

# The Effect of Muscle Strength Training in the Opposite Way on Increasing the Range of Motion and Working Muscles of the Ancestral Ends of Football Players

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**Abstract** - The study aimed to identify the effect of strength training in the opposite way in increasing the range of movement and working muscles of the ancestral parties of football players. The study was conducted on a sample of Diwaniyah football team consisting of (16) players and the researcher used the experimental method by (8) weeks by ( 3) Training units per week, and the time of the main part of the daily training unit ranges at a rate of (40-60) minutes. The researcher used statistical treatments in the SPSS statistical program and concluded the following:

- The muscle strength exercises in the opposite way contributed to increasing the motor flexibility and working muscle strength.

#### **The most important recommendations**

- The necessity of making use of this study in increasing the range of movement and strengthening the working muscles of the lower extremities of football players.

**Keywords---** Football Players, Strength Training, Opposite Way.

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## I. INTRODUCTION

Some studies have shown that the maximum intensity and intensity of the voltage can be determined by the intensity of the nerve pulse current, since the types of maximum speed such as the short enemy in which the current pulses reach the maximum intensity that leads to the production of motility devices through the activation of muscle tissue and muscles existing with the maximum contraction of that The speed embodies the relationship between muscle strength and time and the ability of skeletal muscle cells to adapt to the required representational variables, and that "codified and studied scientific training leads to changes in many of the structural and analogue components of the muscles that are reflected in the amount of what they possess For a body of kinetic energy that has to do with the mass of the body and its speed, and that these changes are key factors in determining the physical ability under the influence of training stimulation according to the methods of speed development and that the knowledge of the trainer and the player about the details of the training process surrounding skill performance and the different effects of variables of this process is one of the most important elements of the success of the training process.<sup>1</sup>

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And the training procedures mean that the accumulation that takes place over long training periods in which the coach does not take into account the levels of player load and the lack of an appropriate balance between the components of their physical preparation as a basis for fitness, and one of the most common mistakes is omission. For a trainer on the importance of the elasticity characteristic of the joints and the muscular elasticity, and in this regard we mean the extent of the trainer's interest in setting a special program to develop the motor range of the joints in a way that suits the requirements of skill performance and its sufficiency by using selected types of flexibility exercises during the warm-up processes without specific planning and organization. Positive, the negative range for any joint is the extent to which the joint can move under the influence of an external force, and the positive range is the range that is under control without an external factor, and there are some factors that cause obstruction to the training process, including a Psychological pressure, it is only a state of psychological imbalance player body is forced to carry out the duties of functional requirements to meet the mental or physical or psychological do not usually adapt to and balance with the training environment. Hence the importance of research in identifying the problem, as it deals with an important joint, which is strengthening the working muscles of the lower limbs and increasing the dynamic range of football players and finding scientific treatments through the appropriate tools and devices and some physical and skill exercises that are appropriate to the capabilities and capabilities of the players to work normally and prepare them for competitions.

## **II. RESEARCH PROBLEM**

The scientific progress and the development of the training tools made the athlete subject to exercises within a specific angle, and therefore the effort became concentrated on one part and not another, which has a negative effect in increasing the body's load on the untrained parts or on which I focus on performing athletic exercises. Regular exercise on the athlete's body can lead to injury. Also, the trainers' neglect of the importance of the flexibility characteristic of the joints and the elasticity of muscles, and in this regard we mean the extent of interest in setting a special program to develop and develop the dynamic range of the joints, strengthening the working muscles of the lower limbs in a manner consistent with the requirements of effective skill performance.

The research problem lies in the lack of attention of the trainers and the lack of training curricula based on studied and codified scientific foundations as well as the lack of specialized technical cadres with sufficient experience as well as advanced modern tools and devices that contribute to developing the output of the activity of working muscles, especially in the lower end of the body, so the researchers saw in Putting a set of exercises for muscle strength in the opposite way in increasing the motility range and the working muscles of the ancestral ends of football players and knowing their effect on the motility range and response of the working muscles as well as the chemical variables that affect the body.

### **Research objectives**

1. Learn about the effect of strength training in the opposite way on increasing the range of movement and working muscles of the lower limbs of football players.
2. Identify the differences between the pre and posttests in increasing the motor range and strengthening the working muscles of the lower limbs of football players for the experimental and control groups.
3. Identify the differences between dimensional tests in increasing the range of motion and strengthening the working muscles of the lower limbs of young football players for the experimental and control groups.

## Research hypotheses

- I. There is an effect of muscle strength training in the opposite way in increasing the range of movement and working muscles of the lower limbs of football players.
- II. There are statistically significant differences in increasing the range of movement and working muscles of the ancestral parties of football players and in favor of dimensional tests.
- III. There are statistically significant differences in increasing the motor range and working muscles of the ancestral parties of football players and in favor of the experimental group.

## Research domains

1. **Human domain:** The research sample included (16) players from the Diwaniyah team.
2. **Temporal domain:** for the period 12/1/2018 - 6/4/2019.
3. **Spatial domain:** The football school's playgrounds The Medical Rehabilitation and Treatment Center at Al-Diwaniyah Hospital - Pathological Analysis Laboratory in Al-Diwaniyah Hospital - Future Iron Hall for Fitness in Al-Diwaniyah - the modern Italian swimming pool in Al-Diwaniya.

## Field research procedures

### Research Methodology:

The researcher used the experimental method using the equivalence groups method, as it suits the nature of procedures search.

### Community and research sample:

Was selected 16 players purposively from the research community of 24 players from the team Qadisiyah province football was conducted homogeneity between the sample, as the sample was divided into two groups (experimental and third control) in a way draw at random where the number of members of each group (8) Players as shown in table (1).

**Table 1:** Shows the mean, standard deviation, mean, and torsion value for homogenization of the sample

Variables	Mean	SD	Median	Skewness
Age	24.84	0.63	24.0	0.96
Weight	78.53	1.86	78	0.82
Length	176.34	0.52	175	0.98

It is clear from Table (1) that the values of the torsional coefficient are less than (1), which means that the sample is homogeneous.<sup>2</sup>

### Research means and devices:

- Arab and foreign references and sources
- Tests and measurements.
- Results registration form.
- Physiotherapy devices (Tens), sound Ultra.
- A device for measuring weight and height prepared for this purpose - an electronic stopwatch.
- Swimming pool, EMG device from the German-made Myotrace company.
- DELL laptop computer.

- Neuromuscular activity examination. Elastic bandage straps and straps are damaged around the ankle joint.
- Ancillary staff.

### **Pilot study:**

The researcher conducted a pilot study on (8) players from the sample members on 15/2/2018 at ten o'clock in the football school stadium in Al-Diwaniyah Governorate and the physiotherapy laboratory in Al-Diwaniyah Hospital, and the aim of the exploratory experiment was to identify.

1. The time it takes to test the electrical activity of the twin muscle.
2. The validity of the EMG.
3. The assistant team's ability to administer the tests.
4. Laboratory validity and suitability for performing the tests.
5. The obstacles and difficulties that accompany taking the tests.
6. Timings of applying the proposed training curriculum.

### **Field research procedures:**

#### **Research tests:**

- Electrical muscle activity test for the working muscles of the lower limbs.
- The goal of the test: To measure activity of the muscles working on the ankle joint according to the electrical muscle wave variables.
- Test description: The examination sensors were positioned above the muscle of the muscles operating on the ankle joint superficially, and from these twin muscle muscles and from the standing position the laboratory is required to push the ground and stand on the finger combs to generate a force that in turn constrict the twin muscle and obtain an output of the electrical signal of the muscle which translates in the form of linear curves with nomenclature known as (Amplitude), the wave capacitance includes the wave area variable known as (Area) and the variable wave amplitude of the period which is known as (Duration).
- Recording method: Recording is done by translating the muscle wave of the muscle into digital data that appears on an electronic screen prepared within the EMG program.

#### **Physical tests:**

Vertical jump test :<sup>3</sup>

Three records for the greatest distance for each individual man <sup>4</sup>

Kinetic speed test <sup>5</sup>

#### **Skill tests:**

- High accuracy of receiving balls from jumping and handling <sup>6</sup>
- The goal of the test: To measure the skill of receiving the high ball and handling it towards the target.
- How to take the test: The player stands behind the (18) yard line to the opponent's goal, and coach (A) stands on the right and a distance (5 yards) from the corner of the penalty area, and coach (B) stands on the left and a distance (5 yards) from the corner of the area Penalty. Coach (A) handles high to the target area (Over). The attacking player moves to receive the ball from between the players and then handles it to coach (B) standing on the left side, then coach (B) makes high handling to the target area

(Over). Registration: the attacking player is awarded (2) score for every attempt to receive and handle a correct ball of hatred to each of the coaches (A) and (B) and (1) score for each attempt to receive correct and handling An error of hatred to both the coach (a) and (b) and vice versa (0) if he mistake in receiving and handling the ball. The test is repeated (3) from each side, the attempt is repeated if the coaches mistake by sending the ball as required to the attacking player, the total score of the test (12) degree.

### **Receiving the side ball with the jump (bouncing):<sup>7</sup>**

- The goal of the test: to measure the skill of flying (flying) on the ball with jumping, and playing the ball with the foot, head and all body except the hand.
- How to take the test: The player stands behind the (18) yard line to the opponent's goal in the ready mode, and the ball throwing device is placed on the left and right sides (10) and (18) yard away from the corner of the penalty area.
- Registration: the attacking player is awarded (1) score for every correct attempt and does not give any score if he misses or fails to catch the ball and not play it. The attempt is repeated if the device mistake by sending the ball as required to the attacking player, the total score of the test(10 marks).

### **Hitting the ball with one foot:<sup>8</sup>**

- The goal of the test: to measure the skill of you (hitting) the ball with one foot to the opposite side of the target and for a specific distance.
- How to take the test: The player hits the ball in the (whip) way high to the penalty area. Registration: The attempt is considered successful if it passes the ball, which divides the middle of the square into two parts.
- The total degree (5) degrees.

### **Training program:**

The researchers conducted the main experiment on 2/3/2018 for a period of (8) weeks, at the rate of (3) qualifying units per week. The training unit time was (70-90) minutes. The experimental and control groups were subject to the training conditions in terms of time and environmental conditions themselves, except for adding exercises. Force the opposite method to the experimental group.

Gradient exercises from easy to difficult, strengthening the working muscles of the lower limbs, increasing the range of movement in all directions, movement, and preparing a group of instant strength exercises in the opposite way accompanying positive and negative flexibility exercises to develop frustrated muscle strength, ankle joint flexibility by straps, rubber cords, devices of different weights, electrical stimulation and therapeutic sessions by Electrical stimulation and ultrasound: strongly (10% -60%), water exercises (swimming pool), elongated and stretching exercises using body weight, exercises using different resistances (marginal weights) from (20% - 40%) and medical balls in which the strength of the momentary exercises is used in the opposite way, using weightlifting and tools, in addition to body weight exercises such as jumping with rubber ropes and different resistance, such as (iron weights, different iron disks), and the intensity of the exercise is (30% - 60%).

### **Statistical means:**

To process the data used, the researcher used the statistical program SPSS.

### III. RESULTS:

#### Presentation, analysis and discussion of results:

**Table 2:** Show the mean, the standard deviation, the calculated value (t) and the significance level for the physical and skill tests are shown in the pre and posttests of the control group.

Variables	Pretest		Posttest		(t) calculated	(t) tabulated	Statistical function
	Wave amplitude	694.89	84.38	851.85	51.85	7.285	
Area wave	220.81	6.34	288.78	10.42	10.276	Sig.	
Wave transition period	0.65	0.053	0.37	0.012	12.618	Sig.	
Kinetic response / second	1.34	0.04	1.26	1.01	6.38	Sig.	
Distinguished strength at the speed of the two men / cm	11.42	1.35	12.76	1.19	3.47	Sig.	
Explosive force of the two men / meter	234.13	12.34	264.72	10.62	4.43	Sig.	
High accuracy of receiving balls from jumping and handling	6.67	1.34	10.83	7.15	3.94	Sig.	
Receiving the side ball with jumping (bouncing)	4.86	1.26	7.84	1.03	5.64	Sig.	
Hit the ball with one foot	4.13	0.75	5.58	0.64	7.68	Sig.	

**Table 3:** Shows the mean, standard deviation, calculated value (t) and significance level for physical and skill tests in pre and posttests of the experimental group

Variables	Pretest		Posttest		(t) calculated	(t) tabulated	Statistical function
	Wave amplitude	661.132	4.239	787.172	8.388	47.846	
Area wave	224.78	4.252	279.5	2.598	34.340	Sig.	
Wave transition period	0.582	0.006	0.346	0.006	42.469	Sig.	
Kinetic response / second	1.38	0.06	1.20	1.03	7.39	Sig.	
Distinguished strength at the speed of the two men / cm	11.46	1.30	13.87	1.12	2.64	Sig.	
Explosive force of the two men / meter	242.26	12.34	264.72	10.62	3.72	Sig.	
High accuracy of receiving balls from jumping and handling	6.67	1.34	10.83	7.15	5.65	Sig.	
Receiving the side ball with jumping (bouncing)	4.86	1.26	7.84	1.03	4.79	Sig.	
Hit the ball with one foot	4.13	0.75	5.58	0.64	7.43	Sig.	

**Table 4:** Shows the mean, the standard deviation, the calculated value (t) and the significance level for the physical and skill tests in the posttest tests of the experimental and control group

Variables	Control group		Experimental group		(t) calculated	(t) tabulated	Statistical function
	Wave amplitude	851.85	51.85	787.172	8.388	2.857	
Area wave	288.78	10.42	279.5	2.598	4.312	Sig.	
Wave transition period	0.37	0.012	0.346	0.006	3.474	Sig.	
Kinetic response / second	1.26	1.01	1.20	1.03	7.43	Sig.	
Distinguished strength at the speed of the two men / cm	12.76	1.19	13.87	1.12	4.53	Sig.	
Explosive force of the two men / meter	264.72	10.62	264.72	10.62	3.97	Sig.	
High accuracy of receiving balls from jumping and handling	10.83	7.15	10.83	7.15	5.84	Sig.	
Receiving the side ball with jumping (bouncing)	7.84	1.03	7.84	1.03	2.39	Sig.	
Hit the ball with one foot	5.58	0.64	5.58	0.64	8.72	Sig.	

The table shows table (2.3), arithmetic mean, standard deviations and the calculated value (t) between the pre and post measurements of the experimental and controlling groups of the physical and skill capabilities and the electrical activity of the working muscles used in the research. The results showed that all the differences for the tests are significant and in favor of the dimensional measurement, because the value ( Calculated t is greater than the value of the (tabular adult) (2.14 degree of freedom) (14 below the significance level) (0.05) in table (4).

#### IV. DISCUSS THE RESULTS

Through the presentation and analysis of Table (4), we note that there is a noticeable development in the researched variables of physical abilities, skills, and working muscles of the lower limbs. The researchers attributes the reason for the appearance of these results to strength training in the opposite way, which was reflected positively by setting these exercises in a studied scientific manner, and that the organization of the process Training and using the appropriate training load according to the individual capabilities and capabilities of the players and providing the ideal environment, tools and devices appropriate for training and supervising specialized trainers that lead to developing the physical and skill aspects of the players.

The researchers attributes the development in the level of the working muscles of the lower limbs to the exercises used in the training curriculum as well as the devices and tools used to help and to increase the experiences of the players in dealing with the nature of the exercises given, which positively affected the improvement in a better way than the traditional curriculum prepared by the trainer in terms of the quantitative

level And qualitative, and that the arrangement and organization of the effort exerted by the organism according to the goal and each varies according to the science in which it is examined. In physiology, it means the compatibility of muscle work, the compatibility of nervous work with the muscular, or the compatibility of muscle tissue, or the regulation of the work of strength, motor with the accuracy of performance in achieving the target with the economy in the effort. And that "the capabilities that a person acquires from the ocean, such as flexibility, agility and balance, and training and practice are the basis of them and develop according to the individual's physical, sensory and cognitive ability."<sup>9</sup> And also quoting Johnson and Nelson as "the innate aptitude and kinetic level that the individual has acquired and appears in the basic motor skills in competitions and games."<sup>10</sup> Also, the evolution of the kinetic response attribute to the nature of the exercises used is similar to the situations that occur in the game in terms of the number of iterations and time to perform, as well as the nature of appropriate rest with work times through the development of exercises that aim to speed handling And the speed of moving from one place to another in the vacuum inside the penalty area.

Likewise, the development of the distinctive force with speed is attributed to the focus on the repetition of the motor performance and the art of the motor performance of the player through maneuvering and attacking the ball during a certain period of time in the presence of the competitor requires the player to raise a large number of motor units as a result of rapid muscle cramps as well as the increase in the difficulty of exercise in terms of intensity Numerical, shortening and enlarging the distance needs to be linked between the elements of strength and speed. Therefore, the development of the strength distinguished by speed does not depend on the development of muscle strength and speed, both separately, but rather depends on the player's ability to merge these two elements together .<sup>11</sup> "The kinetic attribute that enables a person to accomplish an effort in the sense of a gradual merging of the required energy, accomplishing an excellent work for a muscular group of a series of movements with high efficiency and economic efforts," Kazim Abdel-Rubaie and Mowaffaq Majeed al-Mawla said.<sup>12</sup>

Also, the development of the characteristic of strength is due to the nature of the exercises used and the training load in terms of intensity and size of repetitions, where the performance at the beginning of the training curriculum was characterized by a lack of accuracy, fluidity, weak interconnection and coordination between different groups, due to the spread of nerve signals in multiple muscle centers, and is caused by That excitement of a group of muscles is not required to participate in the motor performance, and thus the performance shows confused and modest in its flow and is not related and there are excessive movements indicating the player's inability to control the muscles of the worker in the movement and the repetition of performance and correct correction of performance enters the Turkish stage It is limited to the specific muscles of the motor performance only, and after the application of the training curriculum for the experimental group, where at the beginning of the curriculum or the training units appeared weak in the kinetic performance and lack of flow of the experimental group and through repeated exercises at an average of (3) training units per week and at a rate of (8) weeks from the application of the training curriculum The researcher noticed that there is a clear development in the kinetic abilities, as the evolution of the accuracy of receiving high balls from jumping and handling them, as well as receiving the side ball with jumping (resting) is due to the motor program stored in the brain and can be developed through developing capabilities, skills and kinetic characteristics Another frame of mind, as well as the development of viability of sports on the events of reaction kinetic in the face of an event kinetic unexpected must develop predictability and adapt to the rapid the capacity of the reserve motor and linkage motor - balance - Flexibility - The possibility of reaction - strength and explosive power and versatility of the multi-performance. Also, the football player must be distinguished by sufficient muscle strength that



enables him to jump to the highest distance that enables the player to enforce high balls, as well as resist permanent physical friction, whether on the ground or with competing players. As for the development of skill performance, the researcher attributes this to the development of physical and motor abilities such as balance, accuracy, speed, strength and motor compatibility, all of these characteristics combined in harmonious overlap that make the player able to take different positions in his body as a whole or different parts of it until the required good performance is achieved. This is confirmed by (Schmidt) "that for every skill we learn, there is a dynamic program that has a stock in the brain and the more we use this skill, the more dynamic the stored program increases its accuracy and serenity."<sup>13</sup>

The researchers attributes the development of hitting the ball with the feet to continuous repetitions during the training unit and mastering the skill performance of the plans that requires from The player made a physical and skill effort in training, assisted the player in interacting with the skill, controlling his movements, and achieving consistency between the art of kinetic performance of the skill with the planned duties assigned to it and achieving the desired goal, which is achieving harmony between the movements that make up the skill in a sound sequence with the least possible time and continued The training flags help in mastering and developing the skillful performance, "so the football player will be a good player if he has grasped the basic skills and mastered them as required".<sup>14</sup>

## V. CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

1. The muscle strength exercises in the opposite manner had a positive moral effect in developing the motor range and working muscles of the lower limbs of the research sample.
2. The proposed training contributed to the development of the motor performance and some of the working muscles of the lower limbs of football players.
3. There is an advantage for the experimental group that used the muscle strength exercises in a way opposite to the control group in the studied variables.

### Recommendations

- I. Adopting the training curriculum for muscle strength exercises in the opposite manner in numbers of football players to develop physical and skilled football performance.
- II. The necessity of continuing to measure the variables of working muscles of the lower limbs periodically for football players.
- III. Carrying out similar studies concerning the working muscles of the muscles of the upper limbs, back and abdomen of other individual and group games.

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