



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 5.38
IJPESH 2018; 5(4): 19-24
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www.kheljournal.com
Received: 12-05-2018
Accepted: 15-06-2018

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International Journal of Physical Education, Sports and Health

A critical evaluation on Algerian footballers in developing a standard criterion in physical selection and their playing position in foot ball

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Abstract

The purpose of this study and the evaluation of the relative requirements of each player according to the position and the gaming compartment and the comparison of physical impacts between defenders, midfielders and attackers and the development of According to the position held in the field by young Algerian footballers. Data collection took place at the end of the competitive phase of the 2016/2017 sports season on a sample of 140 football players from professional teams (15 to 17 years old). Anthropometric measurements, Weight, body mass index "BMI") and physical tests (endurance, strength, speed, coordination and flexibility).According to the statistical results of test F (29,70-4,20-45,05- 14,57) at the significance level (0,01), there is a significant difference between Players for all the physical qualities studied: endurance, strength, speed and flexibility and those according to the playing position occupied in the field and according to the same playing compartment. We conclude that each gaming station must be based on a specific physical profile, in order to satisfy this, we have constructed a new selection model based on the specific physical qualities in relation to the profile and characteristics of each player, To the position he occupies in the field. This model will guide the selection of footballers in a finer way.

Keywords: Evaluation, football, physical qualities, sports performance

Introduction

The training of a football team is essentially to participate in the improvement of the qualities involved in the individual and collective motor performance of the players. The different physical qualities represent one of the elements of this performance, hence the importance of an evaluation, in function of the energy sectors, to release physical profiles allowing to propose adapted training protocols. The analysis of footballer activity allows studying all the physical parameters of the player in direct relation with technical-tactical data during a football game (Carling *et al*, 2010) [4]. However, a difficulty lies in the choice of relevant analysis parameters in order to deduce the various factors of the sports performance of this discipline. The process of physical preparation involves analyzing the activity (type of effort...) as well as a complete evaluation of the physical qualities of the athletes. For that, tests, allowing to evaluate the different physical qualities (strength, power, speed, endurance...), were elaborated in order to constitute a base of work and to make it possible to objectify the planning of the training. The objectives of the tests are multiple. For young athletes, the evaluation will detect an emerging physical potential and control the evolution of physical abilities in parallel with growth. For experienced athletes, the tests will define the axes of physical work to prepare them for the constraints of competition. The tests may also have a role of prevention and control following rehabilitation (effects of rehabilitation). It is important to note, however, that all of these tests are intended to help the coach in decision-making in order to offer an individualized, adapted and precise physical training. (Cometti 2005 [7], Van Gool 1988, Bangsbo 1994 [1], Reilly 1994 [15], Verheijen 1996 and Stolen *et al* 2005 [16] correlated all existing analyzes of activity to identify the different factors of football performance. At the level of the component of the physical condition, the physical qualities, the qualities noted are the endurance, the speed, the force, the coordination, the mobility. These data are all linked

and, have multiple interactions. Putting the importance of these factors of football performance in the foreground has made it possible to guide the footballer's training more neat. We know that the physical analysis of players can be done quantitatively or qualitatively. Quantitative values allow for an overall trend while qualitative data suggest a specific training according to the positions occupied. (Dellal 2008). The various specialists found that the defenders traveled the least total distance and the attackers would perform the most sprints. Specifically, center-backs, sterns, midfielders and forwards would perform 18.13-24 and 27 sprints per game (Rampinini *et al* 2007) [14]. This means that the number of sprints and recovery times would be totally different depending on the positions held. (Rampinini & Di salvo 2007) [14]. However, some studies revealed very interesting trends in training and evaluation, in addition also found significant differences between the defenders, the midfielders and the attackers from the point of view of total distance, at the different pace, intensity of the race, number of sprints, depending on the position held (Di salvo *et al* 2007) [10] (Mohr *et al* 2003) [13]. According to the different data and statistics in the various studies, it is obligatory to review the evaluation methods used in the selection of young footballers who must take into consideration the physical profile of each player according to the position held in the team. Due to the professionalization of Algerian football, there is a specific need to review and rebuild a very solid foundation by ensuring high level of training. The reality of Algerian football, especially at the youth level, indicates a regression of the physical, technical and tactical level. This decrease is due to several causes among which the traditional conception used in the selection of the young Algerian players which is based

essentially on one of the subjective tendencies by neglecting the objective criteria. These must be built on physical bases taking into account the characteristics specific to each player according to the position occupied in the field. Thus, the imbalanced participation of the U-17 national team in international competitions can be linked to the absence of evaluation protocols, notably to selection standards and particularly physical ones in the junior category, based on the requirements of the position occupied by the player on the field. The observation carried out at the level of the footballers of our championship makes us note that the players do not have the same physical means and thus do not behave in the same way because they neglect the use of the skills acquired eventually. In light of the review of the writings mentioned above, we are trying to develop a battery of physical tests and to determine physical selection standards among young footballers according to the position occupied in the field.

Materials and Methods

Participants: This study involved a sample of 140 football players in the junior category of professional teams, aged 15 to 17, which represents 66% of the population. The clubs that were targeted and with whom we worked were 10 professional teams (division 1). In each team we chose 14 players (02 goalkeepers, 04 defenders, 04 midfielders and 04 attackers). For make it easy of our study, the players were divided into 07 categories: goalkeepers (GK), side defenders (DL) and central defenders (CD)), defensive midfielders (MD) offensive midfielders (AM), forwards "sides" (AA), front centers (AC).

Table 1: Presentation of morphological homogeneity of the sample (size, weight, BMI)

Mesure	Mesure Unit	Average	Standard Deviation	Coefficient of variation
Age	Année	16.2	0.20	0.03
Weight	Kg	62	0.06	0.10
Size	Cm	172	16.36	0.06
BMI	Kg /m	22.10	2.16	0.09

Experimental approach to the problem

Our choice included as study instruments, field tests related to endurance, strength, speed, coordination and flexibility. The tests will be done at the club level.

The subjects realized:

- Endurance test (evaluation of VMA “velocity at maximal oxygen uptake”) VAM-EVAL
- Speed tests (10m and 30m)
- Tests on strength (explosive force of the lower limbs (Sargeant test, 5 jumps).
- Coordination Test (Illinois Agility Test)

• Flexibility test

Statistical analysis

The means and standard deviations are calculated for all the variables measured. A variance analysis (ANOVA), the Student's T-test and the Correlation Coefficient (R) are used to determine statistically significant changes in the values of the variables during the tests performed. The significance level is set at 0.01 for all treatments.

Results

Table 2: The values of (F) in the test the VMA according to the play stations

Variable		Sum of squares	DF	Average of squares	F C	F T	Significance
VMA velocity at maximal oxygen uptake	Inter group	37.265	06	6.211	29.70	2.95	Yes
	Intra group	27.808	133				
	Total	65.074	139	0.20			

From the results in Table (02), we found that the average of intergroup squares was (6.21) while that of intragroup was (0.20) with a calculated (F) (29.70) which is greater than (F) tabulated (2.95) at the level of significance (0.01) and the

degree of freedom (133), which shows that there is a significant difference between the players according to the posts play in the velocity at maximal oxygen uptake.

Table 3: Values of (F) in the Coordination Test (Illinois)

Variable		Sum of squares	DF	Average of squares	F C	F T	Significance
Illinois (coordination)	Inter group	4.54	06	0.75	1.37	2.95	No
	Intra group	73.37	133	0.55			
	Total	77.91	139				

From the results in Table (03), we found that the average of the intergroup squares was (0.75) and intra-group was (0.55) with a calculated (F) (14.57) which is lower (F) tabulated (2.95) at the level of significance (0.01) and the degree of

freedom (133), which shows that there is not a significant difference between the players according to the positions of game in coordination.

Table 4: The values of (F) in the test of the "speed 10m" according to the posts of play

Variable		Sum of squares	DF	Average of squares	F C	F T	Significance
Speed	Inter group	10.14	06	1.69	5.51	2.95	Yes
	Intra group	274.44	133	2.06			
	Total	284.59	139				

From the results in Table (04), we have found that the average of the inter-group squares was (1.69) and the intra-group was (2.08) with a (F) calculated (0.81) which is lower (F) tabulated (2.95) at significance level (0.01) and degree of

freedom (133), which shows that there is a significant difference between the players according to the game posts in the speed on 10 m.

Table 5: The values of (F) in the Sergeant test according to the play stations.

Variable		Sum of squares	DF	Average of squares	F C	F T	Significance
Sergent Test	Inter group	2658.64	06	443.10	45.05	2.95	Yes
	Intra group	1307.90	133	9.83			
	Total	3966.54	139				

From the results of the table (05), we found that the average of the intergroup squares was (443.10) and that of the intragroups was (9.83) with a calculated (F) (45.05) which is greater than (F) tabulated (2.95) at the level of significance

(0.01) and the degree of freedom (133), which shows that there is a significant difference between the players according to the game posts in Sergeant test.

Table 6: The values of (F) in the test of the flexibility according to the posts of game

Variable		Sum of squares	DF	Average of squares	F C	F T	Signification
Flexibility	Inter group	395.44	6	65.90	14.57	2.95	Yes
	Intra group	601.55	133	4.52			
	Total	996.99	139				

From the results in Table (06), we found that the average of the inter-group squares was (65.90) and that of the intra-groups was (4.52) with a calculated (F) (14.57) which is greater than (F) tabulated (2.95) at the level of significance (0.01) and the degree of freedom (133), which shows that

there is a significant difference between the players according to the game posts in flexibility.

Presentation and analysis of the results of the physical tests according to the compartment of play:

Table 7: The values of (T) for the game stations according to the play compartments in the VMA test

Variable	Groupes	Number	Average	Ecart -type	Degree of freedom	T Tabulé	T Calculé
Defense	Lateral	20	14.85	0.51	38	2.02	2.31
	central	20	14.53	0.33			
Midfielder	Offensive	20	15.44	0.49	38	2.02	0.24
	Defensive	20	15.4	0.54			
Attack	Sides	20	14.56	0.45	38	2.02	0.10
	A. Centers	20	14.54	0.42			

From the results of table (07), we found:

- a) For defense (lateral-central): the value of (T) calculated is 2.31 is greater than (T) tabulated (2.02) at the degree of freedom 38 and at the level of significance 0.05 which shows a significant difference between lateral defenders and central defenders in the VMA test.
- b) For midfielders (defensive-offensive): The value of (T) calculated is 0.24 is less than (T) tabulated (2.02) at degree of freedom 38 and at level of significance 0.05 which shows that

there is not a significant difference between the defensive and offensive environments the VMA test.

- c) For attackers (forward-center forward): The value of (T) calculated is 0.10 less than (T) tabulated (2.02) at the degree of freedom 38 and at the 0.05 level of significance. shows that there is not a significant difference between attackers (wingers) and forwards centers in the VMA test.

Table 8: The Values of (T) for the game stations according to the play compartments in the Coordination Test (Illinois)

Variable	Groups	Number	Average	Difference -type	Degree of freedom	T Tabulate	T Calculated
Defense	Lateral	20	14.73	0.86	38	2.02	0.80
	Central	20	14.93	0.71			
Midfielder	Offensive	20	14.99	0.59	38	2.02	0.63
	Defensive	20	14.85	0.77			
Attack	Sides	20	14.53	0.64	38	2.02	0.77
	A.Centers	20	14.72	0.85			

From the results of table (08), we found:

a) For defense (lateral-central): The value of (T) calculated is 0.80 is less than (T) tabulated (2.02) at the degree of freedom 38 and at the level of significance 0.05 which shows that there is no significant difference between central defenders and lateral defenders in the coordination test (Illinois).

b) For the midfielder (Offensive-Defensive): The value of (T) calculated is 0.63 is less than (T) tabulated (2.02) at the degree of freedom 38 and at the level of significance 0.05 which shows that there is no significant difference between

offensive and defensive circles in the coordination test (Illinois).

c) For attackers (forward-center forward): The value of (T) calculated is 0.70 is less than (T) tabulated (2.02) at the degree of freedom 38 and at the level of significance 0.05 ce which shows that there is no significant difference between the attackers (wingers) and the front centers in the coordination test.

Table 9: The values of (T) for the play stations according to the play compartments in the test of the speed 10m

Variable	Groups	Number	Average	Difference -type	Degree of freedom	T Tabulate	T Calculated
Defense	Lateral	20	2.18	0.17	38	2.02	2.30
	central	20	2.35	0.26			
Midfielder	Offensive	20	2.36	0.21	38	2.02	2.26
	Defensive	20	2.21	0.19			
Attack	Sides	20	2.05	0.32	38	2.02	0.40
	A.Centers	20	2.09	0.21			

From the results of table (09), we found:

a-For defense (lateral-central): The value of (T) calculated is 2.30 is greater than (T) tabulated (2.02) at the degree of freedom 38 and at the level of significance 0.05 which shows that there is a significant difference between the central defenders and the side defenders in the 10m speed test.

b) For the midfielder (Offensive-Defensive): The value of (T) calculated is 2.26 is lower than (T) tabulated (2.02) at the degree of freedom 38 and at the level of significance 0.05

which shows that there is a significant difference between offensive and defensive midfield in the 10m speed test.

c) For attackers (forward-center forward): The value of (T) calculated is 0.40 less than (T) tabulated (2.02) at the degree of freedom 38 and at the level of significance 0.05 ce which shows that there is not a significant difference between the attackers (wingers) and the front centers in the test speed 10m.

Table 10: The values of (T) for the game stations according to the play compartments in the "Sargent test" test.

Variable	Groups	Number	Average	Difference -type	Degree of freedom	T Tabulate	T Calculated
Defense	Lateral	20	39	2.33	38	2.02	6.87
	Central	20	46.65	4.39			
Midfielder	Offensive	20	38.65	2.68	38	2.02	0.05
	Defensive	20	38.6	2.98			
Attack	Sides	20	40.25	2.33	38	2.02	2.81
	A.Centers	20	43.05	3.79			

From the table results (10), we found:

a) For defense (lateral-central): The value of (T) calculated is 6.87 is greater than (T) tabulated (2.02) at degree of freedom 38 and at the level of significance 0.05 which shows the existence of a significant difference between the central defenders and the lateral defenders in the "Sargent test" test.

b) For the midfielder (Offensive-Defensive): The value of (T) calculated is 0.05 is less than (T) tabulated (2.02) at the degree of freedom 38 and at the level of significance 0.05

which shows that there is not a significant difference between offensive and defensive midfielders in the "Sargent test" test.

c) For attackers (forward-center forward): The value of (T) calculated is 2.81 is greater than (T) tabulated (2.02) at the degree of freedom 38 and at the level of significance 0.05 c which shows that there is a significant difference between attackers (wingers) and forwards centers in the test Sergeant test.

Table 11: The Values (T) for the game item according to the set of compartments in the flexibility test

Variable	Groups	Number	Average	Difference -type	Degree of freedom	T Tabulate	T Calculated
Defense	Lateral	20	5.65	1.46	38	2.02	0.33
	central	20	5.45	2.21			
Midfielder	Offensive	20	6.4	2.64	38	2.02	0.06
	Defensive	20	6.45	2.08			
Attack	Sides	20	7	2.05	38	2.02	0.36
	A.Centers	20	7.25	2.26			

From the table results (11), we found:

- a) For defense (lateral-central): The value of (T) calculated is 0.33 is greater than (T) tabulated (2.02) at degree of freedom 38 and at the level of significance 0.05 which shows that there is no significant difference between central defenders and lateral defenders in the "flexibility" test.
- b) For the midfielder (Offensive-Defensive): The value of (T) calculated is 0.06 is less than (T) tabulated (2.02) at the degree of freedom 38 and at the level of significance 0.05 which shows that there is not a significant difference between offensive and defensive circles in the test of flexibility.
- c) For attackers (forward-center): The value of (T) calculated is 0.36 is less than (T) tabulated (2.02) at the degree of freedom 38 and at the level of significance 0.05 ce which shows that there is not a significant difference between the attackers (wingmen) and the front centers in the test of flexibility.

Discussion

From the analysis and interpretation of the results obtained after the realization of all the biometric measurements and physical tests proposed, we found that there is a difference in the set of physical qualities studied as a function of a game station occupied in the field and in addition to the same game compartment. Based on these test results, we realize that each game station must be based on a specific physical profile. These results confirm the results achieved in the same field. Indeed, some authors show that there is a significant difference in the factors studied (Nacer 2005, Bloomfield 2007, chelif *et al* 2010, Veale & Pearce 2009, Vigne 2001)^[2, 6, 17] and find that the different positions of players; therefore the position occupied by the player has a significant influence on the movements made during the match as well as the type of effort provided is varied depending on the compartment occupied. From the statistical analysis, we tried to find that: There is a significant difference in the biometric measurements (height and weight) in each position, with a dominance in goalkeepers and central defenders compared to other positions and which are more specifically related to the characteristics of the "position". These posts require a large size, in the outings for the goalkeepers and for the air duels with the attackers for the defenders. The midfielders, the attackers and the side defenders have an identical average. These results confirm previous studies where it was found that these players have roughly the same size. (Le Gall 2007). After using the test (F) to compare the physical test results of each gaming station, we noticed that there is a significant difference in most physical qualities; for the VMA, which shows us that it is specifically related to the game compartment, with a higher value in the midfield and a little higher for the lateral defenders compared to other positions which is explained by the nature of the technical and tactical tasks in these positions. Regarding coordination, the results show us a convergence in this quality among all players, which indicates the usefulness this quality among young players, in addition (Cazorla 2008) concluded after analyzing the physical requirements according to Playstations that (dexterity = coordination) is one of the physical abilities retained as indispensable or inseparable for the various game posts (central defenders, midfielders and forwards). For the speed, the results show us that there is a significant difference in this quality with a higher value among the attackers, which is considered an indispensable quality for this position and with a higher value among the side defenders and which is correlated with the defensive and offensive characteristics of this post, the other posts have an almost identical value. For

the explosive strength of the lower extremities, we found that goalkeepers, central defenders and attackers have a higher value in this quality which means the importance of muscular power in each of these positions in the different game actions (relaxation, strikes...) Regarding the flexibility, the results indicate that there is a significant difference for this aspect with a higher value in goalkeepers and almost identical value at other gaming posts. After using the (T) test to compare the results of physical tests in each gaming compartment, we found that there is a significant difference in most physical tests in players in the three compartments (defense, midfield, attack) which shows that players who play in the same game compartment differ in the various physical qualities.

After developing the physical selection standards, we found that each gaming post has eigenvalues in the various tests offered.

Conclusion

The purpose of this work is to provide the coach, the physical trainer with field assessment tools accompanied by the results he can use for the selection of young players. The experiences we have put in place allow us to conclude whether our elite clubs integrate evaluation into their program in the annual training selection. These results allowed us to present the physical characteristics of each player according to the position occupied and which can guide the training process on the individualization of the physical work. The ambition of our research has been to prove the importance of the concept of "post" as a determining factor in the evaluation and selection of young footballers on a physical level, but this does not say that the process of The evaluation must be focused solely on the physical aspect, but the vision must be more global by integrating other basic elements in the practice of football such as technique, tactics and psychological abilities. Finally, the modern trend of development among young footballers is manifested around the world through the design and preparation of the scientifically based study and training process, which is closely correlated with the high-level prospects of high-level football, while setting as main objective the implementation of a quality pedagogical staff intended for the benefit of the formation of the young people. It is in this absence of a structured scientific policy regarding the training in our football, that the content and the quality of the sports training as well as its methodological principles intended for the benefit of our young footballer have not still achieved their deserved valorization level. It is imperative to point out that raising the level of readiness of young footballers depends on an objective and structured assessment and training work that meets the requirements of specialization, and on the fundamental principles of the process of study. Training to help raise the level of preparation of young footballers.

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