



Determining the standard levels of some morphological and physiological requirements as an indicator for the selection of defenders in the Algerian football U19

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ABSTRACT

This study aims to identify the most important morpho-functional measures and determinants through standards and tests and their relationship with the selection of football players under the age of 19 in the defensive position, so that coaches can realize the true value through this study and correct the previous mistakes based on observation and matches and their distance from the side for the selection of players whose results are certain and guaranteed. We first assumed that the level of morphological criteria of defensive players is characterized by an average level, on the other hand, that the level of physiological criteria is characterized by an average level, and for the purposes of investigation of the hypotheses, we have selected a sample composed of 90 defenders from different defensive positions representing 10 clubs active at the level of the Algerian first and second division (class under 19 years old) for football for the 2022/2023 sports season. They were chosen deliberately, and for this we used the descriptive approach, through which we collected data using the physical measurements necessary to determine morphological indicators (height, weight, mass index, musculoskeletal system and physiological tests, then statistical processing of the data). The research yielded the following results: The levels of defensive players (axial - right and left wingers) in measurement of height, weight, muscle mass index, shows the levels in favor of the good level and the average level compared to the physiological criteria. That is why we have recommended the use of physical measurements and physico-physiological tests during the selection and even in the orientation according to the play centers, in particular the lengths and the components of the body style and the preparation of training programs based on scientific bases and paying attention to young groups of young people at all levels.

Key words: morpho-functional criteria, selection, defenders.

INTRODUCTION

The remarkable development in all sports is due to the good performances of elite athletes who have had a special education and monitoring since childhood of the type of activity or sports game in terms of physical and moral aspects with their mastery of tactics and techniques.

To reach an elite athlete, athletes must be selected from the junior categories, and the goal of selecting athletes is not limited only to determining the fitness of the youngster for a particular game, but also extends to the likelihood of acquiring his future potential for that game, so it is possible to predict the possibility of owning the tactics of the game to achieve the required results in childhood and optimal work as an elite player.

Selection is a long process that cannot be fixed in a specific time frame because the growth of students' abilities changes under the influence of training work as well as growth and life factors... Therefore, the process of preparing an elite athlete to participate in sports competitions is a very important process that it focuses on several factors, the most important of which is the factor of selecting talented children to the appropriate sports games, as there are no fixed criteria based on scientific grounds for selecting athletes, they rely on observation and bringing children to participate in sports competitions.

The interest in the problem of athlete selection in recent times is due to the incredible increase in the level of results and sports figures that we see day after day in various media, which in turn has led to a huge increase in the size of the physical, psychological and technical requirements that the sports competition arena imposes on players. (Liu H, Gomez MA, Gonçalves B, Sampaio J, 2016) and given the inevitability of individual differences between athletes in various physical, psychological and skill aspects... etc., football specialists and researchers directed their interest to the research and study of the problem of special preparations and

abilities, the results of which had the greatest impact on the development of measurement and correction methods, as well as on the enrichment of theories. Mathematical selection with these results.

Modern training creates positive effects on the effectiveness of the player, and this is done by following modern study programs that are codified according to scientific foundations and principles that comply with the requirements of preparation in modern football (DELLAL, 2013) and indicate (Iaia, F. Marcello, Ermanno Rampinini, And Jens Bangsbo.,2009)

The success and progress of any team depends to a large extent on the extent to which its members master the basic principles of the game. The style of football play has evolved throughout history, as well as its controls and laws, until it reaches the current stage known as modern football, which is no longer based solely on the attack and the attackers, and which scores the greatest number of goals. , the emphasis must be placed on all aspects, because the process of achieving results and high level has become an interdependent and integrated process. From the stage of selection of young people and their orientation to the appropriate centers that correspond to their abilities, characteristics and technical knowledge, physical and morphological qualities, at the elite stage and at the high level.

(Anthony SCOZZARI, 2020) states: "Sports selection in most European countries is a specialized subject of study, due to the clear decline in the numerical level, the sporting success and the young age of the champions in various sports activities, as a result of the urgent need to take into account the desires of the individual athlete with the criteria and abilities specific to the type of sports activity selected, in the sense that the sports selection is aimed at a group of distinguished and talented individuals capable of achieving high levels in the specific sports activity.

Recently, certain trends have emerged in the field of the athlete on how to study preparations and special abilities related to the selection process, including the use of a wide range of tests to analyze the expectations of growth and development of the elements of ability and preparation of athletes.

As for the player's choice for himself in the position he prefers, it is not only related to the technical aspect or so on. The player may have certain talents or abilities that only his coach discovers, and maybe the stadiums of the world are full. many role models for players who started in certain positions at the beginning of their career before switching to other centers. At the junior stage, then the young ones, up to participating with the first team in the clubs for which they play, and that the player has tactical flexibility with the ability to occupy more than one position is a good thing, because the energies and talents of the players must be tried to be directed in more than one position to set the best for the player himself according to what is proportionate to his abilities, so that the player can perform well in the center of the defense if he was employed in the position of defensive midfielder, which is determined mainly by his coach.

Sometimes some players manage to progress and play other roles on the field thinking that it will satisfy the coach or the person in charge of evaluating the performance, but this belief is false, especially for young players, young people and young talents. this position without prejudice to the duties of his role, because, for example, if he advances and fills another position, then he negatively affects his colleague who occupies this position, in addition to the void he leaves when he does not have the impression that, as young people generally tend to seek self-affirmation in various ways, especially by trying to show their ability to play in several positions during the same match or training (Winter C, Pfeiffer M, 2016).

Therefore, determining the position is important, but its importance is determined in the light of the vision of the coach or expert who has a better perception than the player himself. Numerous studies have recommended the need to find real solutions on how to evaluate special preparations in the early stages of sports selection, since the further growth and development of physical abilities, skills and psychological primarily depend on the presence of these preparations as hidden latent abilities. Through the impact of the sports preparation system, in which both the role of the coach and the effectiveness of the training process appear, the problem of the study arose to identify certain basic criteria in defensive selection. of football players under the age of 19 in order to raise the level of success and good performance, which can be summarized by answering the following questions :

-1- What is the level of the morphological criteria of defensive players in under-19 football?

-2- What is the level of physiological criteria of defensive players in under- 19 football? The researchers also assumed the following :

-1- The morphological criteria are characterized by an average level for football defenders under the age of 19?

-2- The physiological criteria are characterized by an average level for football defenders under the age of 19?

Objectives of the study

The objectives of this research can be explained as follows:

-Identify the process of selecting young people for the position of defender in clubs, sports teams and football schools for emerging youth groups.

- Identify the most important morphological measurements through standards and tests and their relationship with the selection of football players in the defensive line, so that coaches can realize the true value through this study.
- Identify the most important physiological abilities through standards and field tests to select football players in the defense line, so that coaches can know the characteristics of the defender and his morpho-functional requirements.
- Correct previous mistakes made by coaches by relying on observation and matches and avoiding the scientific aspect whose results are certain and guaranteed.
- Raise the status of the scientific part in the selection process of the line of defense and highlight its role in achieving the results of the team.

The importance of the study

The importance of the study lies in the fact that it will show the true image to rely on during the selection process, which is represented by the use of criteria and tests for the morphological and physiological evaluation that the coach must rely on in the selection process towards a defensive playing position to be able to control the different variables of the process, this allows him to choose and identify the appropriate players with abilities and levels and benefiting from modern technologies in this field and the scientific methods and foundations that must be to refine this method according to the modern requirements of football.

Research methodology and field procedures

The descriptive approach is the most appropriate to answer the questions raised on the subject of the research, and depending on the nature of the subject, we will use the descriptive approach in its style of investigation, according to the different research tools. working on the application of a proposal for a battery of tests on a sample of some football teams from in eastern Algeria, under-19 class. In order to be able to define standard levels in the light of these, players are selected for defensive positions and who have the opportunity to excel, in addition to the requirements and characteristics of a modern defender in football.

Determination of the research community and the sample Research community

The researchers chose the sample in small numbers, because it was estimated at 90 players occupying the position of defender, at a rate of three players in each defensive position (3 pivotal players / 3 left winger / 3 right winger) among the different clubs active in the two regional associations Annaba, Constantine, Maraya This includes the most important scientific conditions that must be fulfilled in the selection of the sample, the most important of which are: that the sample be representative, and that the members of the society have the same opportunities to be part of the sample, and the following shows the size of each of the categories included in the research sample :

Table 1: Represents the sample difference of the test battery

	U.S.M.A	01		A.S.K	01
	H.B.C.L	02		E.S.S	02
	M.C.E.E	03		A.S.A.M	03
	M.O.C	04		U.S.C	04
	J.S.M.S	05		C.S.C	05

Through the table above for the members of the sample, the researchers selected 10 teams among the most prominent active teams at the level of the two leagues, Annaba and Constantine, for the 2022/2023 sports season .The purpose of this selection was to carry out tests and measurements on the teams with strong

Statistics and for 35% of the statistical community as a whole, which is represented by the players of the teams of clubs active in the eastern part.

In order to control all the variables likely to affect the results of the research, the dates of birth of the defending players were checked through the official documents of each team in coordination with the coach and the management of each team. to 105 players, but the researchers excluded some players, estimated at 15. After conducting the main experiment, the players who were eliminated are :

* Players who do not meet the conditions of the under-19 age group.

Injured players

Players whose playing time in a defensive position is less than two years.

Players who participate for the first time at the Association level. This confirms that the tests were conducted on the main players, and those with experience in the center.

Homogeneity of the sample

Table 3: Description of the study sample (n= 90)

variable	transactions			skewness
	ithmetic mean	Standard deviation	The mediator	
Age	18,41	1,22	18	-1,55
Height	1,81	0,56	1,80	-0,25
Weight	67,85	5,89	67,1	-1,87
Muscle mass index	22,45	1,80	21,14	0,75
Training age	3,3	0,58	3	0,95

Table (n ° 03) shows the extent of the homogeneity of the individuals of the research sample in the variables of age, height, weight, muscle mass index and training age, through the aforementioned results, as the values of the torsion coefficient for these variables are limited between (+3, -3), which means moderate frequency curve and homogeneity of the research sample.

search tools

The realization of this modest scientific research required the use of some of the following tools:

Theoretical knowledge of the subject by addressing the various sources and references, which have been represented in many previous and similar Arab and foreign studies, national and international journals, scientific conferences and forums, as well as various websites.

The interview that was organized with some trainers and specialists among the professors of the different institutes of the country.

Evaluation questionnaire of the problematic terrain which was sent to football specialists and coaches in the various trainings organized by the Algerian National Football Federation.

A questionnaire on the battery of standardized tests that was presented to the referees to collect their opinions on the most appropriate tests and measures, as follows :

Morphological measurements

Measurement of height and weight, muscle mass index.

Physiological tests

YOYO TASTE VO2MAX VMA test, NovMiganov test.

Biometric measurements: Weighing - Objective: To measure the weight of an athlete Tools used: A modern electronic scale Procedure: A player is balanced symmetrically and remains motionless until the measurement stabilizes.



Fig 1: Shows an electronic balance device

Size: Objective: Measure the length of the player Tools used: Tape measure.

Procedure: The player must stand upright and his legs must be 30 to 45cm apart We take the height of the player who must remain motionless.



Figure 2: Shows the length measuring device.

BMI: Objective: Estimate muscle mass using the formula.

BMI = weight (in kilograms) / height (in square meters).

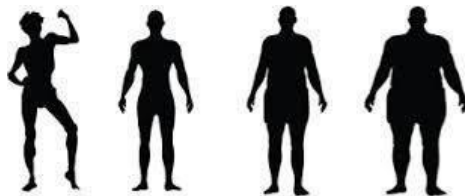


Figure 3: Displays the different body types

Physiological tests :1- Intermittent Yo-yo Test

Test specification
This test was developed by the Danish physiologist Jens Bangsbau and there are two versions, level 1 and level 2 (beginner and advanced level).

an area of three separate lines (using cones/flags) as in the diagram below; 20 meters and 5 meters for interstitial rest. The tester starts behind the center line and begins to rush to the beep. The tester turns around and returns to the first starting point when the recorded beep is heard.

There is an intermediate rest after each run (out and back) and a 20- second run/jog around the end cone to return to the starting point (center line). If the player does not return to the starting line within the allotted time defined by the audio CD, the player receives a warning message. The player fails the test if he cannot pick up a following signal (the recorded beep sound). The result is recorded as a total distance of the distance traveled during the test before the shutdown.

The tools used

Funnels - Measuring tape (decameter) - Sound alert device - Yoyo test recording tape - Recording paper.

How to perform

After following the instructions by following the tape recording of the "yoyo" sound, the players go back and forth between two lines (indicated by cones) trying to prepare for launch before the signal (beep) of the CD.

The pace accelerates after a while. Players receive a warning if they do not complete the attempt within the allotted time.

The level 2 test starts at the highest running speed and has different speed increases. The lab score gives the total distance before he is unable to follow the recording. The intermittent yoyo test usually takes between 2 and 10 minutes for level 1 and between 6 and 20 minutes for level 2.

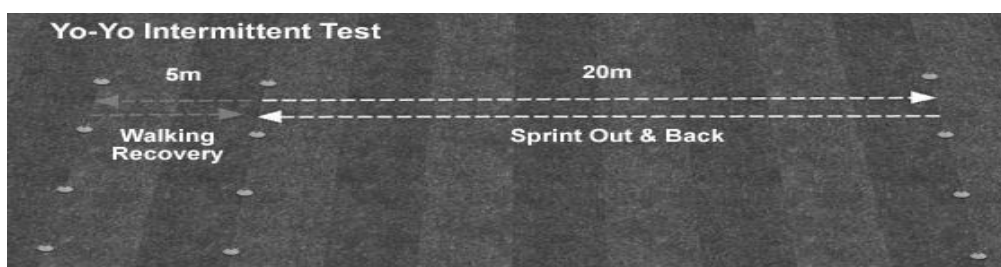


Figure 4: Demonstrates how to perform the Yo-Yo test (Intermittent Yo-Yo)

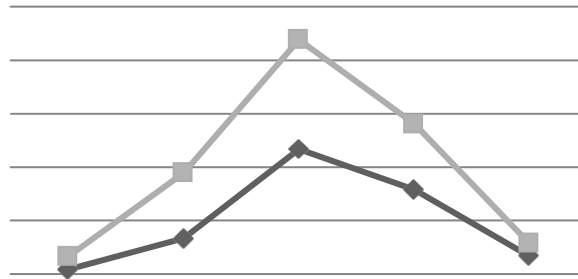


Figure 6: Indicates the number of defenders and the corresponding percentages according to each standard level and the prescribed percentages located in the normal distribution curve of the length measurement.

It has been demonstrated through the results presented for the measurement of height that the nature of the age stage, because this stage is characterized by the achievement of a high level of growth, especially in the height variable, and this is what has been found (Liu H, Gomez MA, Gonçalves B, Sampaio J, 2016) "The period of rapid growth in length, it varies from 12 to 14 years, and the stability is located during the age range of less than 19 years.

The latter is also considered one of the most important characteristics of the defensive player due to the requirements of the position and the skills and movements that the attacker performs when receiving aerial balls or bilateral struggles and even scoring on certain occasions on various set-pieces or even high passes, and this is consistent with the study (CAZORLA G., 2006), who concluded that the practice of sports activities of a particular nature in an organized way and for long periods causes a morphological effect on the body of the individual practitioner, and this effect can be identified by measuring the parts of the body that function effectively during the practice of this activity (Johnston, K., Wattie, N., Schorer, J., & Baker, J, 2018).

The results obtained by some researchers (Lovell, T.W.J., Bocking, C.J., Fransen, J., & Coutts, A.J., 2017) agreed that "this stage is characterized by longitudinal growth, in particular of the limbs, and sometimes the growth of the arms and the legs are wide, which characterizes the morphological characteristic of the players.

"Many specialists in the field of sports also agree that morphological specifications have a great relationship to show good levels of physical characteristics, and that there is a relationship between the physical composition of the player and the possibility of achieving high athletic levels, since it has an effect on the muscular strength, speed, endurance, flexibility and responsiveness of the player's body to the various circumstances that surround him, as well as his physical efficiency and obtaining impressive sports results.

The researchers believe that the majority of defensive players are limited to their results between the average level and below the average level, due to the lack of interest of the coaches during the selection process for this indicator, under the pretext that it is not a rule to determine the playing positions, since many players do not have the size indicator, but they provide the best levels, but the researchers believe that the requirements and advantages of high-level players and youth groups active in Algerian clubs, there is no place for comparison, either in the process of training or selection, due to the great difference in all material and moral data that the defensive player is characterized by it because of its importance in the defensive performance and the technological work related to its tasks in the defensive process, which is confirmed by "Le Gall" 2008 that the defenders, compared to other positions, are distinguished by specificities that correspond to their technical tasks during aerial conflicts with the individual ball with the attackers or even with the goalkeepers during their participation in the attack (Le Gall, 2008) However, this does not mean that groups of young people are devoid of energies that benefit from distinct anthropometric measurements that should be well exploited and developed to offer the best in the sporting field, especially in the fields of football, since the height index is one of the most important indicators of physical growth that is based on an effective and positive role in determining objective indicators, through which the selection process can be carried out according to scientific bases studied in various fields of sports achievement for football, especially among the youth groups who are considered the reservoir of the senior teams.

The researchers indicate that these results obtained are in agreement with numerous studies that have dealt with These aspects differ in the process of detection, selection or orientation, and we mention the study (Williams, A.M., Ford, P.R., & Dust, B, 2020), who emphasized the importance of morphological determinants and concluded through the results of his study that the research sample represented by football players in different positions Their player is characterized by an average level in the measurement of height, which is consistent with what Medea Bekov indicated that "physical specifications are the most important indications for selection, and therefore they must be taken into account at all age stages, and their role is becoming more and more important, especially in the stages of identifying the individual abilities that correspond to succeed.

Both Karbovich and Senning explain that morphological characteristics are of great importance for performance in sports activity, and this importance is due to the fact that players perform movements with their bodies that differ in their measurements from one individual to another, which translates into a difference in performance. sports movements, which confirms the need to adapt the player's standards to the requirements of the activity practiced.

Morehouse and Miller state: "Physical composition, body weight and length are among the most important factors on which achieving high levels depends." Carter confirms that the relationship between physical structure and function is certain, since morphological measurements are an important requirement for the motor performance of athletes in order to achieve high athletic levels.

Game experts point out that some centers require special specifications that cannot be ignored, such as the great characteristic of goalkeepers and central defenders to facilitate the management of high balls, while players on the periphery are often characterized by small size because they require speed of movement (CHAOUACHI, 2010).

Présentation et discussion de l'échantillon de recherche dans les résultats de pesée

Table 8: shows the number of defenders and the corresponding percentages according to each standard level and the percentages prescribed to them in the normal distribution curve in the measurement of weight.

Standard degrees	Standard levels	number and percentage		M ² Value		The prescribed percentage in the normal orientation
				calculated	tabulated	
[68,01_80,00]	Excellent	number	25	34.55	09,49	4,86
		%	27.78			
[56,01_68,00]	Good	number	36			
		%	40.00			
[44,01_56,00]	Middle	number	14			
		%	15.56			
[32,01_44,00]	Undermiddle	number	10			
		%	11.11			
[20,00_32,00]	Weak	number	05			
		%	5.55			
Total		number	90			99,72
		%	100			

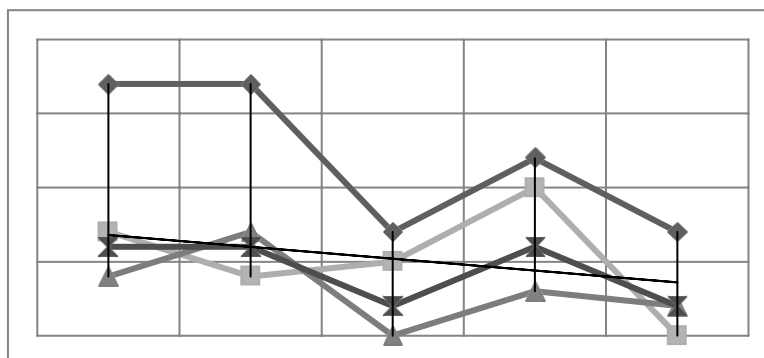


Figure 7: Displays the levels of defensive players according to their playing positions in the weight measurement

It has been demonstrated through the results shown to measure the weight is a moderation of this weight, which greatly contributes to the possibility of their performance to play in a distinctive way without finding problems with the weight, which is an obstacle to the compatibility and integration of sports success factors.

This is explained by the results achieved on the research sample of players The defenders, where the proportions were moderate as a whole, and the researchers believe that the majority of defensive players, the results of their weight measurements are limited to the excellent and good level, which indicates the possibility of achieving sports excellence in the future, since weight is one of the most important indicators in the selection process in different sports activities Weight gain and mass index And fat is an obstacle to sports fitness, and Matthews and Mathowostixe agree that "the increase in the proportion of fat in these rates affects the range of motion of the

joints and the amount of muscle force exerted and necessary for good motor skills". performance. "Willmore states: "The study of physical composition gives an understanding and important dimensions of the player's condition. Knowing the weight of the player may not mean anything, but if we know that this player weighs 100 kg, of which 15 kg is fat, then this means an abundance of important information that can be used to reach the full potential of the player according to the characteristics and abilities of football players .

The player should lose 05% to 08% of his total weight. In this regard, he emphasizes that "the muscles are the main apparatus on which the body relies to perform sports activities, as they move the body in different positions". This is also consistent with the study of (Anthony SCOZZARI, 2020), "whose research results on the weight index were moderate.

The averages for the defensive players studied varied between 61/62kg. as well as the body components of football players, they must The different positions of their players cannot be compared by absolute values, since they only show the truth of these measurements if they are studied in the light of the player's body weight. It is agreed on (Iaia, F. Marcello, Ermanno Rampinini, and Jens Bangsbo., 2009) that in the field of sports selection for young people takes physical measurements of particular importance due to their great importance in predicting the results that the player can achieve, and the most important of these measurements are body length, weight, fat percentage, circumferences and the relationships between these measurements.

Presentation and discussion of the research sample in the results of the measurement of the muscle mass index (BMI)

Table 9: indicates the number of defenders and the corresponding percentages according to each standard level and the percentages determined in the normal distribution curve when measuring the muscle mass index.

Standard degrees	Standard levels	number and percentage		M ² Value		The prescribed percentage in the normal orientation
				calculated	tabulated	
[68,01_80,00]	Excellent	number	06	58.01	09,49	4,86
		%	6.67			
[56,01_68,00]	Good	number	45			
		%	50.00			
[44,01_56,00]	Middle	number	17			
		%	18.89			
[32,01_44,00]	Undermiddle	number	17			
		%	18.89			
[20,00_32,00]	Weak	number	05			
		%	5.55			
Total		number	90			99,72
		%	100			

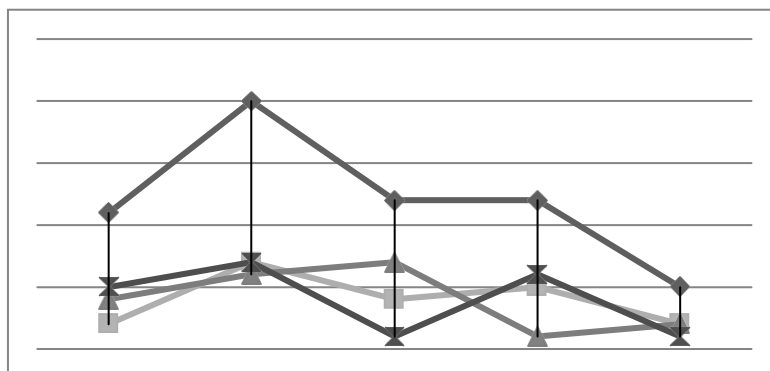


Figure 8: Displays the levels of defensive players according to their playing positions in muscle mass index

It was shown through these results to the correlation that combines the height and weight index, which was moderate in the research sample, and thus the players obtained an acceptable index due to the morphological structure that constitutes the defensive player and thanks to the sum of the results achieved, and compared to the levels of the muscle mass index, it became clear that the research sample represented in defensive players under 19 years of age, it is characterized by high structural characteristics of the upper or lower muscle group without the presence of obesity or a distinct weight loss, proportional to their movements on the field and the performance of their work according to the different skills and physical abilities employed, and some studies focused on the study of the body components of the players in various sports activities indicate the relationship of the amount of bones and other body components such as muscles and fat, as well as the level of sports performance, including the study (Loturco, 2018), where he indicated that an increase in muscle mass as well as its strength is accompanied by clear changes in the skeletal system as well as the percentage of fat, and it also more effectively reflects the training situation for the individual, in addition to its help in detecting the growth of soft tissues for young people as well as adults (CAZORLA.G, 2006).

The determination of morphological indicators is important due to the specificity of the defense position, which requires an accurate morphological structure that carries high fitness specifications that allow the defender to perform his work and tasks in the rectangle. Green better, and this is reflected in the muscle mass index of the elements of the research sample, the results of which indicated an ideal weight and a slim muscular physical pattern that corresponds to the morphological requirements of the football player of this age group under 19, although some elements suffered from a deficiency in the mass index due to Councilman 1993 emphasized that "the availability of morphological characteristics without preparation leads to limited progress, and so we see that the morphological characteristics are necessary to excel in the sports activity practiced and that training complements these characteristics " (Councilman, 1993, p. 14). Brooks 1996 emphasizes that "the under-19 age group is not the peak of physical growth, and through this, the players are on the path of growth and development of muscle structure. (Brooks, 1996), and adds: "The practice of sports activities of a particular nature, regularly, and during periods studied scientifically, has a morphological effect on the body of the individual practitioner, and this effect can be identified by measuring the parts of the body that work effectively during the practice of this activity." Also, practicing the training process continuously and over long periods of time gives the players particular morphological characteristics related to the role of the player and the position he occupies. The researchers believe that the determination of morphological characteristics during the selection process to the defense position is one of the most important indicators, in addition to the various anthropometric measurements that characterize the defender in all respects, be it style, lengths or circumferences. it moves us away from subjectivity and randomness in the selection process, especially in Algerian football schools and clubs of different age groups, to raise the level and bring the players to the highest levels of sporting success.

Presentation and discussion of the research sample in the results of physiological tests

Table 10: Shows the standard levels of physiological tests for defensive players

Physiological tests		weak	under middle	middle	good	excellent
Maximum air speed VMA	Standard degree	[37,76_36,56]	[38,78_37,77]	[39,9_38,79]	[41,01_39,91]	[42,13_41,02]
	Raw degree	[12,4_11,00]	[13,8_12,41]	[15,2_13,81]	[16,6_15,21]	[18,00_16,61]
Maximum oxygen consumption VO2MAX	Standard degree	[37,76_36,56]	[38,78_37,77]	[39,9_38,79]	[41,01_39,91]	[42,13_41,02]
	Raw degree	[43,4_38,5]	[48,3_43,21]	[53,2_48,31]	[58,1_53,21]	[63,00_58,11]
Fast recovery	Standard degree	[41,49_42,36]	[40,61_41,48]	[39,73_40,6]	[38,85_39,72]	[37,96_38,84]
	Raw degree	[375,21_394]	[356,41_375,2]	[337,61_356,4]	[318,81_337,6]	[300_318,8]

Presentation and discussion of the research sample in the results of the YOYO Tact test (maximum aerobic speed - maximum oxygen consumption)

Table 11: Indicates the number of defenders and the corresponding percentages according to each standard level and the percentages determined for them in the normal distribution curve of the YoYo Tact test.

Standard degrees	Standard levels	number and percentage		M ² Value		The prescribed percentage in the normal orientation		
				calculated	tabulated			
[68,01_80,00]	Excellent	number	10	48.56	09,49	4,86		
		%	11.11					
[56,01_68,00]	Good	number	15					
		%	16.67					
[44,01_56,00]	Middle	number	44					
		%	48.89					
[32,01_44,00]	Undermiddle	number	13	48.56	09,49	24,52		
		%	14.44					
[20,00_32,00]	Weak	number	08					
		%	8.89					
Total		number	90					99,72
		%	100					

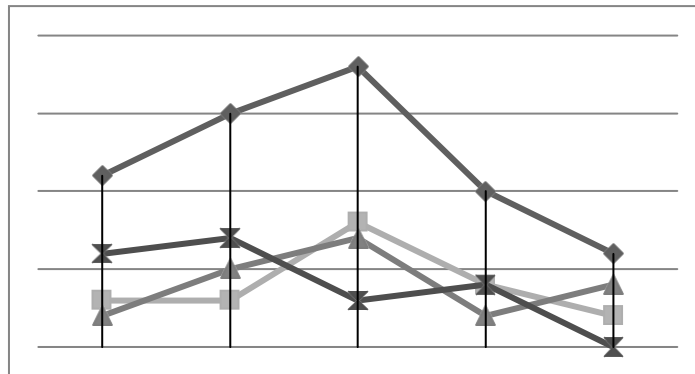


Figure 9: Displays the levels of defensive players according to their playing positions in the YoYo Tact test

(maximum aerobic speed - maximum oxygen consumption) VO2MAX –VMA

It has been demonstrated through the results obtained by the defending players, as has become clear at the level of the aerial capabilities of the defensive players in the various positions they occupy, and that the young Algerian defender is still far from the required level, due to the neglect, so to speak, during the process of training youth groups. Following the researchers and conducting a series of interviews, it became clear that most of these clubs are not seriously preparing for competitions, which negatively affects physical fitness, especially on physiological abilities. , and thus increase the effectiveness of the defender player, which is reflected in the way he plays on the field and therefore the high level of performance.

There are still difficulties in defining a specific model for physiological characteristics, and ways are being prepared to identify the functional abilities of the player General and specific physical skill level. (CHAOUACHI, 2010) indicates the importance of the physiological foundations of the various systems of the organism and their safety to reach the highest sports levels, because the respiratory circulatory system is considered one of the most important vital systems of the organism, and in developed sports countries, training managers and researchers use pulse rates, blood pressure, the respiratory rate and apnea after the shortest inhalation and the weakest exhalation during physical exertion and rest as measures to assess the functional state of the individual.

The researchers believe that the importance of determining the physiological abilities of defensive players greatly contributes to knowing the player's ability to perform his technical and tactical functions in a way proportionate to his physical functional requirements. that the ratio of the effort exerted at low intensity to the ratio of the effort exerted at high intensity constitutes 2.2/1 of the total distance traveled, and this ratio, if measured by time, becomes 1/7, that is to say (light- high), and this indicates that the game It is mainly

dominated by the aerobic energy system (Rago, V., Brito, J., Figueiredo, P., Ermidis, G., Barreira, D., & Rebelo, 2020) The researchers believe that the level that the defensive players obtain through the physiological aerobic capacity test is due to the training program approved by the managers of these clubs, which has not followed the correct scientific method to determine the training load according to the functional indicators "Functional training needs planning and organization" and to the imagination of a coach who is able to evaluate the success of the scorer and grasp the goal of training. When developing a training program, any coach should use certain functional indicators to be able to determine daily and weekly training loads, since the correlation between the nature of performance in the football game and the functional variables that accompany performance must be studied and the principles of development must be studied when preparing daily, weekly, monthly training units and during the training season (Winter C, Pfeiffer M, 2016)

The researchers recall that perseverance is one of the basic physical elements, according to Christophe Pourcelot 2013, in addition to speed and strength (Pourcelot, 2013, p. 16). "High-intensity interval training, endurance and the ability to repeat sprints and short sprints are among the determinants of the physical condition of footballers" (CHAOUACHI, 2010).

Helgerud and others considered that "strength and perseverance were necessary components and important determinants of performance in football" (Helgerud, 2011, pp. 677-682). Zayzofon and others (2016) showed the importance of continuity in football and summarized it in several points, in particular: "The player was able to recover quickly, thanks to the good accumulation of aerobic endurance, in addition to the good endurance of repeated kicks. "

Some studies explain the superiority of midfielders in the size of the distance traveled during the match, but most of the activities carried out by midfielders are low-speed activities, which gives importance to the aerobic energy system of these players, while it was found that the proportion of anaerobic work is higher in defenders, in particular the defender.

It has also emerged that the center of the defense and the center of the attack are the most numerous in number of jumps to own the ball from the rest of the positions, and it is mentioned that the jump rate of football players is once every 5 to 6 minutes (Bangsbo j., 1997) Also, the ability to withstand the physical load For a long time, it depends on the high aerobic capacity, which is expressed by (VO₂MAX), but the open ceiling for any player of continuous physical load between another influential factor in endurance, which is the anaerobic threshold, and the football game requires an oxygen consumption of up to 75% of the maximum oxygen consumption, and studies indicate that most football players at higher levels reach this value at the anaerobic threshold level, and studies also indicate that midfield players are superior in this value to other players in other positions (Williams, A.M., Ford, P.R., & Dust, B, 2020).

The VO₂MAX index is considered an important factor that favors the aerobic and anaerobic systems, and it is the basis of success in covering the distance traveled by the player in the match between aerobic and anaerobic work, but the relationship between VO₂MAX and the rapid releases that fall under the anaerobic phosphate energy system is weakening.

The style of play affects the work ratios of the players and the work ratios of the energy systems, so we see that some teams are conservative in building attacks, trying to choose the appropriate opportunity or counterattack, and some teams attack quickly all the time, such as South American teams and most European teams, and this method does not exclude the development of air capabilities, being here to contribute to the speed of recovery from the effects of rapid work and to the preparation of energy in the presence of oxygen quickly as well, and a study indicates that South American players are faster on the field than English players, but they cover a distance less than that of the English at a rate of 1.5 km (Reilly.T, 1994).

The researchers point out that his conclusions are in line with what many researchers have achieved in the field of Algerian football, which indicates that the training process has many problems and shortcomings that have led to reaching this level and that the great interest has become to stick to the senior category only, although youth groups are the reservoir is intended for senior teams and national teams, and physiological indicators have become one of the most important indicators that give a clear picture of the player's physical fitness based on this, the researchers indicate that the selection process to the defensive position is not based on scientific bases represented in field tests, and many coaches still take into account the competence aspect completely, and this is what is considered a random method compared to what modern football requires in the areas of detection, selection and orientation. Thus, the managers of Algerian football clubs must reconsider the strategy they use during the selection process according to the playing positions in general.

Some specialists in the field of training and physical preparation confirm that the preference of the interval training program of different intensity is to improve these two indicators that indicate the maximum aerobic capacity of the player, and therefore the coach relies on them to define exercises with the degree of load he wants and according to the individual differences of his players, depending on the maximum aerobic speed (VMA) and the pulse index (FCMAX) as well as the aerobic- anaerobic transmission zone, where numerous researches indicate the importance of using these indicators in the rationing of training loads for modern training programs, including the study (J.meddelli 1989), which is the conclusion of a group of studies from the year 1987 to 1989 AD,

where the latter agree on the importance of the individual physical preparation according to individual differences (and the measurement of VO2MAX and the transition range of aerobic to anaerobic metabolic processes is a precise reference in the comparison between the players for the track It is clear, and he also concluded that these data transform the quantitative evaluation For a training so that the players are as the coach wishes, and according to the French Association of sports medicine, the method of using the concentration of lactic acid in the blood and pulmonary ventilation is considered a reference method in determining the intensity zones used in physical training programming, and it is common to determine the two lactational thresholds or the first and second ventilation thresholds.

The researchers have found that the identification of these physiological indicators is of great importance for the football player in general and for the defender in particular, because it is one of the most important determinants that show the competence of the player: the effectiveness of the game and the position occupied, and aerobic capacities are considered as necessities to acquire a good physical form, and this is what most of the players of the Algerian football teams lack, this is evident from the various results of studies that focused on the determination of standard levels, as they reached the average and low level in different age groups.

Presentation and discussion of the research sample in the results of the NEVMIJANOV performance test (recovery speed)

Table 12: shows the number of defenders and the corresponding percentages according to each standard level and the percentages determined for them in the normal distribution curve in the NEVMIJANOV performance test (recovery speed)

Standard degrees	Standard levels	number and percentage		M ² Value		The prescribed percentage in the normal orientation		
				calculated	tabulated			
[68,01_80,00]	Excellent	number	12	66.55	09,49	4,86		
		%	13.33					
[56,01_68,00]	Good	number	10					
		%	11.11					
[44,01_56,00]	Middle	number	47					
		%	52.22					
[32,01_44,00]	Undermiddle	number	19					
		%	21.11					
[20,00_32,00]	Weak	number	02					
		%	02.22					
Total		number	90					99,72
		%	100					

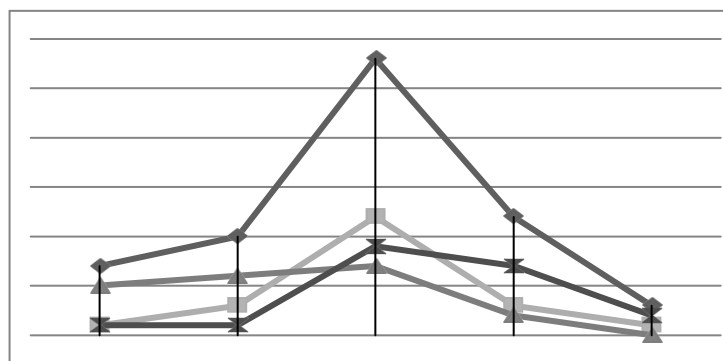


Figure 9: Displays the levels of the defending players according to their positions in the NEVMIJANOV performance test (recall speed)

It has been demonstrated through the results of the NEVMIJANOV recovery speed test that defensive players have a slow recovery speed after performing high intensity efforts and setting standard levels for this indicator is one of the most important points that the managers of these clubs must stand and try to work on improving them and developing and increasing the recovery speed by programming a group of programs studied to develop the effectiveness of the recovery speed, and this is confirmed by (Güllich, A, 2014) in "that regular training leads to functional changes in the body's systems, including the heart and blood circulation, well-trained individuals can adapt to the functional changes that occur in the organs The body as a result of muscular effort, and the continuation of this effort, and among these changes is the increased heart rate", as the heart becomes more efficient and able to pump blood and increase its flow to the muscles that work, thus confirming an increase in its energy and oxygen supply, and indicates (Johnston, K., Wattie, N., Schorer, J., and Baker, J., 2018) indicated that the adaptation of the heart is nothing but the positive in the functional efficiency of the heart due to the regular effort that occurs there, as the adaptation that occurs as a result of regular training programs causes functional changes in the heart, represented by the expansion of the chambers of the heart and the increase in the strength of the heart muscle, as well as the increase in the heart size. (David) confirmed that there are functional changes in the heart that occur after the execution of the sporting effort so that it can provide the working muscles with their increasing needs for oxygen necessary to perform the effort, and this is done by increasing both the heart's blood flow and the speed of the blood flow (David, 1987, p. 190). And Cazorla emphasizes "The practice of sports training leads to an increase in the thickness of the heart muscle, then an increase in its strength, and an increase in the volume of blood ejected from it in a single stroke" (CAZORLA.G, 2006, page 191), and (Al-Mawla) added: "Training works to adapt the heart and blood circulation And the player becomes able to increase the heart rate as his athletic level improves. Several studies agreed with this, including the study (Doust 2010) and the study (JOHN A 1999).

While other studies show the effectiveness of the refraction of the heart rate curve in estimating the anaerobic threshold, in particular (Jorge Villamil, and others. 2011) and (JAMES C, and others. 2005) and M Wonisch, and others. 2003)). The researcher points out that in recent years, the heart rate has been invoked as an indicator of the rate of energy expenditure and in a positive way during the match. And the data generally indicate that the results of the cardiac work graph have been close in most game times, with a relative increase in the second half for non-professional players. It turned out that the heart rate of the central and central defenders averaged 155 z/d, the heart rate of the midfielders was 170 z/d, and the heart rate of the attackers ranged from 168 to 171 z/d, which proves that there is a close connection between the heart rate and the distance traveled. Use the heart rate during the game as a guide to estimate the amount of metabolic processes during the game.

It also appeared that the intensity of the performance during the football match varied between 75 and 85% of the VO₂MAX.

In comparison with the data from specialized laboratories, the results indicated that the correlation was high between the data from field experiments and laboratory experiments, and that the error rate was low by estimating the intensity of the performance in the match, the blood lactate level and It turned out that the players who run the most on the field are the most producers of lactic acid, and the peak of lactic acid reaches 12 mmol / liter for the players of the higher levels, but this percentage changes with the change in the nature of the activity in the stadium and the rate of recourse to anaerobic metabolism in the match, but most studies indicate Its results indicated that the lactic acid concentration varied between 4 and 6 mmol /L, and these data were built on the basis of a blood test 5 minutes after the end of the effort. It was noted that the highest value of lactic acid concentration occurred at the end of the first half. (Bangsbo J., 1997).

Through what has been presented previously to numerous studies that dealt with the recovery process, the reasons for its delay, and its field interpretations on the functional state of the player, the researchers believe that achieving the highest form for defensive players is the fruit of serious work. studied according to scientific bases. This sensitive position depends on high-level standards, and therefore work must be done. With modern methods of assessing the player's condition, mainly the application of a group of field tests in the process of selecting players according to their requirements corresponding to the playing position.

CONCLUSIONS AND SUGGESTIONS

Most studies indicate that Algerian football lacks models for the selection process .We can affirm that most sports teams have not been subjected to the application of a battery of tests related to the selection process to different playing positions on different lines (defense, midfield, attack).) and that 90% of clubs These scientific foundations are not used in the various processes of evaluation and revelation of the level of the players, even at the level of the senior teams. The needs of this game are to follow and reveal the different physical aspects and skillful abilities that contribute to the selection of players according to their requirements to the appropriate position, as well as to reach the highest levels and achieve the best in the field of football .

The foot is not a coincidence, but the product of continuous and controlled work subject to scientific bases according to a solid methodology .Through this, the researchers aim to design a battery of tests to determine

certain morpho-functional criteria for defensive players in football and to identify the level of the players from the aforementioned aspects that are considered essential for the defender.

The researchers concluded some recommendations

The need to scientifically raise the cognitive abilities of coaches in the field of sports training and to restructure the level of coaches, in particular those who enjoy professional seniority and who rely solely on their personal experience, and to inform them of any new developments concerning the selection process of playing centers and how to evaluate the abilities of players through morphological measurements and physical and physiological tests in the different positions of their player.

Apply test batteries to detect the level of the players and select them correctly towards the different positions on the different lines of play.

The need to follow scientific methods and approaches during the selection process and to rely on field studies as a touchstone or reference during the selection.

Orientation towards playing positions depending on the requirements of the position and the level of the player. We also recommend approaching the selection process for the various other playing positions (goalkeeper, midfielder, attack).

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