



ISSN: 2456-4419

Impact Factor: (RJIF): 5.18

Yoga 2024: 9(2): 399-402

© 2024 Yoga

[www.theyogicjournal.com](http://www.theyogicjournal.com)

Received: 20-10-2024

Accepted: 28-12-2024

Dr. Yousif Hussein Abbas  
Open Educational College,  
Ministry of Education, Iraq

## The effect of the transformational training method in developing the muscular strength of the working muscles and some defensive skills in handball for advanced players

Yousif Hussein Abbas

DOI: <https://doi.org/10.22271/yogic.2024.v9.i2f.1680>

### Abstract

The research aims to identify the differences between the pre-test and post-test of the control and experimental groups in the muscular strength of the working muscles and some defensive skills in handball for advanced players. The researcher used the experimental method in the style of two equal groups to suit the nature of the research. The researcher identified the research community at the Handball Teachers Club within the *Iraqi Premier League* in the capital, Baghdad, consisting of (20) players who were divided into two equal groups, control and experimental. After conducting the pre-tests of muscular strength and skill in handball, the transformational training was applied to the experimental research group. After that, the experimental test was conducted to determine the effect of these exercises. It was concluded that transformational training has an important and major role in developing the muscular strength and skill of advanced handball players.

**Keywords:** Transformation, strength, defensive skills, handball

### Introduction

The development in the field through the integration of science and experience leads to accelerating and shortening the process of reaching the desired goals. The development and progress came as a result of studies and benefiting from sciences and other training programs different from the game itself in order to raise the technical and athletic levels to advanced stages and occupy the minds of many specialists in this field, which expanded greatly in order to obtain better results. Each method is based on a specific specialization in searching for the most accurate details to reach the highest levels, including the science of sports training, which seeks in this field to search for details in detail and introduce tools, methods, programs and planning in training curricula, the most important of which are physical characteristics and how to develop and improve them, which is considered one of the most important aspects in developing the sports level, and transformational training is a method to increase the efficiency of the working muscles “as the exercise is performed in the same way with maximum strength (as in shooting, jumping, or zigzag running, etc.) and it is called transformational training and linked to matches” (2: 96). Handball requires emphasis on developing special physical qualities for its clear impact on the game, and strength is one of the most prominent physical qualities that must be available to a handball player because of its association with the integration of offensive and defensive skill performance in handball. The importance of training muscle strength for handball players lies in its great relationship to implementing offensive skills such as shooting, deception and handling, while in defense we find it in the blocking wall and lateral movements, and the modern handball game depends on the physical build in most of its performance requirements, and this depends on building the muscular system. Through the researcher's experience in the field of handball (As a player and a coach) and his field observations, he noticed that most of the training curricula set for handball players, especially muscle strength, are characterized by traditional methods known without

**Corresponding Author:**

Dr. Yousif Hussein Abbas  
Open Educational College,  
Ministry of Education, Iraq

any connection between them and defensive skills in handball, which negatively affects the skill and planning aspects. This researcher decided to study the transformational training method in an attempt to reach a scientific curriculum that contributes to developing muscle strength and defensive skills for handball players.

### Research objective

1. Identify the differences between the pre-test and post-test of the control and experimental groups in the muscular strength of the working muscles and some defensive skills in handball for applicants.
2. Identify the differences between the post-test of the control and experimental groups in the muscular strength of the working muscles and some defensive skills in

handball for applicants.

### Method and Procedures

The researcher used the experimental method using the two-group equivalent method to suit the nature of the research. The researcher identified the research community as the Teachers Handball Club within the Iraqi Premier League in the capital, Baghdad, consisting of (20) players for the training season 2024-2025 AD. The research sample was chosen intentionally after excluding the goalkeepers, and their number was (4) so that the research sample consisted of 16 players. They were divided into two groups, a control group (8) players and an experimental group (8). Homogeneity and equivalence were carried out for the two groups according to Table (1).

**Table 1:** Homogeneity and equivalence of individuals in the control and experimental groups.

Sig	T-Calculated Value	Experimental Group			Controlling Group			Measure Unit	Variables	No.
		Twist	M	S	Twist	M	S			
0.545	0.545	0.474	2.850	28.125	0.113	3.536	27.250	Year	Chronological age	1
1.048	0.312	0.277	0.835	6.875	-0.045	1.061	6.375	cm	Training age	2
0.527	0.607	0.768	5.263	181.625	0.337	5.175	180.250	kg	Height	3
0.502	0.624	0.050	4.803	77.750	0.200	5.155	76.500	kg	Weight	4
0.344	0.736	-0.824	0.744	45.375	-0.404	0.707	45.250	kg	Maximum shoulder strength	5
0.632	0.537	0.277	0.835	93.875	0.824	0.744	93.625	Number	Leg strength	6
0.640	0.532	0.152	1.506	92.375	-0.242	2.315	91.750	Number	Leg strength	7
0.457	0.655	0.045	1.061	4.625	-0.488	1.126	4.875	Number	One-way defensive block	8
0.683	0.506	0.000	0.756	9.000	-0.404	0.707	9.250	Degree	Test of defensive movements for both sides	9
0.780	0.448	0.068	0.641	16.875	-0.068	0.641	17.125	Year	Various defensive movements with change of dire	10

### Tests Used in The Research

1. The first test is the barbell press behind the neck (9:71)

**Test objective:** A test that measures the maximum strength of the anterior and posterior deltoids and upper back muscles.

**Recording method:** The tester is given two attempts, his best attempt is recorded in (kg).

2. Half-squat (9:98)

**Test objective:** A multiple test that measures the maximum strength of large muscle groups, especially the muscles of the legs and trunk.

**Recording method:** The tester is given two attempts; his best attempt is recorded in (kg).

3. Strength endurance of leg muscles (6:101)
  - Test of leg flexion and extension, jumping in place from a (squatting) position.
  - **Purpose of the test:** Measurement of strength endurance of leg muscles.
  - **Tools used:** Two posts connected by a rubber rope placed parallel to the ground and at a height of (30 cm).
  - **Recording:** The tester's score is the number of correct repetitions.
4. One-way defensive wall test (5:215).

### The Purpose of the Test

To measure the player's ability to repeatedly perform the defensive block wall skill at the same rate.

### The tools are

A handball court, a handball suspended from a post at a height of 260 cm (this height may be less for juniors and women), adhesive tape, measuring tape, and a stopwatch.

### The performance specifications are

A mark is placed with adhesive tape on the 6-meter line. The tester stands above the mark on the 6-meter line, facing the suspended ball, which is fixed in the post on the 9-meter or 8-meter line. When the player (The tester) is given the start signal (Visually), he moves forward to stand up and perform the block wall skill so that he touches the suspended ball with both hands, then he lands on the ground and returns back to the mark drawn on the 6-meter line, to repeat the performance as many times as possible for ten seconds.

### Purpose of the test

To measure the player's ability to perform repeatedly at the same rate the defensive blocking skill.

### The tools are

A handball court, a handball suspended from a post at a height of 260 cm (this height may be lower for juniors and women), adhesive tape, a measuring tape, a stopwatch.

The performance specifications are:

- Test of defensive movements for both sides (5: 236).

### Purpose of the test

Measuring the speed of defensive movements on both sides (Performance speed).

**Tools:** Handball court, adhesive tape, stopwatch.

**Performance specifications:** Two marks are fixed with adhesive tape on a 6-meter line (A, B), the distance between them is 300 cm. The player (tester) stands above mark A, and when he is given the start signal (visual), the tester performs defensive movements on the side to reach mark B, then returns again by means of lateral movements to reach point A, and so on.

The performance is repeated for as many times as possible for 15 seconds.

6. Test of various defensive movements with a change of direction (5: 238)

**Purpose of the test:** Measuring the speed of performing defensive movements on the side and forward with an inclination and backward with an inclination with a change of direction

**Tools:** Handball court, adhesive tape, standard tape, stopwatch.

**Performance specifications**

Four marks are drawn on the ground with adhesive tape, three of them (A, B, C) near the 6-meter line and the distance between them is 150 cm, and one (D) on the 9-meter line so that the four marks form a triangle with the marks (B, A, C) as its base and (D) as its head. The test subject stands above mark (A), and when the start signal is given (visually), he moves sideways to mark (B), then forward leaning towards mark (D), then moves backward (backwards) leaning to reach point (C) and finally makes sideways movements to reach mark (A). The moment the player reaches the mark, he repeats the same performance but in the opposite direction of movement so that he starts from mark (A) to mark (C), then (D), then (B) and finally reaches mark (A). He repeats the performance for as many times as possible for 30 seconds. Any performance that violates the previous conditions will not be counted as an attempt within the number of attempts made by the examinee during the specified time for the test.

**Scoring**

Each correct attempt is calculated as eight points. One point when the player (tested) reaches mark (B), one point when he

reaches mark (D), one point when he reaches mark (C), and one point for each correct performance in reaching points (C, B, A) when changing direction and moving to touch them.

- In the event that the tester does not follow any of the test conditions when moving to touch the drawn marks, one point is deducted for each error he made in reaching the drawn mark and touching it with the feet
- The number of correct attempts he made during the 30 seconds is recorded for the tester.
- In the event that the specified time for the test expires, and the tester does not complete the attempt (Moving to the side, then forward at an incline, then backward at an incline, then to the side and returns to repeat the performance - the opposite - with a change in direction. But without completing the attempt), the points are collected and added to the correct attempts.

**Main experiment**

The main experiment included three main axes, which are the pre-test and the post-test, and in between, the transformational training was applied to the experimental group for a period of (8) weeks, with (4) training units and a total of (32) training units for the period from 9/7/2024 to 10/31/2024. These trainings included using tools and devices similar to the motor performance of the handball activity, i.e., taking into account the appropriate rest periods between repetitions, taking into account the scientific foundations of the training load from the undulation in the difficulty of the units and the degrees of intensity and training volume and the appropriate rest periods between repetitions, while the control group remained on the trainer's training without entering the experimental independent variable. As for the pre- and post-tests, they were conducted on both groups (Control and experimental) in tests of muscle strength as well as defensive skills in handball under close conditions to ensure the credibility of the tests.

**Table 2:** The differences between the pre- and post-tests in the studied research variables for the control group.

Variance Difference	T-calculated Value	Posttest		Pretest		Measure Unit	Variables
		M	S	M	S		
0.002	4.732	2.825	49.625	0.707	45.250	Kg	Maximum shoulder strength
0.021	2.966	2.315	96.25	0.744	93.625	Kg	Legging strength
0.130	1.718	2.976	94.5	2.315	91.750	Number	Legging strength
0.026	2.806	0.916	6.375	1.126	4.875	Number	One-way defensive block
0.018	3.055	0.463	10.25	0.707	9.250	Number	Testing defensive moves for both sides
0.051	2.346	1.165	18.25	0.641	17.125	Degree	Various defensive moves with change of direction

Significance of differences with a margin of error of less than 0.05

**Table 3:** Differences between the pre- and post-tests in the studied research variables for the experimental group.

Variance Difference	T-calculated Value	Posttest		Pretest		Measure Unit	Variables
		M	S	M	S		
0.000	22.108	2.315	61.25	0.744	45.375	Kg	Maximum shoulder strength
0.001	5.151	4.652	101.75	0.835	93.875	Kg	Legging strength
0.035	2.611	7.039	98.125	1.506	92.375	Number	Legging strength
0.001	6.063	0.707	7.75	1.061	4.625	Number	One-way defensive block
0.000	10.591	0.354	12.125	0.756	9.000	Number	Testing defensive moves for both sides
0.000	13.000	0.641	20.125	0.641	16.875	Degree	Various defensive moves with change of direction

Significance of differences with a margin of error of less than 0.05

**Table 4:** Differences between the two separate tests in the studied research variables for the control and experimental groups.

Variance Difference	T-calculated Value	Posttest		Pretest		Measure Unit	Variables
		2.315	61.25	2.825	49.625		
0.010	2.994	4.652	101.75	2.315	96.25	Kg	Maximum shoulder strength
0.201	1.342	7.039	98.125	2.976	94.5	Kg	Legging strength
0.005	3.361	0.707	7.75	0.916	6.375	Number	Legging strength
0.000	9.105	0.354	12.125	0.463	10.25	Number	One-way defensive block
0.001	3.989	0.641	20.125	1.165	18.25	Number	Testing defensive moves for both sides
0.000	9.003	2.315	61.25	2.825	49.625	Degree	Various defensive moves with change of direction

Significance of differences with a margin of error of less than 0.05

### Discussion of the Results

We note from tables (2, 3, 4) for the control and experimental groups that there are significant differences between the pre- and post-tests of the research sample in favor of the post-test in the muscle strength tests as well as for the specific handball skills in the research. The coach's approach as well as the researcher's approach had a major role in raising the level of physical and skill performance, as (Mufti Ibrahim) confirmed "that in order for the player to achieve a good level in the match, it is necessary to focus on the good selection of purposeful exercises and placing the player in training conditions, especially close to the match conditions" (7: 114). The training used in the transformational method similar to the performance has a major role in developing the muscular strength of the muscles working in handball. Here, the researcher sees that it is necessary for players to have the physical qualities and abilities, and thus give the ability to use the players' physical abilities and their role in their mastery of various defensive movements. Therefore, coaches resort to using modern training using devices similar to the performance to develop the elements of physical abilities as a different medium in addition to the possibility of easy access to it, which may achieve positive aspects in preparing players (1:23). The experimental group was distinguished from the control group in the post-test in muscle strength as well as defensive skills in handball. This indicates that the transformational method followed by the researcher contributed significantly to the development of the research variables and that the success of any method is achieved by focusing on following scientific methods according to the use of means and methods that serve the development of these skills. This is what (Mufti) confirmed: "The training process has multiple aspects of physical and skill preparation, as players' possession of high physical abilities helps them in rapid skill development" (8: 22). Through developing muscle strength and endurance for the legs, the various defensive movements were positively reflected, as most of the training exercises in the transformational method were related to muscle strength training for the muscles working in handball through their movement during the exercises, and they are performed freely. Special and varied exercises have a great impact on developing the defender's movement by developing the muscle strength of the leg muscles, which in turn works to increase the speed of the player's defensive movement, as attention must be paid to the speed of performing the leg movements in order to increase the effectiveness of the defense (2) to be fast, strong and resistant to fatigue. The result of training, and this matter is consistent with the principles of sports training science, which indicate that training programmed according to correct scientific formulas and the principle of gradual increase has a positive effect on trainees, in addition to the fact that (training to endure performance achieves tangible athletic development as it creates appropriate conditions for absorbing the technique according to the type of sport practiced) (4: 266). This development in physical performance is a result of the exercises used in training, which contributed to raising the players' physical and skill capabilities, as "a group of exercises or directed physical efforts that lead to adaptation events or functional change in the body's internal systems to achieve a high level of the required athletic achievement" (3:3).

### Conclusions

1. The transformational training method contributed

significantly to the development of muscle strength of the working muscles in handball.

2. The use of devices similar to the performance has a major role in stimulating the working muscles and increasing excitement and suspense in performing the exercises.
3. The transformational training method similar to the performance had a positive impact on the performance of defensive handball skills for the experimental group compared to the control group.
4. The correct scientific method and the standardized training load in applying the exercises had a direct role in developing muscle strength and defensive handball skills.

### References

1. Abdel Aziz A. A comparative study of the effect of training on sand and training in water on improving some physiological variables and elements of physical fitness in football. Mansoura University Journal; c2006.
2. Al-Basati AA. Training and functional physical preparation in football. Alexandria: Manshat Al-Maaref; c2016.
3. Al-Basati AA. Rules and foundations of sports training and their applications. Alexandria: Manshat Al-Maaref; c1998.
4. Khuraibat R. Sports training. Mosul: Directorate of Dar Al-Kutub for Printing and Publishing, University of Mosul; c1988.
5. Darwish KA, *et al.* Defense in handball. Cairo: Center for Book Publishing; c1999.
6. Hassanein MS. Evaluation and measurement in physical education. Part 1. Cairo: Dar Al-Fikr Al-Arabi; c1987.
7. Hammad MI. Building a football team. 1st ed. Cairo: Dar Al-Fikr Al-Arabi; c1999.
8. Hammad MI. Modern sports training: Planning, application, and leadership. 1<sup>st</sup> ed. Cairo: Dar Al Fikr Al Arabi; c1994.
9. Keller L. Hard-Body plan. PA, USA; c2006.
10. Pranayama techniques include a vast array of very subtle elements apart from the simple manipulation of breathing activity. Pranayama is not just an automatic habitual breathing process to keep the body [No further citation details provided].