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The Effect of (CROSSFIT) Training on Some Biochemical Variables and Physical Abilities of Refinery Club Players (24-28) Years

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ABSTRACT

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The study aimed to find out the extent of the effect of (CROSSFIT) training on some biochemical variables and physical abilities of football players, as CROSSFIT training is one of the modern and important training methods because of the characteristics of these trainings, which have become the attention of many athletes, due to the reliance of these exercises on all elements of physical fitness, as the research problem crystallized in the weakness of the physical aspect of the players of the Refinery Club and the lack of scientific studies on these trainings, which is seen The researcher said that through the results of this study, some scientific assistance can be provided to officials in the field of physical fitness, the physiology of sports training in general, and (CROSSFIT) training in particular.

The researcher's study contained theoretical and similar studies related to the research topic, and the researcher adopted the experimental method with one group as it is the most suitable method for the nature of the research, and the research sample was the players of Al-Masafi Football Club in Baghdad Governorate, as the study was conducted on a sample of (16) players who were selected by the deliberate method, and the results of the statistical analysis showed using the statistical package for social sciences (SPSS). There were statistically significant differences at the level of (sig) < (0.05) between the two tests (pre-post) of the experimental group members.

1-1 Introduction and Importance of the Research:

The process of developing the elements of physical fitness is a long process characterized by the right graduality and continuity, and it is subject to the foundations and rules of sports training, which are characterized by comprehensiveness in the development of the individual's motor skills and physical abilities so that he can practice his physical activity with the least possible effort, and this depends on the training method followed and the extent to which the body's functional systems are adapted in training.

CROSSFIT is one of the modern training methods, as it is (ever-changing functional movements that are carried out with high intensity), and the goal of competitive fitness training is to form high, broad, general or comprehensive physical fitness, that is, it seeks to develop a program to prepare the athletes for the best preparation so that they can face any emergency physical condition.

These exercises have a positive and significant impact on all elements of physical fitness, as it is a modern method and methods of sports training science, as it depends to a large extent on high physical fitness and physical strength, in addition to mastery of (technical) performance, as well as the relationship of the level of performance of trainees with the development of functional abilities, which is also related to the development of physiological indicators that occur in the athlete's body during the duration of muscular exertion, and in training and competitions. When you perform such exercises, you train your body in weightlifting exercises, bodyweight exercises, gymnastics, Olympic weightlifting (snatching), and also combine running, rowing, jumping rope, rope climbing, sling, gymnastics ring... All these exercises require comprehensive physical effort for all elements of physical fitness.

The importance of the research appears in the practice of competitive fitness training (CROSSFIT) and knowing everything that will be mentioned scientifically, as the researcher decided to study some (biochemical variables and physical abilities of the players of the Refinery Club) in order to know what happens in the training period, and also to know the effect of the external load of competitive fitness training and the effectiveness of rationing the training curriculum in order to contribute to raising the training process with what is modern to improve the level of performance of the players and raise the level of their abilities.

1-2 Research Problem:

The research problem lies in the weakness of the physical aspect of the players of the Refinery Club and the lack of scientific studies on these trainings, which the researcher believes through the results of this study, some scientific assistance can be provided to officials in the field of physical fitness and the physiology of sports training in general and those interested in (CROSSFIT) training in particular, and this is by knowing the effect of these exercises on each of the variables (biochemical and physical abilities) to be a scientific step in knowing the extent of biochemical adaptations and changes. Physical and also a step in the technicians of the training programs for CROSSFIT training .

1-3 Research Objectives:

- The number of (CROSSFIT) training for the players of the Refinery Club aged (24-28).
- Identifying the Effect of CROSSFIT Training on Some Biochemical Variables in Refinery Club Players Aged (24-28).
- Identifying the effect of CROSSFIT training on some motor abilities of the players of the Refinery Club aged (24-28).

1-4 Research Hypothesis:

- 1- There are statistically significant differences between the pre- and post-test of some pre-exertion and post-exertion biochemical variables of the (CROSSFIT) training among the players of the Refinery Club aged (24-28).
- 2- There are statistically significant differences between the pre- and post-tests of some motor abilities of the (CROSSFIT) training among the players of the Refinery Club aged (24-28).

1-5 Research Areas:

- Human Field: Refinery Club Players.
- Temporal Domain: 1/4/2025 – 4/6/2025.
- Spatial Field: Refineries Club.

3- Research methodology and field procedures:

3-1 Research Methodology:

The researcher used the experimental method that relies on one experimental group with pre- and post-tests, and this is because it is suitable for the nature of the research problem, by conducting a series of tests on the dependent variables, and the pre-tests express the basis or initiation and are widely used in physical research and life sciences, and the effect of the experimental treatment is expressed by the difference between the average measurements before and after the statistical treatment . **(Zafer Hashim Ismail, 2012, p. 151)**

3-2 Research Sample:

The researcher identified the research community represented by the players of Al-Masafi Football Club for the year 2025-2026, which are (20) participants between the ages of (24-28) years, as four were excluded as a result of their refusal to perform blood tests, and the researcher selected the research sample deliberately, because this sample achieves the purposes of the study carried out by the researcher.

Table (1)

Research Sample, Excluded Players and Their Percentages

Percentage	Number	Sample / Number & Percentage
100 %	**20**	**Research Sample**
80 %	**16**	**Experimental Research Sample**
20 %	**4**	**Excluded players**

3-4 Means of Information Collection, Devices and Tools Used:

3.4.1 Means of collecting information:

- Arabic and foreign sources and references and the Internet.
- Note.
- Personal interviews.
- Medical cotton, sterile materials, a medical syringe (syringe), a cooling case, special cuts to determine the level of the concentration of the enzyme (**PFK**) - (**CPK**) in the blood, a laboratory assistant team, a centrifuge (Center Fuge),a Cabas C311 device for analysis.

3-5 Tests used in the research:

3.5.1 Blood Variants (Biochemical) Tests:

3.5.1.1 Test for the Percentage of Creatine Phosphokinase (CPK):

Objective of the test: To measure the level of CPK concentration in the blood before and after exertion.

3.5.1.2 Test for the Concentration of Phosphofructokinase (PFK):

Purpose of the test: Measurement of the level of enzyme concentration (**PFK**) in the blood before and after exertion.

3.5.2 Physical Abilities Tests:

1- The strength characterized by speed of the muscles of the arms:

- Test Name: Bending and Extending the Arms from the Procrastinate Position (10) S[1]

- Purpose of the test : Measure the force characterized by speed of the muscles of the arms.

- Tools used: stopwatch, whistle, registration form, calculator for counting.

- Conducting tests: The laboratory takes the forward support position on the floor so that the body is in an upright position at the start signal, the laboratory fully bends and extends the arms, provided that it continues to repeat the performance for as many repetitions as possible and without stopping for (10) seconds.

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[1] Muhammad Sobhi Hassanein: **Evaluation and Measurement in Physical Education**, vol. 2, 2nd edition, (Cairo, Dar Al-Fikr Al-Arabi, 1987), p. 176.

- Registration: The lab score is the number of correct repetitions within a period of (10) seconds.

2- Speed Strength Test for Legs [2]

Test Name: Backward squat in 10 seconds (70%).

- The purpose of the test: to measure the force characterized by speed of the muscles of the legs during the downward movement and then to get up completely.

- Tools used: Iron bar (20 kg), iron discs of different weights from (1,25, 2.5, 5, 10, 15, 20) kg, iron straps (2).

Procedures: Determining (70%) of the maximum in kg for each member of the experimental group and the frequency is calculated during the duration of the performance.

- Conducting the test: The initial position of this test is characterized by placing the weight column on the shoulders after the laboratory holds the iron bar at a wider distance from the shoulders and rests on the neck and holds it with the hands at a distance greater than the width of the hands, and the distance between the feet is shoulder-width and keeping the back flat and the chest high after taking the weight column from the suspenders and the assistant work team, the laboratory bends the knees completely and then fully raises the iron the most number of times within (10) seconds with Maintaining the primary status.

- Registration: The number of correct attempts executed by the laboratory in a time of (10) seconds is recorded.

3- Bearing the characteristic force of speed for the arms:

- Test Name: Push in the forward support position for (20) seconds [3] .

- Purpose of the test: To measure the strength tolerance of the force characterized by speed of the muscles of the arms.

- Tools used: stopwatch, whistle, registration form, calculator for counting.

- Test conditions: It is not allowed to stop during the performance, and the straightness of the body is observed during the performance stages, the need to not touch the chest to the ground when bending the elbows, and the arms to extend fully when climbing.

Muayyad Jassim: **Some Load Variables of Load Intensity in the Training Unit and Their Effect on Physiological** [2] **and Physical Adaptation of Muscle Strength**: (Ph.D. Thesis, Faculty of Physical Education, University of Baghdad, 2005), p. 73.

[3] Hossam Mohamed Haidan: **The Effect of High and Low Intensity Interval Load Hispanic Training on the Development of Speed Strength Endurance of Young Handball Players** , (University of Diyala , Journal of Sport Sciences – Volume VIII – Issue 24, 2015), p. 126.

- Performing the test: From the forward inclined position (front support), the laboratory bends the elbows and then returns to the initial position and repeats this work as many times as possible.

- Registration: The number of correct attempts executed by the laboratory in a time of (20) seconds is recorded.

4- Bearing the distinctive strength of speed for the legs:

- Test Name: Jump Over the Box Test (25) [4]

- Purpose of the test: To measure the strength tolerance of the speed of the two legs.

- Tools used : Whistle, electronic stopwatch, medical ball or iron disc weighing (5 kg), box with a height of (40) cm.

- Exam Conditions:

- Fast test execution.
- The test time is 25 seconds and only one attempt is given.

- Conducting the test: The laboratory holds the medical ball or tablet weighing (5) kg, and when hearing the signal to start through the whistle, the trainee jumps with both feet over the box, then descends on the ground backwards, and repeats the same work until the end signal is heard.

- Exam Management:

- **Timer:** Give the start and end signal through the whistle to calculate the number of repetitions.
- **Recorder:** Calls on names with observation and recording repeats.

- Registration: The laboratory records the number of repetitions within (25) seconds by adopting the start and end whistle.

3.6 Exploratory Experiment

The researcher conducted the reconnaissance experiment on the (3) players of Al-Masafi Football Club on Saturday, 29/3/2025 at (10) a.m. in the stadium of Al-Masafi Club, and the purpose of the reconnaissance experiment was:

1- Identify all organizational aspects to know the management of the tests (biochemical and physical).
2- Knowing the obstacles that may appear when starting the tests, and avoiding the occurrence of errors during the work period.
3- Ensure the validity of the laboratory devices and instruments used in the tests.

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4 Faris Sami Yousef and Laith Muhammad Abdul Razzaq: **Standards for Some Strength Endurance Tests Characterized by Speed in Youth Basketball** (Journal of the Faculty of Physical Education, University of Baghdad, Volume Twenty-Eight, Issue Four, 2016), p. 252.

4- Ensuring the efficiency of the assistant team and the extent of their understanding of the implementation of tests and measurements.

3.7 Main Procedures:

3.7.1 Preliminary Examinations:

The researcher conducted the pre-tests for the research sample of (16) trainees on two days (Sunday - Monday) corresponding to (30/3/2025 – 31/3/2025), where the tests were divided as follows: the tests (physical tests) were on Sunday at (10) in the morning and in the presence of the assistant work team, and the tests of (biochemical variables (blood analysis) on Monday at (10) in the morning and in the presence of the assistant work team and the laboratory doctor.

3.7.2 Training Curriculum for Cross FIT Training :

The researcher prepared a training curriculum for the (CROSS FIT) training, and the researcher relied on the available sources of sports training science, the experiences of a trainer specialized in these trainings, and the researcher's modest experience as he is one of those interested in the (CROSS FIT) * training .

The training units were divided at the rate of three training units per week for the experimental research group for a period of (two months) by (26) training units, and the researcher determined the time of each group (round) and determined the repetitions of each exercise in the training unit, where the player is required to have a number of repetitions for each exercise and a certain time during the one group (round), as the training units were* divided into (preparatory section, then the main and concluding section).

When developing the training curriculum, the researcher took into account the following:

1- The researcher applied his actual method a day after conducting the pre-tests with intensity (70%) in order to adapt the sample to such a level of training intensity.

2- The researcher relied on scientific sources in determining the percentages of stress in the training modules through the maximum pulse that represents the maximum intensity (the best achievement) and according to the following equation:

220 – Player Age = Achievement of the Best Achievement × Required Intensity ÷ 100

3- The number of exercises for the training units was (3-11) exercises.

4- The intensity used during the training curriculum ranged between (70% - 90%).

5- The working method of (CROSSFIT) is the stations and each station (exercise) has a fixed repetition and a certain time that the player performs to move to the next station

* - See Appendix No. (11).

* - See Appendix No. (12).

(exercise), i.e. the player is required to do a number of repetitions and is required for a certain time to be determined in the main part of the training unit, and the researcher has collected the exercises in one circular station, where in the training the player performs a set of exercises in the form of a circle. He performs the station of the (exercise) and then moves to the next station (exercise) without taking a rest until the end of the last station (exercise) and so on to complete one circle and this circle expresses the (round) in the (CROSSFIT), so the difference in this circle in the exercises is in terms of the number of repetitions, their difficulty and the way of performing them, whether it is by body weight, weight (weight) or devices, and also the difference in the working muscle groups, and after the end of the cycle (round) completely, the player takes a rest. It ranges from (2 – 3) minutes according to the number of exercises in the training unit, the intensity of the exercise, the number of repetitions for each exercise, and the number of totals (rounds) in the training unit, and it is repeated again and repeated according to the number of groups (rounds).

3.7.3 Post-Tests:

The researcher conducted the post-tests of the research sample on two days (Thursday - Friday) corresponding to (5/6/2025 in the morning at 10 o'clock – 6/6/2025 at 10 a.m.) after the passage of (22) training units, and the researcher was keen to provide the same conditions in which the pre-tests were conducted in terms of tools and time to conduct the tests and the place and with the help of the same assistant work team and the laboratory doctor.

3-8 Statistical Methods:

SPSS statistical bag used

- **Arithmetic mean.**
- **Standard deviation.**
- **Tests for symmetrical samples.**
- **Coefficient of torsion.**

4 - Presenting, analyzing and discussing the results:

4-1 Presentation and discussion of the results of blood variables (biochemical) tests

4.1.1 Presentation and discussion of the results of the pre- and post-tests for the concentration of creatine phosphokinase (CPK) in the blood:

Table (1)

It shows the arithmetic mean and standard deviation before and after the test (CPK concentration in the blood) before and after the exertion, the arithmetic mean of the differences between them and their deviation, the calculated (t) value, the real significance and the result for the members of the research sample.

Conclusion	The True Significance	Calculated t-value	A.F.	P	Post		Tribal		Unit of Measurement	CPK Variable Measurements
					on	Going to	on	Going to		
Insignificant	.0720	-2.270-	17.550	39.833	45.055	225.000	21.169	185.166	U / L	CPK before voltage
Moral	.0060	-4.586-	83.226	381.666	218.054	601.666	46.043	220.000	U / L	CPK after voltage

Significant when the value of (sig) is < (0.05) at the degree of freedom (5) and the level of significance (0.5)

Through Table (1) to present and discuss the results of the creatine **phosphokinase (CPK) test,** we find the results of this test for one experimental research group, as the results showed that there were no significant differences between the two tests (pre-post-post) in the percentage of the concentration of the enzyme (CPK) before exertion, and the researcher attributed the reason for the absence of significant differences due to the lack of physical effort, so we note that the enzyme is less effective in players because this enzyme is inversely related to the activity (The lower the ATP, the more effective the CPK is, and vice versa, and Nabil Sabri Barry points out that "the effectiveness of the (CPK) enzyme decreases and increases according to the body's need for energy sources (ATP), so a sharp increase in the effectiveness of this enzyme is observed after physical exertion, while it is observed to decrease within the normal level of the effectiveness of the (CPK5) enzyme in the rest period for athletes." As for the concentration of the (CPK) enzyme after exertion, the results showed that there are significant differences between the two tests (pre-post-exertion) in favor of the post-test among the members of the research sample, and the researcher attributes the reason for the appearance of significant differences for the post-exertion tests (after exertion) due to the nature of the (CROSSFIT) exercises used in the training program, which requires a rapid release of energy, and that the enzyme (CPK)) is one of the important and direct factors in the speed of energy release in the body by reconstructing adenosine triphosphate (ATP), as it relies on the chemical compound creatine phosphate, where the enzyme (CPK) transfers a group of phosphates from the compound creatine phosphate to diphosphate adenosine (ADP) to form triphosphate adenosine (ATP) and vice versa (6) Since the "CROSSFIT" workouts and the rapid contraction and expansion of the working muscles, this requires the release of sufficient energy to perform such work, as Hussein Abdul-Amir confirms (quoting Safaa Mereb) that "the activity of the muscle is accompanied by a series of reactions in which enzymes contribute active and effective contributing

5 Muayyad Abdul Latif Ali: **Study of the Effect of Maximum Physical Effort on Some Biochemical and Physiological Indicators of the 200m and 100m Rowing Activities**, Master's Thesis, Faculty of Physical Education, University of Baghdad, 2008, p. 106.

6 Bahaa Al-Din Ibrahim Salameh: **Physiology of Sport and Physical Performance**, 1st Edition: (Cairo, Dar Al-Fikr Al-Arabi, 2000), p. 165.

factors. Thus, the activity of enzymes that act as cofactors in anaerobic metabolic processes is significantly increased due to training." [7]

Also, the increase in the results of the effectiveness of the enzyme (CPK) is consistent with (1988, Adirix) and said that the percentage of CPK in the blood increases (3-4) times from the normal level in athletes during physical exertion [(8).]) into the blood as a result of physical exertion, and this microcracking does not lead to a pathological injury, and with this leakage, its percentage in the blood [9] increases, as well as the enzyme (CPK) present in the muscles in order to produce energy to perform the required muscular effort, and the increase in its percentage in the blood is a good indicator of the improvement of the activity of this enzyme in the body in general and locally in the working muscles in particular. The percentage of this increase also reaches (2-3) times the normal state due to intense sports training, as it leads to The percentage of (CPK) in the blood is higher than its normal percentage, so its high rate is normal in players [(10).]

4.1.3 Presentation and discussion of the results of the pre- and post-tests for the concentration of phosphofructokinase (PFK) in the blood:

Table (2)

It shows the arithmetic mean and standard deviation before and after the test (PFK concentration in the blood) before and after the exertion, the arithmetic mean of the differences between them and their deviation, the calculated value of (t), the real significance and the result of the research sample members.

Measurements	Unit of Measurement	Tribal		Post		P	A.F.	Calculated t-value	The True Significance	Conclusion
		Going to	on	Going to	on					
PfKBefore Voltage	U / L	1.766	0.152	1.778	0.183	-0.011-	0.153	-0.076-	0.942	Insignificant
PFK Aftervoltage	U / L	1.616	0.104	2.791	0.243	-1.175-	0.307	-3.819-	0.012	Moral

Significant when the value of (sig) is < (0.05) at the degree of freedom (5) and the level of significance (0.5)

[7] Hussain Abdul-Amir Hamza: **The Effect of Different Training Loads According to Anaerobic-Lactic Energy Production Systems in the Enzymes (CPK, LDH, AST), Master's** Thesis, Faculty of Physical Education, University of Al-Qadisiyah, 2007, 94.

[8] Adirix H . GHnutthen : **The Dympic Book of Sport Medicin** , (Ithed , Oxford , 1988) , P , 49 .

[9] Brent S . Rushall : **Blood Vrine Laboratory Test Explination** , (Coashing Factor , USA , 2003) , P , 24 .

[10] Tmsanders and cmBloor : **Eeffects of Endrance Exercies on Serum Enzyme Activier In The dog – pig – man** , U.S.A , 2007 , P , 157 .

Through Table (2) **discussing the results of the phosphofructokinase test (PFK),** we find the results of this test for one experimental research group, where the results showed that there were no statistically significant differences between the two tests (pre-post-post) in the concentration of the enzyme (PFK) before exertion, and the researcher attributed this to the fact that this enzyme is low in effectiveness during rest periods or not doing physical exertion, because this enzyme is one of the anaerobic enzymes responsible for the rapid degradation of glucose.[11] As for the percentage of PFK enzyme concentration after exertion, the results showed that there are significant differences between the two tests (pre-post-exertion) in favor of the post-test among the research sample members, and the researcher attributes the reason for the appearance of significant differences for the post-exertion tests, that the (CROSSFIT) training combines the three energy systems, and the concentration during the training on the second system is due to the stress and repetition of the (CROSSFIT) training. This leads to a rise in lactic acid, as the enzyme phosphofructokinase (PFK) is the most important enzyme for the second energy system, the (lactic acid) system, as its increased activity leads to the rapid degradation of glucose along with the rapid formation of lactic acid and the reconstruction of ATP, and the activity of this enzyme increases with the accumulation of adenosine monophosphate (AMP) and its activity decreases with the accumulation of adenosine triphosphate (ATP). [12] " .

3-2 Presentation and discussion of the results of the pre and post-speed strength tests (for the arms and legs):

Table (3)

It shows the arithmetic mean and standard deviation before and after **the speed test (for the arms – two legs),** the arithmetic mean of the differences between them and their deviation, the calculated value of (t), the real significance and the result of the members of the research sample.

Conclusion	The True Significance	Calculated t-value	A.F.	P	Post		Tribal		Unit of Measurement	Variables of physical tests
					on	Going to	on	Going to		
Moral	0.000	-11.000-	0.166	-1.833-	2.136	14.833	2.280	13.00	reiteration	Chenau 10 seconds
Insignificant	0.342	0.526	2.555	1.344	0.516	7.666	0.516	6.666	reiteration	Squat 10 Seconds

)11(Henviksson , J . cellular metabolism & endurance In Shepard , R.J. & Astvand , P . O : **Edurance in sport . Black well scientific publication** . oxford , 1988 . p. 48 .

)12(Henviksson , J . cellular metabolism & endurance In Shepard , R.J. & Astvand , P . O : **Edurance in sport . Black well scientific publication** . oxford , 1988 . p. 48 .

Significant when the value of (sig) is < (0.05) at the degree of freedom (5) and the level of significance (0.5)

Through Table (3) by **discussing the results of the speed strength test (for the arms - for the legs), we** find the results of this test for (for the arms) for the same experimental research group, where the results showed that there are significant differences with statistical significance between the two pre-tests and the post-test in favor of the post-test among the research sample members, and the researcher attributes this to the effectiveness of the CROSSFIT exercises.) used correctly and scientifically successful and influential in terms of the intensity and size of sports training and rest according to the intensity that is compatible with the requirements of strength characterized by speed, as it was associated with the development of the ability of nerve signals, which is the main indicator in the occurrence of muscle contraction, which was affected by the exercises related to the development of some physical abilities, and the training units (CROSSFIT) relied on various exercises and gradations in each training unit and in an ascending manner, as (Kusenz 07 1972) indicates) pointed to "the importance of training and developing muscular strength, as strength must be exerted in different forms and quantities and the performance of movement must be accurately corresponded, and the development of this strength is dependent on rapid changes in the rhythm of nerve signals, as muscular activity is characterized by a high degree of compatibility between the time and size of nerve signals, and it also indicates the importance of this special strength through performance exercises, which is the main means of developing it." [13] In addition to performing exercises with strength and high speed, which directly affected the muscle groups of both (arms and legs, but relatively) and increased the activity of muscle contraction through continuous repetitions during performance, which contributed to the improvement of neuromuscular compatibility and muscle contraction of the working muscle groups, which led to ease of performance, this is what Mufti Ibrahim (1998) confirmed: "The greater the compatibility between the muscles involved in motor performance on the one hand and the muscles leading to movement." On the other hand, the anti-muscle muscles increased the production of muscular strength" [14] , as (Talha Hussein, 1998) states that "training has a role in influencing the adaptation of the nervous system by increasing the maximum voluntary contraction limit by better preparing the nervous system by repeating the training for more than 4-5 weeks". [15] As for the (legs) test, the results of the research group were one experimental group, where the results showed that there were no significant differences between the pre-test and the post-test among the members of the research sample, and the researcher attributed the lack of significant differences in the test of the force characterized by speed (for the legs) due to the high intensity of the test and the time required to perform more than one repetition.

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[14] Mufti Ibrahim Hamada: **Modern Sports Training, Planning, Implementation and Leadership**. 1st Edition: (Cairo, Dar Al-Fikr Al-Arabi, 1998), p. 180.

[15] Talha Hussein Hossam El-Din et al.: **Applied Kinesiology**. 1st Edition: (Cairo: Al-Kitab Center for Publishing and Distribution, 1998), p. 112.

4.3.3 Presentation and discussion of the results of the pre and post-tests of the speed endurance tests (for the arms and two legs):

Table (4)

It shows the arithmetic mean and standard deviation of the pre- **and post-speed force endurance test (for arms – two legs),** the arithmetic mean of the differences between them and their deviation, the calculated value of (t), the real significance and the result of the research sample members.

Conclusion	The True Significance	Calculated t-value	A.F.	P	Post		Tribal		Unit of Measurement	Variables of physical tests
					on	Going to	on	Going to		
Moral	0.001	-6.379-	0.600	-3.833-	2.280	21.000	2.994	17.17	reiteration	20 Seconds Base
Moral	0.000	-25.000-	0.166	-4.166-	1.032	19.666	1.048	15.500	reiteration	Box 25 Seconds

Significant when the value of (sig) is < (0.05) at the degree of freedom (5) and the level of significance (0.5)

Through Table (4) **Speed Endurance Tests (for Arms and Legs), we** find the results of this test for one experimental research group, as the results showed that there are significant differences with statistical significance between the pre- and post-tests in favor of the post-test for each of the (arms and legs) among the members of the research sample, which indicates that there is progress or development in the ability to endurance the force characterized by speed, and the researcher attributes this as a result of the training curriculum containing the (CROSSFIT) training.) on special exercises that include the development of this physically complex trait, as the players have never been accustomed to performing strong, fast and fatigue-resistant movements for relatively long periods of up to (25) seconds or more according to organized and programmed scientific training, which is an expected result because the researched ability is subject to field experimentation for the first time through (CROSSFIT) training, as far as the researcher knows, and accordingly, the research group of players who have been exposed to training stimuli independently concerns the intensity, size and comfort of performing ability exercises. Accordingly, their results in this test indicated the existence of significant differences between the pre- and post-tests and in favor of the post-test, as the researcher attributes this result to the quality of physical exercises included in the proposed training curriculum and the effect of the exercises on the development of the physical

strength endurance ability at physical speed, as they were designed and synthesized in a way that is consistent with the requirements of the (CROSSFIT) training.) and its peculiarity, and the level of the experimental group and its high impulse in the training units has contributed to the gradual normalization of the players of the type of special physical exercises in terms of strong and fast performance under conditions of resistance to fatigue and the sequence of training stimuli, and from the point of view (physiological) that the high demand for pure oxygen in the blood leads to an increase in cardiac impulse and an increase in the density of capillaries to meet the anaerobic energy needs of the working muscles because the characteristic of the exercises of the proposed training curriculum is diversity in the performance of strong and fast movements For relatively specific periods of time, as "all activities that require the development of anaerobic endurance of long and medium time fall into the fold of all activities that require endurance of speed, endurance of force, and endurance of (force characteristic of speed) [16] ", and because the type of physical exercises used depends in its content on the performance of movements that include the power of jumping, throwing, running speed, and performing compound exercises with an effort close to the maximum, if not maximum, which leads to resistance to motor repetition that includes a scientifically distributed and divided training stress. A minute that leads the player to face Dina Oxygenia, which is an inevitable result that stands out through the type of intensity used for the exercises performed by the players, because it practices a new and complex obsolescence, which requires the player to use his latent strength closer to the college after the body has taken sufficient rest, "the more the athlete's body adapts to a new stimulus, the more it becomes necessary to gradually increase the training load as this leads to an improvement in the level of achievement and performance" [17] , as well as being Modern CROSSFIT training needs speed in performing duties and these exercises require high strength and endurance, as the main purpose of the quality of these exercises given to the experimental group is to help the player maintain the fast strength he needs during the performance of rounds during training or matches as quickly as possible and for the longest period of time and frequently and variable under the different conditions of training. This leads to a variety of energy production systems in the body between anaerobic energy when performing fast and strong movements, and aerobic energy when performing movements or motor sentences that continue for a long time [(18)] In addition to taking into account the player's need for aerobic energy in the speed of resting the recovery gradient early in rest between repetitions and when continuing to perform these exercises for the purpose of adaptations to that effort, as most of the (CROSSFIT) exercises) is characterized by strength and speed accompanied by endurance and repeated many times in competition or training" This supports the extent to which strength is related to other abilities such as speed and endurance and supports the view that physical abilities should not be isolated from each other in order to benefit from this [19] .

5- Conclusions and Recommendations:

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5.1 Conclusions:

Within the limits of the research problem and its importance, in the light of its objectives and assumptions, the nature of the sample, and within the framework of statistical treatments and the interpretation and discussion of the results, the researcher was able to reach the following conclusions:

1- CROSSFIT training has an effect on the proportions of some biochemical variables.

2- CROSSFIT training worked on the development of the following physical abilities:

- Strength characterized by speed (for the arms).
- Bearing the characteristic strength of speed (for arms and legs).

5.2 Recommendations:

Based on the conclusions drawn from the statistical analysis and the discussion and interpretation of the results, the researcher makes the following recommendations:

1- The necessity of codifying the (CROSSFIT) programs in a proper and scientific manner, taking into account the necessary conditions and specifications for sports events and according to the characteristics of each age stage.

2- Conducting more studies on CROSSFIT training for different variables (biochemical, physiological, and physical) to benefit from

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