An evaluative study of the electrical activity of the muscles working in the crushing skill as a basis for developing specific exercises for female volleyball players of the national team

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First: Introduction and research problem:

Recent years have witnessed a scientific explosion in various fields. And helped good knowledge of the principles of scientific as well as technical development in the development of programs and the development of solutions to many problems related to the field of sports and developed countries are working to benefit from the results of studies and scientific research believing in the value of sport as a civilized phenomenon indicates the extent of sophistication and progress reached by the state, which is reflected in its impact on the liberated victories in various championships.

Ellen Wadih Farag (2011) points out that volleyball has evolved supersely during the previous Olympic Games, and the play of volleyball in terms of agility, speed and ability, and its skill and tactical arts have reached their peak in the recent Olympic Games and since the participation of volleyball in the Beijing 2008 session witnessed the development of skills and plans at a fast pace and to reach victory, the minds of volleyball coaches and players have excelled in launching offensive and defensive systems New has changed the characteristics of volleyball significantly from physical abilities, basic skills and technical plans, and these basic elements are an integrated unit that must be taken care of as a prerequisite when preparing and training players, as one is no less important than the other. (31:6)

The tests and standards are one of the pillars that helped physical education in its various fields to take great strides towards progress and development. This is due to the use of sound scientific evaluation and measurement methods, the results serve as a mirror in which the individual sees himself, where it is given an honest report on the amount of capabilities and characteristics and therefore extended its importance in the selection of players and players after determining the requirements of each activity.

And the game of volleyball is like any of the sports that have its basic principles and skills, including sending, overwhelming beating, preparation, defense of the stadium and others

Many specialists in volleyball indicated that the attack is the main winning pillar in various games in general and in volleyball in particular, the offensive strike is considered one of the strongest offensive weapons that the team has, as it is similar in its

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impact to scoring goals in football and handball.

Any weakness in the level of its performance leads to a decline in the level of the team and its loss of the match, so the importance of the search lies where the overwhelming beating is the weapon of attack in volleyball and occupies a major position in the game; An hour, which negatively affects the speed of the reaction of the firewall, as well as the back line of the opposing team, and this leads to the failure of the defense in many cases, and global statistics indicate the percentage of overwhelming beating 80% of the match points through offensive skills, the most important of which is the crushing blow. (23:136)

The researcher believes that the offensive strike is one of the basic offensive skills that every hitter must master well, because the hitter cannot perform it strongly unless he has high physical capabilities, its effectiveness may be affected by the rise that the hitter reaches, that is, the more the batter's rise, the greater his chance of carrying out successful offensive strikes, its impact is strong and noticeable, as its performance is characterized by distinctive physical capabilities, in order to use it in matches in which there are many The opposing team's mistakes in the skills of the wall and the defense of the field, so it can make a big difference between defeat and victory.

Taha pointed out, others that the overwhelming beating is included in all classifications of basic motor skills in volleyball (type "tactical work" - performance "connection to the shape of the hand work" - body position "movement" - goal - place - distance of the ball from the net - level of the shoulders - direction of the ball - place of performance of the skill on the field)

The overwhelming beating is the hitting of the ball with one of the hands strongly to infringe completely over the net and direct it to the opposing team's court in a legal manner and includes overwhelming beating of the following types:

A - crushing blow confrontation.
B - crushing blow facing by rotation.
C - crushing side blow (hook).
D - crushing blow (ascending).
E - crushing blow falling to the wrist.
(f) The crushing blow of deception. (125:11)

He pointed out that the confrontation blow and these variables are the biomechanical variables and electrical activity associated with muscle groups contributing to the performance of the motor stages of the skill, especially for the skill of overwhelming beating and what happens from the momentary push at the moment of uplifting.

The most important muscles working during the performance of the offensive strike skill:

It is necessary to know the exact details of the various motor skills with knowledge of the working muscles, and the direction of muscular work to improve skill performance. (3:23)

The muscles working in the offensive strike skill are divided into two parts:

Upper limb muscles: including (deltoid muscle - biceps - three-bite Brachial heads - Brachial radial muscle - Abdominal rectus muscle - Pectoralis major muscle - Minor pectoral muscle - Anterior dentine muscle - Broad dorsal muscle - Trapezoidal muscle - Great chastorical muscle - Minor chastis muscle - Subspinal protrusion muscle -Flexor muscle of the wrist of the hand and fingers) . (37:186)

-2 Lower limb muscles: including (anterior thigh muscle - posterior thigh muscle - rectus femoral muscle - twin muscle - lateral leg muscle - plantar muscle - long extensor muscle - lateral dilated muscle - dilated muscle - middle muscle - Semitendon muscle - biceps - semimembrane muscle). (38:53-55)

Talha Hussein Hossam El-Din (1994) points out that the learners' knowledge of the principles and general foundations of the movement is a primary and basic goal that must be reached before embarking on teaching or training human performance in general. These principles and foundations play an important role in the work of the coach, and despite the availability of such information and the impact on the level of performance of players, there is usually a big difference between players towards the performance of the learned skills. The method proposed by the coach in communicating information With its applied voice, this is an important factor that helps players achieve the goal of putting this information and using it on the field. (14 : 136)

Mohamed Buraiqi, Khairia Al-Sukkari (2004) confirms that anatomical analysis of skill performance is one of the most important positive steps of qualitative analysis, which works to understand and absorb many important points of motor performance. It helps to identify the joints and muscles that are actually involved in each. The purpose of qualitative anatomical analysis is to determine the dominant muscle activity and control during the performance of the skill phase and also to clarify the great stresses that can occur as a result of increased muscle strength. Or exposure of the joints to excessive increase in the range of motion . (30 : 209)

Talha Hossam El-Din (2004) indicates that the method related to strength training, must start from the kinematic and dynamic characteristics of skill performance as a basic base for building exercises used in the activity, whether in terms of form or in terms of the amounts of resistances, rhythm of performance, number of repetitions and other physical specifications for building training, which achieves development in training programs and basic objectives of skill performance, which is one of the most important criteria for the success of the training program, especially at high sports levels. , which is due to the differences between the players in a large

proportion to differences in the methods of training and planning in terms of goal, content and evaluation. (1) 4 : 213)

The qualitative exercises are all the exercises that represent the motor performance of the activity in general, and should be taken into account in these exercises the foundations and rules of movement required by this activity, and work where the muscles working in the same way or in a similar way to those working during the competition and in terms of the direction of movement and strength and performance time.

Specific exercises are specialized exercises to a large degree and are related to sports activity and in the direction of performance, and there is also a dynamic match between its course and between the technical path of the skill, and help to develop the elements of physical fitness in proportion to the requirements of the activity practiced to develop technical performance.

There are a number of basic skills in the game of volleyball, which in turn need a high level of physical abilities and skill, and these skills are overwhelming beating, as we find it one of the basic skills of effective attack, the skill of overwhelming beating through which the team can resolve the point and thus resolve the half and then resolve the match in his favor and given that and the limits of the researcher's knowledge through reference research and currency in volleyball as a player and coach and the lack of use of modern means in the process of developing the program Appropriate training, this prompted the researcher to conduct this study to stand on the anatomical analysis of the most important working muscles of the skill of overwhelming beating in volleyball using modern devices to measure electrical activity muscle (EMG) to allow coaches to direct the most important exercises specific to the skill.

Second: The importance of research.

1- Take advantage of the analysis of electrical activity in identifying the optimal performance of the skill under research.

2- Develop a set of qualitative exercises (physical and skill) that serve the skill under research.

3- Saving time and effort in improving the performance of the skill of crushing beating during its various stages.

4- Directing accurate scientific advice from the coach to the player, which helps to speed up learning and reach the correct techniques.

Third: Research Objectives:

1- Identify the most important determinants of electrical activity analysis that govern the performance of the overwhelming beating skill.

2- Develop a set of qualitative exercises (physical and skill) that serve the skill of overwhelming beating.

3- Designing a training program using qualitative exercises for the skill of overwhelming beating.

Fourth: Research Questions and Hypotheses

1. What are the most important analysis of the electrical activity of the muscles of the upper and lower extremities for the skill of crushing beating during its various stages?
2. There are statistically significant differences between the pre- and post-measurements in the development of physical and skill variables under research in favor of the post-measurement.

Fifth: Terms used in the research.

1- Muscle Electromyograph :

The method of measuring the activity that stimulates the muscles during contraction and relaxation of the muscle at any moment during the stages of skill performance.

2- Specific Exercises:

It is an auxiliary exercises designed according to the motor model of the skill in terms of motor direction and strength responsible for movement during performance.

3- EMG Electromyography :

The electromyography device (E.M.G) is used to study the electrical muscle system, this device has the ability to detect, record and store the signal (E.M.G), which is a biological signal that represents the electric current generated inside the muscle during its contraction.

4 – Spiking skill:

"It consists of hitting the ball with one hand by force to pass it completely over the top edge of the net and direct it to the opponent's court in a legal way." 23:137 (

First: Research Methodology

The researcher used the experimental method for one experimental group due to its suitability to the nature of the research. Using electrolysis, the researcher also used the descriptive approach.

Second: Research Community

The research community included volleyball players from the first-class team of Al-Shams Club (Premier League, Section A), who are registered in the Egyptian Volleyball Federation for the 20 season21/2022

Third: Research Sample

The research sample was tested in a deliberate way between volleyball players from the first-class team of Al-Shams Club (Premier League, Section A), who are registered in the Egyptian Volleyball Federation for the 20-21/2022 season. The number of members of the research sample (20) players was distributed as follows:

1- Number of players participating in the exploratory studies:

- (10) players stage excellent (a) Sun Club .

2- **The number of emerging basic sample:**

- (10) juniors for the experimental group (qualitative training).

2: Homogeneity of the research sample:

The researcher conducted homogeneity between the members of the total research sample Table No. (1) in the physical variables under research as well as in the skill variables Table No. (4)

Table (1)

Arithmetic mean, standard deviation and torsion coefficient of the total sample in physical variables n = 20

coefficient Sprain	**Standard deviation**	**Broker**	**Average**	**Statistical data** / **Measurements**	**soap opera**
0.31	1.14	8.45	8.57	Arms capacity/cm	1
0.01 -	14.83	49	48.95	Leg capacity/cm	2
2.17 -	4.7	12.5	9.51	Abdominal	3
0.11	0.77	3.3	3.33	capacity/number	4
0.52 -	1.9	8.55	8.22	Transition velocity/s	5
- 0.09	18.43	47	46.4	Agility/sec	6
zero	16.9	44.5	44.5	Elasticity/cm	7
				Compatibility/Number	

It is clear from Table (1) that the values of the torsion coefficients were limited between $\pm$ 3 Which indicates the homogeneity of the research sample in the measurements of physical variables.

Table (2)

Arithmetic mean, standard deviation and torsion coefficient of the total sample in the overwhelming multiplication n = 20

coefficient Sprain	**Standard deviation**	**Broker**	**Average**	**Statistical data** / **Variables**	**soap opera**
zero	2.10	7	7	Diagonal multiplication accuracy from center 6/degree	**1**
0.08-	1.73	8	7.95	Diagonal multiplication accuracy from center 2/degree	**2**
1	1.50	5	5.5	Diagonal multiplication accuracy from center 3/degree	**3**
0.99	**1.81**	6	6.6	**Linear multiplication accuracy from center degree/1**	4

It is clear from Table (2) that the values of the torsion coefficients were limited between $\pm$ 3 Which indicates the homogeneity of the research sample in the measurements of skill variables.

2: Analytical sample:

The research sample consists of one player from the national volleyball team and has been selected in a deliberate way .

3 Conditions and specifications of the research sample:

The researcher has set conditions for the selection of the research sample, which are as follows:

- The player's consent to perform the tests.
- The player is free of injuries.
- Participate regularly in trial or official matches.

Table No (3)

Description of the research sample in the variables of age - height - weight

	Variables
35	Age
190.216	Length
84.300	Weight

Fourth: Means and tools of data collection

- The researcher used to collect data and information on the research by reviewing scientific references, research and previous studies on the subject of the research and what is available from the international information network "Internet" as follows:

Tools used in analysis and recording

- Volleyball court. - Computers (computer).
- A data dump form. - Volleyballs. - Whistle .
- Video camera. – Assistants.
– EMG Electrical Activity Measuring Device Appendix No. (2)

The muscles used under consideration :

The researcher measured the electrical activity of 16 muscles, divided into 8 muscles for the upper limb and 8 :cles for the lower limb as followsmus

Left Musculus biceps femoris	Left biceps femoral muscle	1
Left Gastrocnemius	Left lateral muscle	2
Left Rectus Femoris	femoral left muscle-Rectus	3
Left Tibialis Anterior	Left anterior tibial muscle	4
Right Biceps Femoris	femoral muscle Right biceps	5
Right Gastrocnemius	Right lateral muscle	6
Right Rectus Femoris	femoral muscle-Right rectus	7
Right Tibialis Anterior	Right anterior tibial muscle	8
Right Biceps	Right biceps	9
Right Deltoid	Right deltoid muscle	10
Right Infraspinatus	Right subspinal muscle	11
Right Latissimus Dorsi	Right latissimus dorsal muscle	12
Right Pectoralis Major	Right pectoralis great muscle	13
Right Rectus Abdominus	Right abdominal rectus muscle	14
Right Trapezius	Right trapezoidal muscle	15
Right Triceps	Right triceps muscle	16

*** Physical tests used in the research:**

The following physical tests were used: Attachment (2)

- Throw a medicine ball to the maximum distance with the preferred arm 3 kg/cm (muscular capacity of the arms) (22:38)(37:43)
- Vertical jump with step up / cm (measurement of muscular capacity of the legs) (4 : 267) (41 : 113)
- Sitting from lying down 10s / time (measuring the capacity of the abdominal muscles) (40: 139) (22: 38) (12: 128).
- Sprint 18 m/s (measurement of transition velocity) (41 : 18) (37 : 43) (45 : 43)
- Test Run 9-3-6-3 - 9/s (agility measurement) (45 : 42) (41 : 143) (22 : 96)
- Raising the trunk from prone / cm, w (elasticity measurement) (45 : 42) (22 : 96) (37 : 43) .
- Throwing the ball on the wall / Number (compatibility measurement) (45 : 42) (14 : 86) (37 : 49)

Skill tests used in research:

Through the researcher's access to references and scientific studies related to volleyball. Annex (3).

- The accuracy of the diagonal overwhelming multiplication of the center (6).
- Accuracy of diagonal offensive strike from center (2)
- Accuracy of offensive strike from center (3)
- Accuracy of linear offensive multiplication from center 1 (21)

These physical and skill tests were used extensively and have been conducted scientific coefficients, which ranged stability coefficients between 0.70: 0.94 and credibility coefficients between 0.74: 0.96, which are high stability and honesty coefficients can be taken in this research. (61 : 84 ،16) (4 :117–142) (60: 267) Despite this, the researcher has conducted scientific transactions to stabilize these tests on the sample of the exploratory study by conducting a re-test as well as finding self-honesty as shown in Table (4).

Table (4)

Stability coefficient for physical and skill tests under research n = 10

Value (t)	Second measurement		First measurement		Test Name
	± p	Going to	± p	Going to	
0.99	1.13	8.57	1.14	8.56	Arms capacity/cm
0.98	6.96	48.4	6.66	48.95	Capacity of legs/cm
0.71	1.47	12.5	1.42	12.7	Abdominal capacity/number
0.96	0.27	3.30	0.29	3.31	Transmission speed/s
0.79	0.38	8.67	0.49	8.66	Agility/sec
0.98	5.40	46.8	5.78	46.6	Flexibility/cm
0.74	3	45.2	3.01	44.5	Compatibility/Number

Folow Table (4)
Stability coefficient for physical and skill tests under research n = 10

Value (t)	Second measurement		First measurement		Test Name
	± p	Going to	± p	Going to	
0.95	2.4	7.4	2.1	7	Diagonal crushing multiplication accuracy from center degree/6
0.94	2.04	8.25	1.73	7.95	Diagonal crushing accuracy of center degree/2
0.85	1.46	5.7	1.5	5.5	Overwhelming beating accuracy from center 3/degree
0.92	1.95	6.7	1.82	6.6	Overwhelming paced multiplication accuracy from center degree/1

It is clear from Table (4) that there is a correlation between 0.71: 0.99 between the first and second applications of the tests used to measure the level of physical and skill tests under research, which indicates the stability of these tests.

Table (5)
Honesty coefficient (sincerity of differentiation) for the tests under research n1=n2=10

Differentiation honesty coefficient	coefficient ETA²	Value (v)	The difference between the two averages	Low Level		High Level		Test Name	M
				p ±	Going to	± p	Going to		
0.84	0.67	*4.14	1.16	0.37	7.4	1.14	8.56	Arms capacity/cm	1
0.75	0.57	*2.94	5.35	3.89	43.6	6.66	48.95	Capacity of s/cmleg	2
0.92	0.85	*6.8	2.8	0.99	9.9	1.42	12.7	Abdominal capacity/number	3
0.96	0.92	*10	0.74-	0.41	4.05	0.29	3.31	Transmission speed/s	4
0.98	0.96	*14.9-	1.94-	0.25	10.6	0.49	8.66	Agility/sec	5
0.76	0.57	*2.97	4.6	3.13	42	5.78	46.6	Flexibility/cm	6

Follow Table (5)
Honesty coefficient (sincerity of differentiation) for the tests under research n1=n2=10

Differentiation honesty coefficient	coefficient ETA²	Value (v)	The difference between the two averages	Low Level		High Level		Test Name	M
				p ±	Going to	± p	Going to		
0.76	0.58	*3.08	2.5	1.49	42	3.01	44.5	Compatibility/Number	7
0.75	0.56	*2.9	1.7	1.16	5.3	2.1	7	Diagonal crushing multiplication accuracy from center 6/degree	8
0.70	0.48	*2.34	1.05	0.99	6.9	1.73	7.95	Diagonal crushing accuracy of r 2/degreecente	9
0.74	0.54	*2.71	1.3	1.39	4.2	1.5	5.5	Overwhelming beating accuracy from center 3/degree	10
0.78	0.61	*3.3	1.5	0.74	5.1	1.82	6.6	Overwhelming paced multiplication accuracy from center 1/degree	11

Tabular value (T) at 0.05 = 2.101

It is clear from Table (5) that the coefficient of honesty is of high significance between the high and low level, where the degree of honesty between (0.70: 0.98) and that all of them are a function at the level of (0.05), which confirms the sincerity of these tests in what was developed for them and that they can differentiate between players under 17 years and excellent players (B).

Fifth: Exploratory Study:

- The researcher conducted the exploratory study to ensure the validity of the devices and tools used in the research from 29: 30/5/2021 AD

The researcher has verified the validity of the tools and devices used in the research.

- The researcher conducted scientific transactions to ensure the scientific transactions "stability - honesty" for the tests used under research in the period from 3: 10/6/2021 AD.

▪ The researcher made sure that the scientific transactions are of high significance, which confirms their suitability for tabular use. (7),(8)

Sixth: Program:

- The researcher applied a program to a sample of 10 players, qualitative training, and the period of application of the program was 12 weeks.

1- Proposed training program:

The division is carried out into three stages:

2- Qualitative Training Program:

The researcher divided the program into three phases, as follows:

First Stage:

This stage is located at the beginning of the proposed training program and consists of three weeks by three units per week for the qualitative training program, and the goal of this stage is to develop the endurance of muscular strength as well as prepare the player in the stages in which the intensity is raised to high degrees.

Training load intensity:

The researcher has legalized the intensity of the training load in the first stage to develop the strength endurance of each player separately, where the intensity of the load started from (25%: 40%) of the maximum ability of the individual using the path of low-intensity interval training at an average performance speed. The time to perform one exercise was (5s). (26: 69)،(9 : 274)،(52 : 810).

Training load size:

The researcher determined the number of repetitions ranging from (5: 8), (6) groups.

Breaks:

The researcher specified breaks from (45 – 60 s) between each exercise and the other to develop the endurance of strength, (2: 3 s) minutes between each group and the other, and this force is sufficient to return to the heart to part of the normal state any pulse to 110: 120 beats / minute, and this is confirmed by the second exploratory study carried out by the researcher to determine the rest periods and agrees with this opinion with both Adel Abdul Basir on (1992), Mohammed Hassan Allawi (1992) (18: 121)،(39 :219)

Second Stage:

This stage is from three weeks starting from the beginning of the fourth week until the end of the sixth week and aims to improve the maximum strength of the players in addition to the development of muscle size.

Training load intensity:

The researcher rationed the intensity of the load to develop the strength of the judge and increase the size and strength of the working muscles in the second stage of the proposed program for each player separately, where the intensity of the load started from (80%: 85%) of the maximum intensity of the individual using the method of training interval high intensity and slow performance speed, and the time to perform one exercise (7s).

Training load size:

The researcher determined the number of repetitions to range between (3: 4) repetitions decreases as the intensity increases, (4) groups. (28 : 122)،(17 : 95)(14 : 106)

Rest periods:

The researcher determined a rest period (60 s) between each exercise and another, (3: 4) minutes between

each group and the other, and this period is sufficient to return to the stage of recovery and this is confirmed by the third exploratory study.

Third Stage:

This stage is of six weeks, which is for qualitative training exercises and begins with the beginning of the seventh week until the end of the twelfth week, and aims to develop the muscular ability of the players, as well as the player to take out the strength gained in the previous stages as quickly as possible, and this stage is the last stage of the program before the competition.

The proposed training program "qualitative"

- The researcher identified the foundations and general rules for qualitative training exercises and progress of the components of pregnancy (intensity - size - interstitial comfort) according to what was reported by both Allan Hedric (1996), Neil Fowder (1998), Abdel Ati Abdel Fattah and Khaled Mohamed Ziadeh (2003) as follows:
- The biometric training program must be preceded by a foundation program as a prelude and establishment of muscular strength, and this is what the researcher did through the first two stages, "strength endurance", and the second "maximum strength" through weight exercises, **which are characterized by the following:**
- The exercises should be similar in composition to special technical skills in volleyball.
- To be done muscular work in the same muscles involved in the performance of skill in volleyball.
- To perform exercises under the prevailing energy production system in volleyball.
- The specific exercises should be performed with high intensity and a large range of motion, as the activity of the neural motor units allows the implementation of movements in the shortest time and explosively.
- The player must push the ground with very great force at the moment of collision to obtain the greatest force imposed by qualitative training in a short time whenever possible and at a very high contraction speed.
- The depth of the bend "forced lengthening" must be proportional to the level of muscular strength of the e height of the legs by controlling th box on which the deep jump is performed according to the players' .abilities (44 : 28 – 36) (84 : 34 – 37) (22 : 16)

Seventh: Basic Study

The researcher applied the basic study in the covered hall of Al-Shams Sports Club at 3 pm Where measurements were applied Tribal measurements were applied during the period from 22/6/2021 to 26/6/2004.

- The basic experience was applied starting from 27/6/2021 for a period of three months "12 weeks" and by three training units per week on Sunday, Tuesday and Thursday.
- The experimental group (qualitative) underwent one program as a constructive and basic program for what will be done after that

- The qualitative training group underwent a program to develop the muscular ability of each of the arms, trunk and legs starting from the seventh week, through eight specific exercises for the same muscle group attached (5).
- The dimensional measurements were applied after the completion of the application of the training program for the members of the two research samples period, and it was taken into account that all measurements are carried out as they were made in the pre-measurement.

Eighth: Statistical Treatments:

- Arithmetic mean
- Broker
- Standard deviation
- Torsion coefficient
- T. Test
- Percentage improvement.
- Eta
- The truth of differentiation

Presentation and discussion of results

Table (6) shows that the electrical activity of the left biceps femoral muscle is the integration coefficient in the stage of the last step of the crushing beating (0.15667) and in the stage of ascending to the overwhelming beating (0.163223) and in the downward stage of the crushing beating (0.087576) and the integration coefficient of the left biceps femoral muscle for the skill of crushing beating as a whole (0.407469) and recorded the arithmetic average of the electrical activity of the left biceps muscle during the stage of the last step of the crushing beating (0.174292) and in the stage of ascending to the crushing beating (0.2729) and in the stage of descent from the crushing beating (0.274212) and the arithmetic average of the left biceps femoral muscle for the skill of crushing beating as a whole (0.223774) and recorded the electrical activity of the left biceps femoral muscle standard deviation during the stage of the last step of the crushing beating (0.170095) and in the stage of ascending to the crushing beating (0.237396) and in the downward stage of the crushing beating (0.289942) and the electrical activity of the left biceps femoral muscle recorded a standard deviation of the skill of the crushing beating as a whole (0.223087) and the largest value of the electrical activity of the left biceps femoral muscle during the stage of the last step of the crushing beating (0.722461) and in the stage of ascending to the crushing beating (0.950816) and in the downward phase of the crushing beating (1.07902) and recorded the largest value of electrical activity of the left biceps femoral muscle of the skill of crushing beating as a whole (1.07902) and the lowest value of electrical activity of the left biceps femoral muscle during the stage of the last step of the crushing beating (0.006058) and in the stage of ascending to the crushing beating (0.023199) and in the landing phase of the crushing beating (0.03156) and recorded the lowest value of electrical activity of the left biceps femoral muscle for the skill of crushing beating as a whole (0.006058) and the sum of the values of electrical activity of the

left biceps femoral muscle during the last step stage of the crushing beating (157.037155) and in the stage of ascending to the crushing beating (164.012939) and in the downward stage of the crushing beating (88.022003) and the sum of the values of the electrical activity of the left biceps femoral muscle for the skill of crushing beating as a whole (407.491913).

Table (6) shows that the electrical activity of the lateral muscle of the left leg was the integration coefficient in the stage of the last step of the overwhelming beating (0.609839) and in the stage of ascending to the overwhelming beating (0.483096) and in the stage of landing from the crushing beating (0.242614) and the integration coefficient of the lateral muscle of the left leg of the crushing skill as a whole was (1.335549) and the arithmetic mean of the electrical activity of the lateral muscle of the left leg during the last step stage of the crushing beating (0.677777)

A- Discuss the results of physical variables:

It is clear from Table (6) that there are statistically significant differences between the pre-dimensional measurements of the physical variables in favor of the dimensional measurements, which means and confirms the effectiveness of the proposed "qualitative" training program in improving all physical variables "the ability of the arms - the ability of the legs - the ability of the abdomen" as evidenced by the improvement rates of these variables, and these results are consistent with what Surdt pointed out Swordt (1997) that qualitative training develops and improves strength and speed "muscular ability" (88: 11) and agrees with the opinion of both Hydrsheet et al. Heidercheit & et all (1996), Mr. Abdel Hafez (1996), Abu Ela Abdel Fattah (1997) and the results of the study of Osama Mohammed Abu Tabl (1999), Mohamed Jaber Abdel Hamid and Atef Rashad Khalil (2001). , and David Kloch David clutch (1993) that qualitative training has a positive impact on the development and improvement of muscular ability. (70: 125)،(8 :29)،(2 :22)،(5 : 18) ،(37)،(62)

From the above, the researcher believes that the qualitative training program of the experimental group has improved the physical variables under research

B- Discussing the results of skill variables:

It is clear from the results of Table (7) that there is an improvement in the skill variables (Qatari offensive multiplication from the center of 6 - the Qatari offensive hit from the center of 2 - the offensive beating from the center of 3 - the linear multiplication of the center of 1) by comparing the significance of the differences between the pre- and post-measurements of the experimental group "qualitative training" for these measurements, where the results appeared in favor of the post-measurement as well as through the significance of the percentage of improvement.

These results come to confirm the effectiveness of the proposed training program "qualitative" in improving the level of skill performance and in this area indicates Talha Hossam El-Din et al. (1997) that qualitative training is the entrance to improve the level of performance (16: 79, 80) and consistent with what was pointed out by Abdul Aziz Al-Nimr and Nariman Al-Khatib (1996) (26: 114) and the results of the study of Ilham Abdul Rahman Muhammad (1997) (10), and the results of this study are consistent with the results of the study of Mata Volge et al. Matavulg & and all (2001) (79) as well as the results of the study of David Kloch David Clutch (1993) (62) as well as with the results of a study on Salama Ali and Mohammed Al-Hefnawy (2000). (31)

From the above, the researcher believes that the proposed qualitative training program for the experimental group has improved the level of skill variables under research, consistent with what was pointed out by Massad Ali Mahmoud (1997), and Adel Abdel Basir (1999) that as the percentage of the physical level of the players increased, their physical fitness improved with its various components and increased the players' ability to master the performance of motor skills. (48 : 125) (17 : 245)

Table (7) on the significance of the differences between the pre- and post-measurements of the members of the second experimental group "polyomic training" in the variable of maximum strength shows the existence of statistical significance in favor of the post-measurement, which confirms the positive impact of the proposed training program "qualitative training" in raising the level of maximum strength of the sample members, which reflected its impact on the physical variables Table (7) as well as skill variables Table (13) Thus, the researcher believes that the proposed training program "qualitative" has effectively contributed to the development and improvement of physical research variables and skill thanks to improved maximum strength, as Headerchit et al. point out HeoderCheit & et all (1996) that qualitative exercises lead to the positive impact of the development of maximum strength that leads to the development of the ability that you need a lot of motor skills (70: 125) and confirmed by McGlen Mc Glynn that qualitative training is used to improve maximum strength (81: 93), and the results of this study agreed with the results of Mata Volge et al. Matavulg & and all (2001) (79), as well as the findings of Wilson et al. Wilson & et all (1996). (92)

First of all: Conclusions.

In light of the results of the research, the limits of the research sample, the method used and the statistical treatment, the researcher was able to reach the following conclusions:

1. Evaluation of the electrical activity of the muscles of the lower limb to hit the crusher for the total muscular activity of the skill as a whole for the center (2) record of the left lateral muscle The highest electrical muscle activity with a value of (1336.24) mV

and the record of the right trapezoidal muscle The highest value (1014.427) mV for the values of the electrical activity of the muscles of the upper limb to hit the crusher for the total muscular activity of the skill as a whole for the center (2).

2. Relying on the use of qualitative exercises (physical - skill) when developing education and training programs.

3. Attention to electrolysis as an indicator of qualitative performance exercises.

4. Improvement between the pre- and post-measurements of the members of the qualitative training group in the physical variables (the ability of the arms - the ability of the legs - the ability of the abdomen)

5. Improvement between the pre- and post-measurements of the members of the qualitative training group in the skill variables Accuracy of diagonal multiplication from center 6 - accuracy of diagonal multiplication from center 2 - accuracy of offensive multiplication from center 3 - accuracy of linear multiplication from center 1)

Second: Recommendations.

In light of the objectives and conclusions of the research and depending on the data and results of this research, the researcher recommends the following:

1- The need to conduct research in the electrical muscular activity of the working muscles for different skills.

2- The need to direct the attention of coaches to train on the results of electrical muscle activity research because of the development and improvement of performance, which contributes to raising the level of players and the game.

3 - The need to equip and prepare qualitative exercises and others on the scientific basis that contributes to the development of public and private muscles.

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