issue: 01-2023, p: 1018.

Issa and Bin Issa Faisal 2018 "A study of the differences in the agility characteristic of handball players for the senior division according to the playing centers" *Al-Maidan for Sports, Social and Human Studies*, Issue 01 January 2018

Muhammad Walid Lahrash Muhammad, Mustafa Weld Hamo 2022 "The Relationship between Physical Measurements (Height, Weight) with Speed for Youngest Swimmers, Age Group, *Turath Magazine* 01, 12, p. 116-134

Jamal Al-Din Rasham, (2023) The effect of special exercises in the method of circular training in developing the characteristics of flexibility and agility among soccer players, middle class, *Journal of Ettafawek in Science and Techniques of Physical and Sports Activities* / Volume: 08 / Issue: 01-2023, p. 001

Richard Monpeti: The problem lies in the detection of talons in sport, *vigot edition*, Paris, 1989.

Wajih Mahjoub: Scientific Research Methods and Approaches, *Directorate of Books for Printing*, University of Mosul, Baghdad 1988.

How to cite this article in APA style:

Boucetta Mohamed Elhadi , Benhiba Tadj Eddine (2023) A comparative study of agility between rowing athletes and swimmers under 15 years old , *Journal of Excellence in the Sciences and Techniques of Physical and Sports Activities*, Volume ..., Issue, University Center Nour El-Bachir El-Bayadh, Algeria, pages ... _...