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The impact of the interruption of training on muscle strength and maximum aerobic speed in football players

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Abstract

This study aimed to find out the effect of the detraining in some physical variables (muscle strength, maximum aerobic speed) in football players, and to achieve this the study was conducted on a sample consisting of (10), where the sample was taken the way The purpose of the study community, the tribal measurement of the characteristic force of speed and explosive force was performed before the interruption of training, and after the interruption of training for (3) weeks, the distance measurement of the same variables and the same conditions was performed for the tribal test.

The results of the study showed that there are statistically significant differences between the results of the tribal and dimensional tests and in favor of the dome on variables of strength characterized by speed, explosive power and maximum air speed.

1. ntroduction

(Melhem, 1999) indicates that sports training occurs physiological adaptations in the body organs suitable for the nature of performance, and these physiological calculations can occur within a period of time between (6-10) weeks of appropriate physical training in terms of type and quantity, (Msaliti, 2012) and the process of adaptation varies from human to human. Another, which is also limited, so too much training can lead to little development and, in some cases, can hinder the process of physiological adaptation, hence the volume of training is an example to improve physical performance, and this volume may increase, and therefore can cause problems for this player and from this The principle of continuity is one of the physiological foundations of the training process in order to complete the biological adjustment of functional organs, which in turn is the main objective of the training process. (Chizhevskii and al, 2015)

It is therefore necessary to know what happens to athletes after the physical training is discontinued, either because of injury or because they have undergone surgery, or because of the end of the sports season and others, this is called detraining. (Esselma and al, 2018)

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. (Nassif and Hassan Hussein, 1980)

The subject of the interruption of training is of great importance and this topic did not receive a large share of the study, and the opinions and opinions of specialists in sports training differed on the speed of the decline of the elements of fitness when stopping training, as (Hare) mentions that the rapid loss is observed in sustainability and sustainability strength And less in maximum power and premium power with speed and speed. (Translated by Nassif about Hera, 1990)

"Sports training loses its speed ability when you stop training faster and before losing the ability to sustain it while the force takes a position between them," he said. (Horrifying Serenity, WD)

The cessation of training leads to the loss of physiological developments in the body and physiological scientists call this phenomenon negative regression, and that the negative regression occurs more rapidly in

endurance events (in which the oxygen system contributes) as these types of events need to Muscles adapted to the consumption of oxygen and for long periods (Bakchout and al, 2019), but for fast events (for example 100m run and weightlifting) runners or quadriplegics can perform the race or exercise with high abilities despite the presence of the phenomenon of negative regression but for once because they are unable to repeat the work with the same Many times this is due to the low level of efficiency of their muscles to consume oxygen during the re-healing period, which makes this period prolong and therefore the player is not able to repeat the performance again until after a sufficient period of time. (Abdel Fattah, 1997)

The result of the interruption of training from changes in the athlete's body and muscles leads to a decrease in the level of achievement and may require more time for the purpose of returning to the level it was before the interruption of training, and has been found that during the negative rest (complete interruption) the abilities of the individual decrease the function At a rate of about 10% per week. (Abdel Fattah, 1997)

The sudden interruption of training can also disrupt the athlete's health and create other difficulties when retraining, it is known that a sudden increase in pregnancy (particularly at the level of severity) can lead to health damage due to the inability of the body to adapt quickly to This high and sudden effort and the same thing happens if the athlete returns to a high level of pregnancy and a sudden interruption occurs it leads to health damage as the body can not adapt to the sudden reduction of pregnancy, the escalation of pregnancy requires the body to adapt and therefore must be gradually escalating and reducing Pregnancy also needs to be adjusted and therefore should be as well gradually. (Abdel Maksoud, 1979)

The basic feature of muscular adjustment can also be predicted on the basis of changes in the quantitative or qualitative aspects or both of proteins within the muscle cell, as training as well as interruption of training play a role in changing the concentrations of a specific group of proteins in humans. (Harrah, 1976)

It is scary to say that the biochemical changes of the muscles of the trained organs are not done at the same time but in succession and the fastest of these changes is the development of the possibility of oxygenic aerobic processes, followed by the increase in the percentage of glycogen and then the increase in the amount of mayosin (protein reconstruction in muscle) and then the severity of the clecule decomposition and finally the growth or increase of creatine phosphate in previous processes in reverse succession. (Horrifying Serenity, WD)

Hence the importance of research through the researchers' way of finding the amount of decline and destruction of the biokinetic abilities of players, which occurs as a result of the end of the sports season and the fullness of the players to their personal lives and exposed to negative rest or even as a result of poor programming in the tournament and long delays in its launch, Which worries the player and the coach and therefore there gets a waste of time and effort for the training process in order to bring the player back to the sports format, because the problem of research is reflected in the ignorance of the majority of the coaches in taking the correct training measures after the player has stopped training so it is necessary for the coach to know The level of decline and decline in the level of these elements in order to develop an appropriate training curriculum after the break.

The refore, the researchers seek to highlight the extent of the decline in the muscle and aerobic abilities of the players as a result of the interruption of training after the long delay in the start of the tournament for the current season and in an attempt to answer the question sought next year:

How does the interruption of training affect the muscle strength and maximum aerobic speed of football players?

2. Method and Materials

2.1. Identify terms and concepts:

Sport training: operations (procedures) based on special scientific and educational foundations, which lead to the building of the athlete integrated from all aspects of physical, skill, planning and psychological, which leads him and directs him towards raising his level and his athletic achievement continuously in sports Specialized with the aim of reaching the high level. (Kadraoui and Harbi, 2019)

Detraining: The change in physiological and physical adaptations of the body leading to a lack of athletic achievement and a decline in performance. (Matev; 1998)

Muscle ability: Muscle ability to overcome resistances using high motor speed. (Leila Labib et al, 1993)

Maximum aerobic speed: The maximum susceptibility of the human body to the transport and consumption of oxygen during physical exercise, which reflects the level of fitness and is measured in liters per kg per second. (billat, 2003)

It is the speed that allows access to maximum air power (PMA). (Hervé. A et Cometti.G. 2007)

2.2.Participants

The research sample included 10 players from the 24-player Team Afaq bordj okhriss who were dropped from training during the 2018/19 season due to the delay in the start of the state championship for organizational reasons, and table (1) indicates the homogeneity characteristics of the sample members studying the variables of height, weight, age and age of training.

Table #1: Characteristics of study sample members
(n =10)

Variable	unit computational	mean measurement	standard deviation
Age	Years	21.200	1.60
Length	M	1.77	0.068
Weight	KG	72.66	11.62
Training age	Years	03.12	02.66

2.3. Materials

In order to find solutions to the problem and verify the validity of the research hypotheses, the most effective methods and tools must be followed through study and examination, and therefore will be based on two types of tools:

*** Theoretical study (bibliographic analysis):** represented by Arab and foreign sources and references, including books, notes, dictionaries, magazines and the Internet... The aim is to create a theoretical background that will help the researcher complete the field study.

*** Interviews: conducted with some trainers.**

*** Physical tests:** The aim is to measure the physical aspects (such as the strength of speed as well as the maximum air speed... etc.), represented in:

• Muscle strength tests:
1. Sargent test vertical jump of stability: test de détente vertical
Target: Measure the explosive strength of the muscles of the legs.
2. One-man jump test for a distance of (30) meters:
- The goal of the test: to measure the strength of the man's muscles.
• VMA test:
. Vameval test.

Its purpose: to measure the maximum aerobic speed.

2.4. Design and Procedure

Tribal tests: Tribal tests for muscle capacity and maximum aerobic speed were conducted on November 05, 2018, and two days later, the state association announced the delay in the start of the tournament until December 15, which led to the complete discontinuance of these players from training for a period of three weeks.

The tribal tests were conducted at the level of the municipal stadium, Saleh Ahmed Bin Masoud, in Bordj khris on the same day at 17:00 pm.

The researcher installed the conditions for the tests in terms of space and time and the team to achieve the same conditions when conducting dimensional tests.

Dimensional tests: After two weeks of discontinuation, the players returned to training on Saturday 29 November 2018 to perform tests for muscle strength and strength marked by speed.

2.1. Statistical Analysis

The researcher resorted to the SPSS program to calculate the following equations:

- SMA
- standard deviation
- Student test. (t)
- Coefficient of variation.

3. Results

Displaying and analysing the results of muscle strength tests:

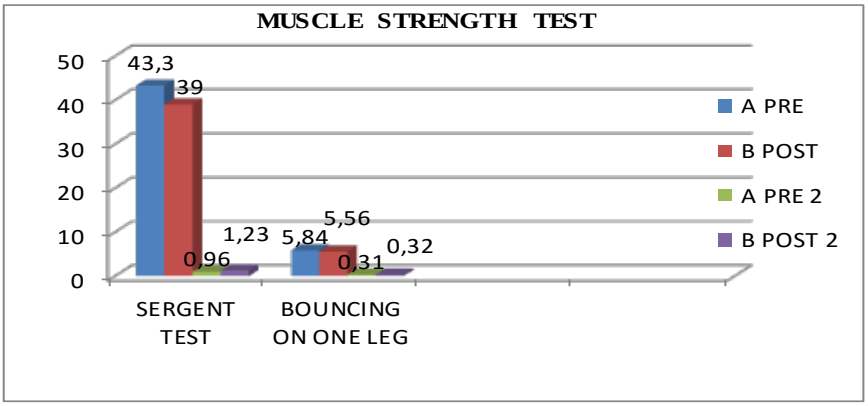
Table (2): Statistical variables of the force marked by velocity and explosive force in the pre and post test.

Statistical variables	Pre-test		Dimensional test		Calculated variations	Difference between the two averages	Percentage of drop
	A	B	A	B			
Sargent test	43.3	0.96	39	1.23	22.21	04.3	09.93
Bounce on one leg	05.84	0.31	05.56	0.32	03.52	0.28	05.03

It is clear from Table (2) that there are statistically significant differences at the level of (a = 0.05) between the pre and post measurements and in favor of the pre-measurement on muscle power variables (the force characterized by velocity and the explosive force) among the players, where the arithmetic average reached (43.3) , 5,84), respectively, during the pre-measurement,

while it reached (39 and 05,56), respectively, in the post-test, that is, after the interruption, as shown in Figure (01).

Figure (01): a graph showing the arithmetic averages in muscle strength tests



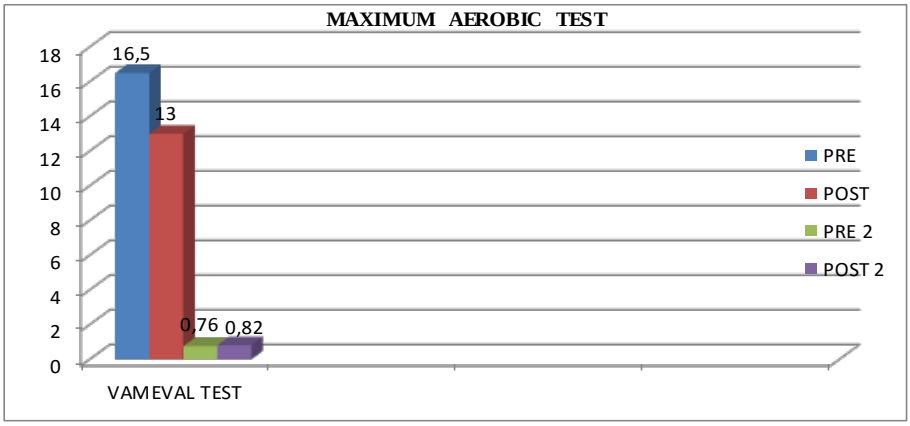
Presenting and analysing the results of the maximum air speed test:

Table (3): Statistical variables of the maximum air velocity in the pre and post testing.

Statistical variables	Pre-test		Dimensional test		Calculated variations	Difference between the two averages	Percentage of drop
	A	B	A	B			
VAMEVAL Test	16.5	0.76	13	0.82	19,23	01,5	21,21

It is clear from Table (3) that there are statistically significant differences at the level of (a = 0.05) between the pre and post measurements and in favor of the pre-measurement on the variable maximum air velocity of the players, where the arithmetic mean reached (16,5 and 0.67) respectively During the pre-measurement, while it reached (13 and 0,82), respectively, in the post-test, that is, after the interruption, as shown in Figure (02).

Figure (02): a graph showing the arithmetic averages in the maximum aerobic speed test



4. Discussion

Discussion of the first partial hypothesis: in which the researcher assumed that the interruption of training had a negative impact on the level Strength-Speed and explosive strength of football players.

Based on the results analysis obtained on table (2) concerning Strength-Speed and explosive strength tests, the percentage of the Decline of these two characteristics was lower than the rate of decline in the vo2max, and that is due to the fact that the muscular endurance depends primarily on the ability of joint action of the nervous and muscular systems, which depends on the strength and speed of muscle contraction, and since the biochemical changes of training are not done at the same time but in succession, and due to the reliance of the Strength-Speed on the integration of the elements of strength and speed without relying on Aerobic processes (Endurance) as a key component of achievement so we note that the decline in this physical ability is lower than in the endurance element. (Chenouf and Nacer, 2017)

So The interruption of training has had a negative impact as the loss of adaptation to the central nervous system responsible for the performance of strong movements has a negative impact on the In the area of achievement, (Al-Khatib and ali khyat, 2000) This is one of the reasons why the level of Strength-Speed is so low that after two to three weeks of droping out of training .

Discussion of the second partial hypothesis: in which the researcher assumed that the interruption of training leads to a decline in the vo2max rate of football players.

Based on the results analysis obtained on table (3) concerning the vo2max test, the researcher attributes the statistical differences between pre- and post- tests to the negative and gradual decline in adaptations associated with the cardiovascular and cardiorespiratory systems as a result of the interruption of training, which leads to a gradual decrease in cardiorespiratory fitess and gas exchange and thus the decrease of the level of oxidative processes as a result of the decrease in the level of partial pressure of oxygen (O2) in the air of vesicles (Mohamed ridha and al, 2019), this is what many sources confirmed that the faster loss after the interruption is observed in endurance and strength endurance and then followed by the other physical characteristics and this achieves the second partial hypothesis.

5. Conclusion

In the light of the objectives of the study and the presentation and discussion of its results, the researcher concludes:

- The interruption of training negatively affects the explosive strength and Strength-Speed of football players.

- The interruption of training leads to a drop in the vo2max level of football players.

- The decline in physical abilities is the result the interruption of training and it is faster in the aerobic abilities compared to anaerobic capacities.

In light of the objectives of the study and the presentation and discussion of its results, the researcher recommends the following:

1. The need to practice moderate-intensity physical exercises during the interruption of training or in the transition, such as swimming and running, in order to maintain the healthy aspect associated with body composition and fitness level.

2. Conduct a study on the impact of the interruption of training in blood chemical in football players and other group games.

3. Conduct comparative studies between practitioners and non-practitioners are necessary to determine the impact of their interruption of training. (Ben naama and Ben koua , 2018)

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