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The effects of sports detraining during the transition period on the physical variables the speed transition and the explosive force for the lower limbs of football player's seniors
- a field study conducted on the youth team Ahli Bordj Bou Arreridj-

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Abstract

The object of this study is to identify the effect of detraining during the transitional phase on the Transition speed and the Explosive force at football players, for this purpose, we used the experimental method, On a sample composed of 20 players of the youth team of CABBA team Chosen as Intentionality way and for data collection, we used a physicals tests tool After collecting the results and having treated them statistically, we conclude there are statistically significant differences between the pre-test and the post-test in the Transition speed in the seniors football players in favor of the post-measurement. And there are statistically significant differences between the pre-test and the post-test in Explosive force in the senior's football players in favor of the pre-measurement. On this basis, the study recommended It is best to do moderate physical exercises during the transition period to help maintain an adequate level of physical adaptation.

I. Introduction

Football is a sport practiced enthusastically arround the world. It combines between fun, fighting, strength, speed and endurance (Noui Larbi & Neghal Mohamed, 2020). In recent years, there has been a remarkable development and scientific explosion in the field of physical preparation, taking advantage of this technological development in the development of training programs to raise the efficiency of physical, technical, tactical, psychological and mental players in line with the performance attitudes in football activity and access to the state of optimal training by developing the physical abilities necessary for competitive performance And to work on its development to the maximum extent possible (Ghidi Abdelkader & Sedira Saad, 2019).

The high physical achievement in the performance of various events and sports is sought by both the coach and the player, and to achieve this, daily training must be conducted for several weeks or months and perhaps years to achieve this. It is believed that the physiological adaptations that affect the physical and athletic side that may need a long time to acquire them may be lost. As a result of stopping training or as a result of significantly reducing training, which leads to a partial or complete loss of many of these adaptations affecting achievement. Haweley and Burke (1998) refer to this and call it the Reversibility Principale or the Principale of Detraining. Usually many athletes face periods of hiatus or interruption of training for their training programs due to illness, injury, or the end of the sports season, etc., and this may lead to disruption or interruption in the level of physical and training activity, which leads to a loss of physiological adaptations and thus a decrease in physical performance. And athletic. Hence, it was necessary for the coach and player to know the effect of discontinuation from training on physiological, physical and physical variables to maintain athletic achievement (Tariq Mustafa Al-Momani, 2003, p. 01). Where training interruption is defined as the partial or total loss of adaptation resulting from training as a result of cessation and cessation of training or a significant decrease in the training load (W. Larry Kenney et al, 2011, P351). The interruption of training is not only necessary for all the characteristics and adaptation sought from training, but also achieves a rapid decline in body ability, technical skills, plans and psychological qualities, and the process of regression occurs very quickly, especially on the characteristics that are not consistently adapted (Derradji Abbes & Aitlounis Morad, 2020).

From here it is necessary to know what the interruption from training can cause in the physical variables of the player, and what is intended to search for in the physical variables in our research this is the transitional velocity and the explosive force of the lower limbs where some believe that the term speed in the sports field is used to denote those muscle responses Resulting from the rapid exchange between muscle contraction and muscle relaxation, Speed is speed is a fundamental element in today's football. It is a characteristic that consists of the interconnection of several different physical characteristics and compounds, and thus it is a multi-component characteristic as it consists of the interconnectedness of various performance factors and requires high efficiency of flexibility, mobility flexibility, compatibility and strength, (Alexander DELLAL, 2008, P62). Boker defines it as "the ability of an individual to perform sequential movements of one type in the shortest time." (Muhammad Hassan Allawi, 1994, p. 151). And the speed of transition means moving from one place to another at the fastest possible speed and in the shortest period of time (Qasim Hassan Hussein, Qais Naji Abdul-Jabbar, 1984, p. 48). As for explosive force, and as one of the most important physical abilities of football effectiveness, it is a composite characteristic between strength and speed, and it is known as the ability of muscles to overcome resistance at high speed and output force at the maximum possible speed (Bouschama Farid and Kamal Mallouk, 2020).

And there are many studies that have focused on the issue of interruption from training and its effect on physiological and physical variables, such as the study of Hassan Al-Saud 2011 entitled "Study of the effect of the decrease in the state of training on some physiological and physical variables of football players." Which aimed to know the effect of the decline in the state of training on some physiological variables (oxygen capacity and body composition indicators) and physical (speed, speed endurance, explosive strength, endurance) of football players. This study was conducted on a sample of 20 players from the Football team of the Faculty of Physical Education at the University of Jordan. Fifty of the players were excluded after it was proven that they had registered for practical courses during the summer semester, and accordingly, the final number of the study sample reached 15 players, which continued to stop training about 10 Weeks and they were chosen by intention, As for the study method, the researcher relied on the experimental one-group approach using pre and post testing. The results of the study revealed that there are

statistically significant differences between the results of the pretests results and post tests results, in favor of pretests results and on all the physiological indicators (oxygen capacity, body composition indicators) and physical (speed, speed endurance, explosive strength, endurance). The researcher recommends the necessity of practicing moderate-intensity physical exercises during the break from training to maintain an adequate level of physical fitness through playing games and activities that are performed individually, such as swimming and jogging.

We also find a study by Muhammad Abdel Halim, Fouad Tarish and Abbas Sarhan in 2014, which was entitled "The effect of stopping training on some physical and physiological variables on Yemeni footballers." The study aimed to know the effect of stopping training on some physical variables (50 meters' sprint, vertical jump, respiratory periodic endurance, flexibility and agility) and physiological (body weight, body mass index, fat percentage, maximum oxygen consumption and vital capacity) on soccer players Yemenis. It was on a sample of 15 players from Al-Shorouk Sports Club in Taiz Governorate. They were chosen by the intentional method. The researchers used the experimental approach with one group by the method of pre and post measurement to achieve the objectives of the study. The results showed statistically significant differences between the results of the pre and post study and in favor of pretests in all the study variables, and the results showed an increase in body mass, body mass index and body fat percentage, while the indicators of endurance, speed, agility, flexibility, explosive strength, vital capacity and maximum oxygen consumption were recommended. Researchers reduced training pauses at the end of the sports season and practiced moderate-intensity exercise during the off-training period.

And we find Steven J Fleck 1994 study which was entitled "Detraining: Its Effect on Endurance and Strength". The study aimed to know the effect of discontinuation from training on the physical parameters of endurance and muscular strength, and the physiological parameters of maximum oxygen consumption, cardiac impulse, and cardiac and plasma measurements. The researcher conducted his study by relying on an experimental method on a sample of runners and cyclists. At the end of his study, the researcher concluded that interruption of training leads to a decrease in the efficiency of the respiratory circulatory system and that physical capabilities, endurance and muscle strength are lost very quickly after the end of training.

Through all of the above, a general question must be posed for the study to be in the following wording:

- Does stopping training during the transitional period have an effect on the physical variables of senior footballers?

Through the previous general question, the following sub-questions can be included:

- Does stopping training during the transition period have an effect on the transition speed of senoir footballers?
- Does stopping training in the transition period have an effect on the explosive force of the lower extremities of senior footballers?

II. Method and Materials

1. Participants

II.1.1. The sample and methods of selection:

The sample is considered one of the most important foundations in empirical and descriptive research, as it is necessary when it is not possible to enumerate the entire population of research (Meem Mukhtar et al., 2016). The research community is represented by the senior Algerian professional soccer players. As for the research sample, we have chosen it intentionally (the intentional non-random sample). The research sample consisted of 20 players from the senior club Ahly Bordj Bou Arreridj football club, who are active in the Algerian Professional League Championship.

Table No. (01): sample characteristics:

Sample volume	Sex	the team	Average age	Average length	Average weight	Experimental design
20	Male	Ahli Bordj Bou Arreridj	27 years old	178 cm	79 kg	One groupe

II.1.2. Method:

Method it is the road leading to the desired goal, or the invisible thread that pulls the research from its beginning to the end in order to reach certain results (Zerouga L & Nedjaimi A N, 2020, P296). In our study, we used the experimental method in the one-group experimental design**.**

II.1.3. Define variables and how to measure them:

II.1.3.1. Independent variable:

It is the factor that the researcher presumes to affect the dependent variable, and it is also known as the experimental variable (Al-Antari Muhammad Ali et al., 2020). In our study, this independent variable is: discontinuation from sports training (Derraining).

II.1.3.2. Dependent variable:

It is the result obtained from the existence of the independent variable (Al-Antari Muhammad Ali et al., 2020). In our study, this dependent variable is: The set of physical variables represented by the explosive force of the lower limbs and the speed of transition.

2. Materials

2.2.1. Physicals tests:

The aim is to measure the physical aspects such as the force characterized by velocity and explosive force as well as the maximum air velocity ... etc. (Daraji Abbas, Mazari Fatih, 2020). In our research, the physical tests that we have relied on are as follows:

2.2.1.1. Transition speed tests:

They consisted of the 10-meter speed test, the 20-meter speed test and the 50-meter speed test.

All tests were carried out with the help of a cellule photo éléctique (Microgate WITTY). In the speed tests, the timer, the controller and the timing recorder are dispensed with, and they are replaced by installing the device on the start and end line in each of the 10, 20 and 50 meters test.

2.2.1.2. Levitation tests to assess the explosive force:

The researcher relied in his study here in order to evaluate the explosive strength of the players in question on two tests, namely CMJ and CMJML. To understand these two tests, the following must be addressed:

Bosco (1982) introduced additions to the basic tests of scaling by taking and including all data and criteria governing scaling.

Squat Jump: It measures the explosive force of the laboratory, through a "concentrique" muscle contraction, where the muscle contracts in length toward its center. (Gilles Cometti, P03).

The SJ test measures dry rise without the pallometric, without stretching, preparing to develop greater force in a short time (burst). The tester starts the test from a 90 ° bending position at the knee joint in order to push the maximum upward, and the hands are fixed on a pelvis to ensure no work is involved. The hands in the push (Bakly Aissa, 2015, p. 173).

Contremovement jump test (CMJ): The vertical jump from the opposite movement measures the explosive force through the central and eccentric contraction of the pleometric (N. Dyon, Y. Gaden, 2005, P18).

Contremovement jump is a jump that is a countermove, also known as CMJ, is a jump that involves a countermove. That is why the name of a

jump is a "countermove." It is the jump that you usually think of when thinking about evaluating a vertical jump.

Contremovement jump main libre (CMJML) test: It is the same jump compared to CMJ with engaging the hands here, this involvement increases momentum **(Bakly Aissa, 2015, p. 173).**

Note: All tests were performed with the use of the Optojumpnext 1m explosive force meter.

3. Design and Procedure

2.3.1. Study progress:

The exploratory study was conducted on a pilot sample consisting of "05" players from the Al-Ahly Bordj Bou Arreridj football team who were excluded from the main research sample. They were subjected to physical tests with a test-and-retest method to measure the validity and reliability of the test. After obtaining the results of the used tests, the SPSS program was used to ensure the stability of the tests by means of the Spearman correlation coefficient, because the nonparametric correlation and the spss program output does not give an indication of the Pearson correlation coefficient with respect to the results obtained, and then to verify the validity of the tests by concluding it from the reliability factor, and an acceptable validity and reliability of the study tool was obtained.

Likewise, the main study was conducted on a sample of "20" players by the method of testing and re-testing before and after interruption from training during the transition period (pre-test at the end of the season and post-test at the beginning of the next season) and after obtaining the results of the used tests, the SPSS program was used Order to test the differences.

2.3.2. Fields of study:

Spatial domain: Stadium August 20, 1955 Bordj Bou Arreridj**.**

Temporal domain:

- The exploratory study took place from 28/03/2018 to 04/09/2018.
- Field study:

pre-tests on 05/17/2018. And the post tests on 07/11/2018.

4. Statistical Analysis

2.4.1. Factors of validity and reliability (test validity):

The researcher found the coefficient of stability for physical tests by means of coefficients of stability. Also called the test-retest method. As for the validity coefficient, Tyler indicates that honesty is the most important consideration that must be met in the test, and Curtin defines validity as an

assessment of the correlations between the test's raw scores and the fully established truth (Marwan Ibrahim, 2001, p. 13).

The researcher accessed the validity of the test starting from the reliability coefficient, as to obtain the validity of the test, we calculated the validity factor from the following equation:

Test validity = $\sqrt{\text{test reliability factor}}$

In our study, the researcher performed the test application, and after 12 days, the test was re-applied with the same conditions as the first procedure, on 05 individuals from the total research sample who were considered as a prospective sample that was isolated from the application of the research procedures.

And when we obtained the results obtained, they were shown in the following table:

Table No. (02): The calculation of reliability and validity coefficients for physical tests:

No.	Tests	Stability coefficient	Factor of honesty
01	Speed test 10 meters	0.90	0.94
02	Speed test 20 meters	0.97	0.98
03	Speed test 50 meters	0.90	0.94
04	CMJ test	0.90	0.94
05	CMJML test	0.90	0.94

It is evident from Table No. (02) above that all the values of the calculated coefficients for the variables under study are close to the 01 and therefore the reliability coefficient is strong and the validity coefficient has a high degree, all this indicates the validity and reliability of the tests as a whole.

2.4.1. Statistical tools:

The appropriate statistical treatment was used after entering the data into the computer to analyze it using the spss program in its twenty-second version and treat it statistically by calculating the arithmetic mean, standard deviation and (T) test of the two correlated samples.

III. Results

III.1. Results of the transitional speed tests:

Table No. (03) shows the significance test (T) between the study sample members in the pre and post measurements in the speed test:

Speed test		Sample volume	Arithmetic average	standard deviation	Degree of freedom	T value	The level of significance	the decision
part One	Pre-test	20	1.8285	0.10869	19	-8.056	0000.	Significant at 0.01
	Pro-test		1.9170	0.10378				
part two	Pre-test	20	3.0835	0.16096	19	-10.272	0000.	Significant at 0.01
	Pro-test		3.3200	0.14611				
part Three	Pre-test	20	6.7035	0.37920	19	-7.854	0000.	Significant at 0.01
	Pro-test		7.2775	0.40677				

We note from the above table that the arithmetic averages of the study sample in the sections of the speed test in the pre-measurement for the first part (10 meters) were estimated at 1.82" and in the second part (20 meters) it was estimated at 3.08" and for the third part (50 meters) it was estimated at 6.70" seconds. It is less than the arithmetic averages in the post measurement as it reached 1.91" in the first part (10 meters), in the second part (20 meters) it reached 3.32" and in the third part (50 meters) it reached 7.27" seconds, which leads us to say that there is a difference between the two measurements, and this is confirmed by The values of (T test), which amounted to (-8.056) for the first part, (-10.27) for the second part, and (-7.584) for the third part, which are negative values, meaning that the difference here is in favor of the dimensional measurement as They are statistically significant values at the degree of freedom (19) and the level of significance ($\alpha = 0.01$).

III.2. Results of the explosive force tests:

Table No. (04) shows the difference between the study sample members in the pre and post measurements in the explosive force test:

Explosive force test		Sample volume	Arithmetic average	standard deviation	Degree of freedom	T value	The level of significance	the decision
part One	Pre-test	20	35.5900	4.34595	19	9.861	0000.	Significant at 0.01
	Pro-test		32.1850	3.85627				
part two	Pre-test	20	44.1650	4.81022	19	10.533	0000.	Significant at 0.01
	Pro-test		39.7850	4.85920				

We note from Table No. (04) that the arithmetic averages of the study sample in the parts of the explosive force test in the pre-measurement for the first part (CMJ) were estimated at 35.59 cm and in the second part (CMJML), it was estimated at 44.16 cm came greater than the arithmetic averages in the post-measurement, reaching In the first part (CMJ) 32.18 cm and in the second part (CMJML) it reached 39.78cm, which leads us to say that there is a difference between the two measurements, and this is confirmed by the (T test) values that, as shown in the table, amounted to

(9,86) for the first part And (10.53) for the second part, which are positive values, meaning that the difference here is in favor of the pre-measurement. They are also statistically significant values at the degree of freedom (19) and the level of significance (α = 0.01).

IV. Discussion

Which states that: "There are statistically significant differences between the pre-test and the post-test for the variable transition speed in senior soccer players in favor of the post-measurement."

We note that the arithmetic averages of the study sample members in the speed test parts of the pre-measurement for the first part (10 meters) were estimated at 1.82 seconds and in the second part (20 meters) it was estimated at 3.08 seconds and for the third part (50 meters) it was estimated at 6.70 seconds, it was less than the averages The arithmetic in the post-test measurement as it reached 1.91 seconds in the first part (10 meters), in the second part (20 meters) it reached 3.32 seconds, and in the third part (50 meters) it reached 7.27 seconds, which leads us to say that there is a difference between the two measurements, and this is confirmed by the values of (T test) which amounted, as shown in the table, to (-8.05) for the first part, (-10.27) for the second part, and (-7.85) for the third part, which are negative values, meaning that the difference here is in favor of the post measurement as they are values Statistical function at the degree of freedom (19) and the level of significance (0.01 = α). This means that the null hypothesis that there is no difference between the two measurements has been rejected, and therefore we can judge that this finding came in support of the hypothesis of the first study, which says, “There are statistically significant differences between the pre-test and the post-test of the transition speed variable of the senior soccer players in favor of the post-test measurement, and the percentage of certainty of this result is 99% & probability of error 1%.

Through all of the above and the results obtained, we conclude that interruption from training has a negative impact on the physical variable represented in the transition speed, as we recorded a decrease expressed in this physical characteristic through the results of the post-measurement whose results were greater than the pre-measurement and this is consistent with a group From previous studies that dealt with the issue of interruption from training and its impact on some physical variables, as we find the

study of Hassan Al-Saud 2011, where the results of the study came in the speed index indicating a significant decrease by increasing the running time of 50 meters from 6.32 seconds to 6.57, as well as the decrease in the speed endurance index from Sprint time increased by 30 meters x 5 from 2.25 seconds to 33.13 seconds. The same researcher attributes this decrease in the indicators of speed and endurance of speed to the inability of the athlete to quickly organize and prepare his functional body parts in the case of non-training compared to the case of training in which the athlete's functional body organs and organs are more effective and effective at work by taking them out to the maximum possible speed and thus achieving the two elements. Speed and endurance of speed in the lowest possible time (Hassan Al-Saud, 2013, p. 1659). As well as the study of Fouad Tarish and Abbas Sarhan 2014, where the results of the study concluded that the running time increased by 50 meters from 6.79 seconds to 7.86 seconds (decrease in achievement time). The researchers attribute this decrease in the speed index to the athlete's inability to quickly prepare his body parts in the event of stopping training compared to the state of training, in addition to the increase in mass and fat percentage increasing the running time of 50 meters (Fouad Tarish and Abbas Sarhan 2014, p. 39). Also The results of the current study came in full agreement with the Sergei Ostojic 2003 study, where the results of the study came in the variable maximum speed at a distance of 50 meters, recording a significant decrease, expressed by the following results, as an arithmetic mean of the study sample estimated at 7.1 ± 0.5 seconds at the end of the training season and after interruption of training That is, at the start of the next season, 7.6 ± 0.5 seconds was recorded (Sergei Ostojic, 2003, P26).

Which states that: "There are statistically significant differences between the pretest and the post test of the explosive force variable for senior footballers in favor of the pre-test."

We note that the arithmetic averages of the study sample members in the parts of the explosive force test in the pre-measurement for the first part (SJ) were estimated at 35.59 cm and in the second part (SJML), it was estimated at 44.16 cm came greater than the arithmetic averages in the post measurement, as it reached in the first part (SJ) 32.18 cm In the second part (SJML) it reached 39.78 cm, which leads us to say that there is a difference between the two measurements, and this is confirmed by the (T test) values, which, as shown in the table, amounted to (9,86) for the first part and (10.53) for the second part.

They are positive values, meaning that the difference here is in favor of the pre-measurement. They are also statistically significant values at the degree of freedom (19) and the level of significance (0.01 = α). This means that the null hypothesis that there is no difference between the two measurements has been rejected, and therefore we can judge that this finding came in support of the hypothesis of the second study that there are statistically significant differences between the pre-test and the post-test of the explosive force variable in senior football players in favor of the pre-measurement The percentage of sure of this result is 99% with a probability of error of 1%.

Through all of the above and the results obtained, we conclude that the absence from training negatively affects the physical variable represented by the explosive force, as we recorded a decrease expressed in this physical characteristic through the results of the post-measurement, and this is in line with a group of previous studies that dealt with the subject of interruption. On training and its impact on some physical variables, where we find the study of Hassan Al-Saud 2011, where the results of the study came in the explosive force index, indicating a significant decrease, as the players' ability to jump vertically decreased from 84.20 cm to 64.12 cm. The same researcher attributes this decrease in the explosive force index to a decrease in mechanical efficiency, as well as a decrease in the rubber energy stored in the muscles of the lower limb, and then a decrease in the ability of the muscle and muscle groups to produce the maximum force as quickly as possible (Hassan Al-Saud, 2013, pp. 1659-1660).

As well as the study of Fouad Tarish and Abbas Sarhan 2014, where the results of the study concluded that the explosive force (vertical jump) decreased from 87.40 cm to 74.42 cm. The researchers attributed this decrease in the explosive force to a decrease in mechanical efficiency and a decrease in the energy reserve in the muscles of the lower extremity, as stopping training leads to a decrease In the Energy Reserve (Fouad Tarish and Abbas Sarhan 2014, pp. 39-40).

In light of the foregoing, the research hypothesis can be confirmed that: "Interruption of sports training during the transition phase has a negatively effects on the physical variables represented in the transition speed and explosive force of the lower limbs of senior

soccer players." Which leads to the validation of the general hypothesis:

Stopping training during the transitional period has a negatively effect on the physical variables of senior footballers

V. Conclusion

Based on the results drawn from this research, it can be concluded that stopping sports training during the transitional phase for a period of up to 08 weeks among Algerian soccer players leads to the fact that the length of the transition period leads to a decrease in the elements of physical fitness and the difficulty of recovering some of its elements at the end of the preparation period until What it was before the transition period, which affects the team level during the sports season. The interruption of training significantly decreased the transitional speed acquired by the players during the training period and the length of the sports season at the end of the transition period, which is expressed by the increase recorded in the time of performance of the various parts of the transition speed test approved in the study. It also led to a clear effect on the muscle strength of the lower extremities, which necessarily leads to the loss of one of the most important types of force very important to football players, which is the explosive force of the lower extremities.

From all of the above, the researcher believes that some suggestions can be made, such as the necessity of taking into account the training cadres to legalize the training load for the physical variables after stopping the training in a manner consistent with the rates of decline of each. It is preferable not to stop training completely, but rather to maintain an adequate level of physical fitness by practicing various forms of sports, even for recreational purposes, such as swimming, jogging, etc. It is best to do moderate-intensity physical exercises during a training break or during the transition phase to help maintain an adequate level of physical and physiological adaptations in the players' various functional body systems.

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