

## The impact of a weight training program on some special physical abilities, skill performance, and digital level of discus throwing contestants out of sitting position

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**Abstract:** The impact of a weight training program on some special physical abilities, skill performance, and digital level of discus throwing contestants out of sitting position. Discus players are characterized by the control of neuromuscular action, which is the compatibility and speed of reaction, strength, speed and strength of the lower and upper limbs of the player and flexibility and agility, The disc throwing contest is characterized by the features of all competitions throwing in athletics, The length of the throw distance depends on the flexibility and accuracy of compatibility in the movement performance between the two legs movements and the throwing arm, The distance of the throw is increased when the disc is released at the appropriate speed and angle. Through the researcher's knowledge of previous studies and research, the researcher did not find any studies that dealt with the development of a program using weight training to develop muscle strength and to recognize its effect on some special physical abilities and digital level to throw the disc to the physically disabled players, drawing the attention of the researcher about conducting the study. The current research aims to develop a weight training program and learn about its effect on some special physical abilities, skill performance, and digital level of discus throwing contestants out of sitting position For Paralysis Class (6). The research community included the participants of the disc thrower for the physically disabled in the governorates of Qena and Sohag. They were 22 disabled persons with polio in the lower limbs who belong to the 6 class according to the division of the International Federation of the physically disabled; they range in age from 18-35 years. The researcher used the experimental approach to the nature of the research, using the experimental design of one group using the pre and post measurements. Based on the findings of the research and in the light of the conclusions reached, the researcher recommends the following: (1) Guided by the proposed training program using weight training to develop the special physical abilities and the level of skill and the digital level of the sitting throwing contestants of disc during the different training stages. (2) Use weight training to develop muscle strength as a basis for other physical abilities before and during the skill training in the training program of the sitting throwing contestants of disc. (3) Generally directing the results to the training personnel and trainers in field and track competitions especially in the training programs and applying them to different age stages of the contestants. (4) Utilizing from the results of the research in the development of scientific solutions to the shortcomings of the digital level of contestants throw disc seating and problems of stability performance and pressure training and poor of players level achievement. (5) Conducting similar research aimed at designing training programs using various regulations in athletics competitions. (6) The need to pay attention to the sport of the physically disabled, provide incentives and material and human potential to them and improve their physical and skilled level.

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**Keywords:** training program; special physical abilities; skill performance; digital level; contestants

### Introduction and research problem:

Individuals gain physical fitness from weight training, whose benefits not only cause physical changes, but also gain self-confidence in dealing with others and improve energy levels, increase the ability of individuals to work in many activities of daily life, as well as increase strength, the efficiency of the musculoskeletal organs and the improvement of muscle tone (10: 1).

muscle strength is the basis of physical performance, if not less than it is one of the most important pillars of movement or sports practice, in

addition, muscle strength is one of the important characteristics in the exercise of sport, which directly affect the movement speed, health of skin, required skills. It is considered one of the most important dynamic factors of motor performance, the cause of progress in performance. The amount of force in motor performance may be simple or large depending on the amount of resistance and the duration of the stimulus (13: 240).

Discus players are characterized by the control of neuromuscular action, which is the compatibility and speed of reaction, strength, speed and strength of the

lower and upper limbs of the player and flexibility and agility, The disc throwing contest is characterized by the features of all competitions throwing in athletics, The length of the throw distance depends on the flexibility and accuracy of compatibility in the movement performance between the two legs movements and the throwing arm, The distance of the throw is increased when the disc is released at the appropriate speed and angle (3: 95).

"Osama Riyad" (2000) states that from this point of view, the philosophy of the state has tended to care for this group of disabled persons, and to train them and employ them through many bodies and ministries, And provided them with many sports and recreational activities because of the utmost importance to the disabled, The goals of practicing sports activity for the handicapped are more important than the healthy ones. In addition to being therapeutic, physical, psychological, and social and rehabilitation goals for the disabled, it is also a means of speeding the return of the disabled to his society and his success and success as a member of this society (1:19).

Through the researcher's knowledge of previous studies and research, the researcher did not find any studies that dealt with the development of a program using weight training to develop muscle strength and to recognize its effect on some special physical abilities and digital level to throw the disc to the physically disabled players, drawing the attention of the researcher about conducting the study.

#### **Search Goal:**

The current research aims to develop a weight training program and learn about its effect on some special physical abilities, skill performance, and digital level of discus throwing contestants out of sitting position For Paralysis Class (6).

#### **Research hypotheses:**

In light of the research objective, the researcher assumes the following hypotheses:

1. There are statistically significant differences between the averages of the pre. and post criteria of the research group in the special physical abilities under consideration (Strength, muscular arm capacity, flexibility, compatibility, muscular endurance) For throw disc competitors and for the benefit of post measurement.

2. There are statistically significant differences between the average of the pre. and post criteria of the research group in the skill and digital performance of discus throwers out of sitting position and for the benefit of the post-measurement.

3. The percentage improvement between the pre and post measurement of the research group is different in the particular physical abilities under consideration and the skillful performance and digital level of discus throwers out of sitting position.

4. There is a statistically significant correlation between the digital level and the physical variables in question in post measurement of sample's members.

#### **Research terms:**

##### **Throwing Disc out of sitting position:**

It is a Paralympic sport for people with special needs. It is a physically disabled athlete who practices the sport of throwing the disc by sitting on a chair because of a disability that affects his motor ability. (Procedural definition)

##### **Research Methodology:**

The researcher used the experimental approach to the nature of the research, using the experimental design of one group using the pre and post measurements.

##### **Research community:**

The research community included the participants of the disc thrower for the physically disabled in the governorates of Qena and Sohag. They were 22 disabled persons with polio in the lower limbs who belong to the 6 class according to the division of the International Federation of the physically disabled, They range in age from 18-35 years.

##### **The research sample:**

The researcher selected a sample of (22) twenty-two of the participants who threw the disc out of sitting position registered in Qena and Sohag for athletics and participants in the Egyptian Paralympic Athletics Championships 2016/2017 (they are all the research community), And then two of the contestants was excluded due to the irregularity of the training to become the total of the sample of (20) contestants, the sample was divided into (10) ten contestants representing the sample exploratory has undergone the experiment the number of (10) 45%) of the total research community.

##### **The numerical distribution of the members of the society and the sample of the research:**

Table (1) shows that members of the basic research experiment amounted to 10 contestants with 45% of the total research community.

##### **Homogeneity of sample members:**

The researcher calculated the mean, median, deviation standard and coefficient torsion of the sample in question to find homogeneity among the sample members in light of the variables in question.

Table (2) shows that the torsion value ranged between (1.57-:1.21), which was limited to ( $\pm 3$ ) indicating the homogeneity of the sample in the previous variables.

##### **Data collection tools and means:**

##### **First: Instruments and devices used in the measurement:**

- weights Bunch of (50: 100) kg.
- Weight bars.
- Weight Tires.

- Medical balance to measure weight in kilograms.
- Camera to portray the skillful performance.
- scaling ruler.
- Resistometer to measure length in centimeters.
- Measuring tape divided by centimeters.
- Stop Watch.
- pull ups.
- Medical Balls.
- control signs.
- Swedish seats.
- Lab Top and C.D.
- 1 gram discs.

Table (1): The numerical distribution of the members of the society and the sample of the research:

Research community	Research sample	Excluded	Exploratory experiment	Basic experiment
22	20	2	20	22
45%	90%	10%	90%	45%

Table (2): Prem test of growth and physical variables, skill and numerical variables of the sample under study (n = 20)

Variables	Unit	Mean	Median	deviation standard	coefficient torsion	
Age	Year	24.01	24.20	2.77	0.20-	
Tall	cm	157.56	157.23	4.05	0.25	
Weight	K g	74.74	75.00	6.69	0.12-	
Training age	Year	4.10	4.00	0.68	0.44	
Lengths	Arms	Cm	80.72	80.49	2.24	0.32
	The humerus	Cm	24.53	24.69	0.67	0.70-
	Forearm	Cm	28.46	28.40	0.45	0.39
	Shoulder	Cm	18.01	18.10	0.53	0.54-
	Length of sitting	Cm	81.40	80.68	3.93	0.55
Circumference	Shoulders	Cm	48.23	48.07	0.97	0.52-
	Chest	Cm	97.09	98.42	3.72	1.06-
	Waist	Cm	92.85	92.45	3.95	0.30
	The humerus	Cm	35.10	33.68	3.54	1.21
	Forearm	Cm	28.37	28.60	1.74	0.40-
	Wrist	Cm	17.57	17.63	0.43	0.40-
Physical variables	Strength	Kg	96.73	96.50	9.75	0.07
	Muscle endurance	Number	14.40	15.00	1.76	1.02-
	Ability	Number	5.75	5.63	0.86	0.48
	Flexibility	Cm	28.10	28.25	0.99	0.45-
	Compatibility	Number	8.30	9.00	1.34	1.57-
Technical variables	Performance level	Degree	11.05	11.00	2.33	0.60
	Digital level	M	10.58	10.50	1.26	0.18

### Second: morphological measurements: include measurement of:

1. Lengths (arm length, The humerus length, forearm length, shoulder length, and length of sitting).
2. Circumferences (shoulder circumference, chest circumference, waist circumference, pelvic circumference (deletion), peritoneal circumference, forearm circumference, and wrist circumference).

The morphological measurements were carried out on Sunday 25/6/2017.

### Third: Expert survey forms.

By reading the scientific references and previous available studies, most studies concluded that the most important physical abilities of the disc extrusion competition were: muscle ability, muscular strength, compatibility, elasticity, and musculoskeletal.

- The most important physical abilities of the sitting contest disc.
- Tests of the physical abilities selected for the sitting throwing disc.
- On proposed exercises for the development of physical capacity.

### Fourth: Tests of used physical abilities:

After the expert questionnaire was emptied, the following tests were found:

- Physical capacity tests.
  1. Maximum Force: Muscle Strength Test (13: 121).
  2. Muscle-bearing: pull ups test (14: 98).
  3. Muscle strength of the arms: Test the soft ball for maximum distance It measures the muscle strength

of the arms and shoulder, its measurement unit is meter. (14: 89-91)

4. Flexibility: Test the elasticity of the shoulders with the rotation of the arms behind the inserted stick. It measures the elasticity of the shoulders and the measurement unit of is the centimeter. (13: 128).

5. Compatibility: Motor kinetic velocity test (13: 123).

- Digital level measurement (according to international competition law).

#### **Fifth: Data collection forms:**

- The personal data registration form included the initial data including (name, age, height, weight, age of training).

- Collective registration form for pre and post physical measurements under research.

- The skill level assessment form for the throwing skill of the sitting disc.

- Data entry form for the digital level.

Table (3) shows that the approval rate ranged from (90%: 100%). The researcher accepted the approval of (90%) or more to accept each capacity of physical abilities. Thus, the most important physical abilities of the disc throwing contest out of sitting position were identified as follows:

- Muscle ability - muscle strength - compatibility - muscle bearing -flexibility.

Table (3): The percentage of opinions of the experts in the physical abilities of the sitting throwing contest (n = 10)

Tests	Opinion				Importance percentage		
	Number	Percentage	Number	Percentage	degree	Percentage	
Physical abilities	The muscular capacity of the arms	10	100%	-	-	10	100%
	The muscular strength	10	100%	-	-	10	100%
	compatibility	10	100%	-	-	9	90%
	Flexibility	9	90%	1	10%	8	80%
	Muscle endurance	9	90%	1	10%	8	80%

#### **Determine the physical fitness tests for the sitting throwing disc.**

Table (4) shows that the percentage of approval ranged from (90%: 100%). The researcher agreed with

90% approval. The physical tests for the disco throw contest out of sitting position have been determined.

Table (4): Percentage of expert opinions on the proposed tests for physical capacity measurement of the sitting throwing disc contest under research. (N = 10)

s	Physical capacities	test	attachment	unit	percentage	
					Not agree	agree
1	Arms' muscular capacity	Softball	(3 – 5)	Number	-	100%
2	Muscular strength	Muscular strength test	(1 -5)	kg	-	100%
3	Flexibility	Shoulders flexibility	(4 – 5)	Cm	10%	90%
4	compatibility	Motor velocity of the two arms	(5 – 7)	Number	-	100%
5	Muscular endurance	Pull ups	(5 – 6)	Number	10%	90%

#### **Scientific transactions of physical and skill tests:**

##### **A) Stability:**

To calculate the stability of physical and physiological tests, the researcher used the method of application and re-application on a sample of (10) ten players from outside the research sample and from the same research community and they have the same specifications of the original sample and with a time interval of five (5) days between the first and second applications and table (5) shows The correlation coefficients between the two applications.

**Table (5) shows the following:** - The correlation coefficients between the first and second applications

of physical tests, the skill performance and the digital level ranged from 0.88: 0.96, which are statistically significant correlation coefficients indicating the stability of the tests.

##### **B) Honesty:**

To calculate the veracity of the tests, the researcher used the validity of the differences between the groups in the method of peripheral comparison between the upper spring and the lower spring, by applying the variables on the survey sample, which contained (10) ten players from the same research community and from outside the original sample. Table (6) illustrates the result.

Table (5): Correlation coefficients between the first and second applications of physical tests and technical variables for the disc throwing contestants out of sitting position to verify the stability of the tests (n = 10)

Tests	Unit	1 <sup>st</sup> application		2 <sup>nd</sup> application		Coefficient of correlation	
		SMA	standard deviation	SMA	standard deviation		
Physical variables	Strength	Kg	94.50	10.36	95.20	9.22	0.96
	Muscle endurance	Number	14.40	1.71	15.00	2.00	0.91
	Ability	Number	5.88	0.91	6.15	1.60	0.93
	Flexibility	CM	27.80	1.23	28.50	1.20	0.88
	Compatibility	Number	8.40	1.35	9.00	1.33	0.86
Technical variables	Performance level	Degree	11.50	2.17	11.80	2.20	0.88
	Digital level	M	10.55	1.42	10.90	1.85	0.91

The value (Coefficient of correlation) of the table at the level of significance (0.05) = 0.632

**Table (6) shows the following:**

There are statistically significant differences between the upper spring and the lower spring in the

variables under consideration and in favor of the higher spring, which means that the tests are able to distinguish between different groups.

Table (6): The significance of the differences between the upper spring and the lowest spring in the variables under consideration Man and Tiny and non-barometric methods (n = 10)

Variables		Lowest spring		Upper spring		Value of z
		Average of Ranks	Total ranks	Average of Ranks	Total ranks	
Physical variables	Strength	2.00	6.00	5.00	15.00	1,96
	Muscular inducement	2.00	6.00	5.00	15.00	2,02
	Ability	2.00	6.00	5.00	15.00	1,99
	Flexibility	2.00	6.00	5.00	15.00	1,99
	Computability	2.00	6.00	5.00	15.00	2,02
Skill variables	Skill performance level	2.00	6.00	5.00	15.00	1,96
	Digital level	2.00	6.00	5.00	15.00	2,02

The Paradigmatic value of (Z) at the level of significance (0.05) = 1.96.

**Proposed Program: (Annex 6)**

To prepare the proposed sports program, the researcher studied many specialized scientific researches in the Arab and foreign countries as well as the opinion of many experts in the field of sports, taking into account that these experts are academic and at least the rank of assistant professor. Each expert expressed his opinion in terms of: The proposed program has been designed in the light of the following scientific foundations:

The scientific foundations for the development of the program:

1. Taking into account the type and severity of disability.
2. The gradient is easy to hard and simple to composite and in line with disabled abilities.
3. Training should include training most of the upper body parts, especially the large ones.
4. The program should achieve the objectives for which it was developed.
5. The contents of the program, the nature and disability of disabled persons should be proportionate.

6. The content of the program should be interesting and enjoyable to attract the disabled.

7. The program should include the collective activities for the disabled person to deal with his colleagues.

8. The program should include cooperative activities that develop the skill of friendship as well as leadership and subordination.

9. The program should be characterized by simplicity, diversity and individual differences.

10. The program adds something to the life of the disabled.

11. To help the disabled to improve the basic physical abilities those qualify him to raise the digital level of throwing disc competition.

12. Assisting the disabled to develop his self-confidence and develop his personality through his success in sports activities.

**Program Time Limitation:**

The time of implementation of the program was determined by (12) week by 4 training units per week.

The researcher determined the time of these units according to the degree of inducement as follows:

- Maximum load unit = 100 minutes.
- High load unit = 90 minutes.
- Average load unit = 80 minutes.

#### **Defining program components:**

In the light of the analysis of the content of the scientific research and references and through the results of the questionnaire survey experts, this showed the approval of (75%) of the experts on the components of the program and time allocated to each part of the contents of the program, namely:

**-Warm up (15) minutes.**

**-Main part (60: 80) minutes.**

**-Calming (5) minutes.**

#### **Warm-up:**

This section contains a general configuration of the upper part of the body and its main components through small games, and the time of this part is (15) minutes.

#### **It aims to:**

- 1 – Preparing Disabled to receive the main activity of the training module.
- 2 - Enter the body in the circle of continuous movement.
- 3 - Development of the disabled person's ability to perform properly.
- 4 - Increase the digital level of contestants throwing a disc.

#### **The main part:**

#### **Exercise:**

This section contains:

1. Building exercises.
2. Exercises with free weights.
3. Exercises with aids.
4. Exercises to improve the motor speed of the arms.
5. Exercises to improve the motor speed of the arms.
6. Exercises to improve the flexibility of shoulders and trunk.
7. Exercises with small tools.

#### **Exercise aims to:**

1. Improve and develop the elements of fitness in question.
- 2 - Raising the skill level and the digital level of the contestants sitting threw a disc.
- 3 - Strengthening the upper body to replace the disabled from the lower part.
- 4 - Help the disabled to carry out his life tasks more and easier than it was.
5. Improving the disabled person's self-image and improving his or her own idea.

#### **The physical aspects are:**

• **Muscle strength (chest and arms):**

- Increase the efficiency of the body to do its job under work and effort.

- Increase muscle capacity for difficult tasks.
- Helps to develop various physical qualities.

#### • **Muscle skin (for arms and shoulders)**

- Raise the efficiency of the work of internal organs.

- Increase the ability of the disabled to continue to perform for a long time.

- Increased resistance of the disabled to overcome physical stress.

#### •**Eye-hand compatibility:**

- Increase the ability of the disabled to sense the time and place.

- Increase the ability of the disabled to calculate the correct timing in the performance of movements.

#### **Calming**

This part contains a range of calming and relaxation movements and many different relaxation exercises which are characterized by diversity and time of this part 5 minutes.

#### **This part aims to:**

- Turn the disabled response into a positive response.
- Reduce stress and anxiety to the maximum degree.
- Increase the level of control of the body organs.

#### **Search procedures:**

#### **A) Survey study:**

The researcher conducted an exploratory study on (6) disabled persons who meet the specifications of the sample in the period from 1/1/2017 until 4/1/2017,

#### **in order to identify:**

- 1 - Fit the application program on the research sample.
3. The appropriateness of the existing training course.
4. 3- The possibility of implementing the program in light of the available resources.
5. 4 - The suitability of tools and devices for the sample in the subject of the study.

#### **The survey resulted in:**

1. Tests, tools, and devices suitable for the sample in question.
- 2 - Fit the contents of the program and suitability to apply to the research sample.
- 3- The assistants understand the nature of the study and its objectives.

#### **B) Application of research:**

#### **Pre- measurements:**

The researcher carried out pre- measurements of lengths, circumferences, special physical variables under study, skill level, and numerical level of the sample in question from 10/1/2017 to 13/1/2017.

#### **Implementation of the program:**

The researcher implemented the proposed program attachment (6) in the period from 15/1/2017 to 13/4/2017 on the sample in question for a period of 12 weeks, with 4 training units per week (Saturday, Monday, Wednesday, and Friday).

#### **Post-measurement:**

After the end of the program implementation period, the researcher carried out post measurements of each of the special physical variables under study, the skill level, the digital level, from 14/4/2017 to 18/4/2017, with the same conditions of pre-measurement, using the same measurement tools, under the same circumstances.

#### **Statistical method used:**

The following statistical transactions were used: SMA, Intermediate, Standard Deviation, Torsion coefficient, Coefficient of correlation and Test "T".

The researcher was satisfied with the level of significance at (0.05). The researcher also used the SPSS program to calculate some statistical transactions.

#### **Showing findings:**

Validation of the first hypothesis, which states: *There are statistically significant differences between the average of the pre and the post measures of the research group in the special physical abilities under discussion for the throwers of the disc out of sitting position and for the benefit of the post measure.*

Table (7) shows the following:

There were statistically significant differences between the average of the pre and post-criteria for the special physical abilities of research group under the research for disc thrower out of sitting position for the benefit of pre measure, and the ETA values showed the effect of the proposed program in improving these variables.

Table (7) and Figure (1) show statistically significant differences between the pre and postural measures in all the physical tests under study in the research sample that used the training in the method of (weight), Which shows that the training program using weights with the impact and effectiveness of lead to physical capacity development in physical tests in question as the value of (t) calculated to test the power pressure in front of the bar-handed chest (3.70), For the muscular endurance component to test the endurance on the pull ups sport, the ultimate value of (T) was 4.12, For the power element, the value of (t) was calculated by throwing a soft ball for the maximum distance (6.61), While the flexibility component to test the elasticity of the shoulders was calculated (t) (5.02), The correlation between the eye and the hand was calculated at (7.45), And those values are greater than the tabular value of (t) at the degree of freedom (9) and the level of significance (0.05) = 2.26 This indicates the high level of fitness

elements for the candidates throwing disc out of sitting position.

The researcher attributes these results to the effectiveness of the physical exercises that he used within the content of the proposed training program in addition to that the sample in question of the physically disabled and those who have a determination and desire to challenge and ability to adhere to the training program, The 12-week period of the program was suitable for a change in the physical capacity of the sample due to the adjustment of physical loads. The overall development principle for physical abilities during the implementation of the training program had a positive effect on the development of all physical abilities. The exercises for the development of physical abilities are similar in nature to the nature of the performance of physical tests in question. The similarities in performance mechanics of the exercises leading to the nature of the performance of the tests contribute to the improvement of the tests results.

El said Abdel-Maksoud Amer (1997) indicates that training using the (weight) technique is one of the most important means of developing muscle capacity, Because it increases the speed of motor performance by increasing the ability of muscles to contract faster and more explosive during the movement of each joint And the high intensity using the method of (weight) leads to improving compatibility within the muscle and between muscle groups working, which leads to improvement of strength without an increase in muscle mass and the training of the weight for beginners to increase muscle strength and ability to performance requirements with high efficiency (11: 8).

The researcher pointed out that the improvement in the post measurement of the pre measurement in physical variables occurred as a result of the proposed training program weights and applied research sample, which was directed during the load to develop muscle strength, the nature of the physical effort added to the weight training leads to improve player level, and works to improve all his physical organs and help him to perform the duties of his life efficiently and easily, Numerous studies have proved the important role of the exercise in weight training in improving the fitness and health of the player and the extent of their ability to upgrade the level of the player in all aspects of the body, The results also showed a significant change in the sample and improved significantly due to the nature of the physical exercises equipped with weight training, which led to the improvement of these aspects in a positive and efficient manner, through the results showed.

Validation of the second hypothesis, which states: *"There are statistically significant differences between the average of the pre and post measures of*

*the research group in the performance of skill and the digital level for the participants of disc throwers out of sitting position and for the benefit of post measure."*

Table (8) shows that:

There were statistically significant differences between the average of the pre and the post-measures of the research group in the numerical and skillful performance of the disc throwers. The ETA values also showed the effect of the proposed program on improving these variables.

This is confirmed by the study of "Khalid Ebada" (1997) (7), where it indicated the superiority of the experimental group on the control group in the pre measurements of muscle strength and the level of skill performance under study,, And the study of Sabri Qutb (2002). (9) It indicated that there was a development in the special physical characteristics (maximum strength - characteristic strength of speed - endorsement of strength) and the development of the efficiency of the skillful performance of the falls on both feet.

Table (7): The significance of the differences between the average of the pre and the post measurements of the physical abilities of research group Special are under consideration for throwing disc out of sitting position (n = 10)

VALUE OF Eta	Value of "T"	Post- measure		Pre-measure		Unit	Tests
		standard deviation	SMA	standard deviation	SMA		
0.60	<b>±3.70</b>	6.04	112.65	9.07	98.95	Kg	Strength
0.65	<b>±4.12</b>	2.01	18.60	1.90	14.40	Number	Muscular endorsement
0.83	<b>±6.61</b>	0.93	8.58	0.84	5.65	Number	Ability
0.74	<b>±5.02</b>	1.99	32.13	0.58	28.41	Cm	Flexibility
0.86	<b>±7.45</b>	1.37	13.10	1.40	8.20	Number	Compatibility

Tabular Value of "T" at degree of freedom (9) and the level of significance (0.05) = 2.26

The researcher attributes statistically significant differences between the average of the pre and the post standards of the research sample in the skill level of the disc throwing skill to the effect of the training program which included the educational exercises for the technical performance of each stage of the artistic performance and the learning exercises using the disc positively affected the skill level of the disc throwing.

The researcher attributed the statistically significant differences between the average of the pre and the post measures of the research sample in the numerical level of the skill of throwing the seating disk to increase the physical abilities through the training program in the style of (weight) and also to repeat the throwing operations using the disc, Al-Hasan Abdul-Majid Hassan (2012) indicates that throwing competitions differ from other competitions where the movement of the body and its ability to motor performance is linked to the tool that throw is designed to become the distance traveled by the tool expressing the ability of the individual to achieve the motor (5: 91).

Therefore, the training program (weighting) had an effect on the improvement of skill level and numerology and agreed with the results of the study of Firas Mohammed Hussein (2002) 12 and Hanaa Hussein Rizk (1991).

In addition, the researcher attributed these results to the fact that the proposed training program using the method of weighting has included skilled physical exercises based on scientific basis and taking into consideration the principle of gradation and continuity. It is characterized by the use of many aids which the researcher considers to be the necessary means to develop the physical level, The training program consisted of gradual training loads, increasing the intensity of the intensity, and using the method of conception, which had a great impact on the development of the physical abilities under consideration. This is in line with the findings of Jaber Abdul Aziz Seif (2014), Hamdi Al-Sayed Abdul Hamid (2016), 6 Obaidah Dahesh Mahmood (2013), 11 Khalid Abdul-Rauf. (1997). (2) Mustafa Abdul Khaleq Al-Washahi (2010). (16) These studies indicate that the development of physical abilities leads to the development of the level of digital achievement.

Findings of third proposal that indicates: *The percentage improvement between the pre and post measurement of the research group is different in the specific physicalabilities, under consideration, and the skillful performance and digital level of the sitting throwing contestants of disc.*



Table (8): The significance of the differences between the averages of the pre and the post- measures of the research group in the performance of skill and the digital level of the participants of disc throwers out of sitting position (n = 10)

ETA <sup>2</sup> VALUE	"T" value	POST MEASURE		Pre measure		Unit	Tests
		standard deviation	SMA	standard deviation	SMA		
0.95	*12.66	1.34	22.30	1.93	11.30	Degree	Performance level
0.0.97	*16.52	1.45	16.40	1.15	10.60	cm	Digital Level

The value of (t) the table at the degree of freedom (9) and the level of significance (0.05) = 2.26

Table 9 shows the following:

The improvement percentage of the research group in the special physical abilities, under consideration, and the skillful performance and digital level of the sitting throwing contestants of disc ranged between (13.09%: 97.35%), indicating the positivity of the proposed program in improving these variables.

Results of the fourth hypothesis: which states:

*There is a statistically significant correlation between the digital level and the physical variables under study in the sample members in the post measure.*

Table (9): Percentage improvement of the research group in the special physical abilities, under consideration, and the skillful performance and digital level of the sitting throwing contestants of disc (n=10)

Improvement rate %	Post- test average	Pre-test average	Tests	
13.85%	112.65	98.95	Strength	Physical variables
29.17%	18.60	14.40	Muscular endorsement	
51.89%	8.58	5.65	Ability	
13.09%	32.13	28.41	Flexibility	
59.76%	13.10	8.20	Compatibility	
97.35%	22.30	11.30	Skill performance	Skill variables
54.72%	16.40	10.60	Digital level	

Table (10) shows the following:

There is a statistically significant correlation between the skill level, the digital level and all the

physical variables (strength, muscular endurance, ability, flexibility, compatibility) of the sample.

Table (10): Correlation coefficients between the digital level and the physical variables under study by the sample group members in the post measurement (n = 10)

Digital level	Skillful performance level	Variables	
<b>± 0.81</b>	<b>± 0.72</b>	Strength	Physical variables
<b>± 0.79</b>	<b>± 0.75</b>	Muscle endorsement	
<b>± 0.68</b>	<b>± 0.64</b>	Ability	
<b>± 0.71</b>	<b>± 0.66</b>	Flexibility	
<b>± 0.71</b>	<b>± 0.77</b>	Compatibility	

The value tabular (t) at the degree of freedom (8) and the level of significance (0.05) = 0.632

### Extractions

1. The existence of statistically significant differences between the pre and post measurements of the sample in all physical variables in the research and in the direction of post measurements.

2. There are statistically significant differences between the pre and post measurement of the sample in question in the level of skill performance and the numerical level of the participants throwing the disc in the seating and in the direction of pre measurement.

3. There is a difference in the percentages of improvement rate in the physical variables in question,

indicating that the training program (heavy weights) had a positive effect on the improvement of the physical level of the participants throwing a disc.

4. There is a difference in the percentages of the improvement rate of the sample in question in the level of skill performance and the numerical level of the participants of throwing the disc, indicating that the training program has had a positive effect on improving the skill and digital levels.

**Recommendations:**

Based on the findings of the research and in the light of the conclusions reached, the researcher recommends the following:

1. Guided by the proposed training program using weight training to develop the special physical abilities and the level of skill and the digital level of the sitting throwing contestants of disc during the different training stages.

2. Use weight training to develop muscle strength as a basis for other physical abilities before and during the skill training in the training program of the sitting throwing contestants of disc.

3. Generally directing the results to the training personnel and trainers in field and track competitions especially in the training programs and applying them to different age stages of the contestants.

4. Utilizing from the results of the research in the development of scientific solutions to the shortcomings of the digital level of contestants throw disc seating and problems of stability performance and pressure training and poor of players level achievement.

5. Conducting similar research aimed at designing training programs using various regulations in athletics competitions.

6. The need to pay attention to the sport of the physically disabled, provide incentives and material and human potential to them and improve their physical and skilled level.

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