



## Training effects of tool exercises on improving some special physical abilities and performing mandatory aerobic compulsions under 11 years

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### Abstract

*This research aims to identify the training effects of tool exercises to improve some special physical abilities and perform mandatory aerobic compulsions under 11 years, whereby the experimental approach was used to suit the nature of the study, and the basic study was applied to an intentional sample of (20) female gymnasts at Smouha Club, They were divided into two groups (one experimental and the other control), the strength of each group (10) players, where the experimental group underwent a training program for exercises with tools using the period training (two types - low - high) intensity, and the control group underwent the program followed for the Smouha Club in Alexandria, and the two groups organized in Training for a period of (12) weeks, at (36) units (3 weekly units) to implement the training programs .*

### Conclusions:

*-The effectiveness of periodical training with its two types (low - high) intensity using exercises with the tools to improve some special physical abilities and the level of performance for the mandatory aerobic gymnastics under 11 years, as the experimental group outperformed the control group in all measurements of special physical abilities and the level of performance in the mandatory aerobic gymnastics.*

### Recommendations:

*-The use of period training in both types (low - high) intensity, using exercises with tools to improve some special physical abilities and performance level, including mandatory gymnastics for athletes under 11 years.*

*-Carrying out studies to identify the different training effects of exercises with tools at different dental levels, and other sporting activities.*

**Keywords :** ( Training; exercises; aerobic.)

### Introduction:

Aerobics gymnastics is a type of gymnastics that includes the performance of exercises with natural strength, agility and coordination, where the body moves flexibly and smoothly, and the player performs these movements in focus, with the ability to create a continuous movement with light music, so that the player has complete creativity and is ideal for expressing music with the movements that work or Implemented over a specified period of time, the entire body is supposed to move with music with good, well-coordinated movements and high body flexibility.

The performance includes elements (dynamic force, static hopping power, dynamic hopping, balance, and flexibility). (34)

Each group of basic skills has characteristics that must be present in order to calculate the difficulties in the motor sentence. When performing all skills, the form must be clear and stable and indicate the skill performed. For example, in group A (dynamic force) all skills that end with placing the gap (SPLIT) Each hand must be on one side of the body on the ground for the difficulty to be calculated and the SPLIT position is correct, and all movements of group A must be performed without the body falling to the

ground, and for group B (constant force) the correct position of the body must be held for a period of time 2 seconds, and for skills that have rotation, it must be held for 2 seconds, such as the beginning and end of the rotation. Also, the whole body must be based on one hand or the two hands together only, and it is not allowed to touch the ground with any other part of the body during the performance of all the skills of this group. (35:22)

In group C (jumps and spring), skills must be performed with strong lifts, good range and a clear and consistent form for each skill, and all skills can be performed with either the foot or the feet. (35:30)

In Group D (Balances and Flexibility), all skills must be performed clearly and consistently, and with a good range for the SPLIT, the legs must be straight and on one line and at an angle of 180 degrees in (VRRITICAL SPLIT), and the pivot leg must be in the vertical position for the turns, The entire skill is performed on the combs of the legs, and the rotation must be completed at least 180 degrees and for the illusion, the whole body must be straight, and the angle of the leg is open 180 degrees throughout the performance of the skill. (35:52)

The (International Aerobic Gymnastics Law, January 2017) explains that the performance judges sign discounts that may reach a full degree by performing with (1,) of the degree for simple error, followed by (3,) of the degree for the medium error, and then (, 5) of the degree for the serious error. Unacceptable, which does not count as a skill performed as difficulty when committing this grave foul, and then a full score when the player or player falls to the ground during the performance. (35:2)

From the foregoing it becomes clear to us the importance of good preparation for the basic skills of aerobic gymnastics in order to continue training and reach high levels.

This will only come with a good physical preparation for these skills, as physical preparation is one of the most essential pillars on which the player is focused on in order to reach the training situation to the highest possible level, through the development of muscle groups involved in performance, which contribute to improving the level of special physical capabilities to ensure achievement Skill requirements for aerobic gymnastics.

The process of preparing beginners in general is the meeting point for many skills and abilities. Beginning with aerobic gymnastics, he must master a number of basic skills that in turn improve his performance during competitions. The primary goal of the preparation process for beginners is to acquire the basic physical elements necessary for the type of specialized sport and is achieved through training on Basic skills with their physical connection.

(25: 91), (9: 147), (11:39)

The special physical preparation consists in choosing exercises on your ability to resemble the kinetic pathways used during the competition, and that the interest in defining and developing the required physical capabilities accurately enables the selection of the appropriate program and the appropriate preparation methods for it. (6: 324), (13: 22)

There are many tools for exercises, their exercises, their learning methods and training methods are varied, and they are used to develop the kinesthetic sense and the sense of timing, and their impact extends to improving many of the motor characteristics such as strength, flexibility, speed, and agility. (14: 174), (3: 67), (17:34)

Various activities with their multiple skills require general physical and harmonic abilities to enable the player to perform motor skills, and the most complex movements in the activity practiced with high efficiency.

(14: 174), (12: 122), (24: 46), (7: 96)

Through the follow-up of the training process in the clubs and the knowledge of the strengths and weaknesses of the coaches, it was noted that the coaches' interest in developing some physical elements such as flexibility in a way that overwhelms many other elements, which led to a decline in the level of performance of some leaps and turns, as well as balances, and therefore a decrease in the degrees of the technical value of the players, This called the researchers to develop a program of exercises with tools in order to improve some special physical abilities and the level of skill performance to achieve the requirements of the International Gymnastics Federation Law.

Where the law is the primary guide for the training planning process in aerobic gymnastics, and it includes all the

technical requirements required by the player to fulfill and achieve in addition to all the skills that can be performed in the motor sentence while determining the level of its difficulties.

#### **Research Objectives:**

Identify the training effects of tool exercises on improving some special physical abilities and performing mandatory aerobic compulsions under 11 years.

#### **Research Hypothesis:**

- There are differences with statistical significance between the pre and post measurements of the experimental group, and the control group in the variables of special physical abilities and the level of performance of the mandatory aerobic sentence under 11 years, in favor of the dimensional measurements.
- There are statistically significant differences between the experimental group and the control group in the dimensional measurements of the variables of special physical abilities and the level of mandatory performance of the aerobic group under 11 years, in favor of the experimental group.

#### **Search procedures:**

#### **Research Methodology:**

The experimental method was used to suit the nature of the research.

#### **The human domain:**

Aerobic gymnasts Smouha club under 11 years old and they number (20).

#### **Time domain:**

The study was conducted from 5/10/2019 to 23/1/2020 as follows:

1. The surveys were conducted from 5/10/2019 to 17/10/2019.
2. Tribal measurements were carried out from 19/10/2019 to 24/10/2019.
3. The basic study was conducted from 10/26/2019 to 16/1/2020.
4. Dimensional measurements were made in the period from 18/1/2020 to 1/23/2020.

#### **Location:**

Aerobic gymnastics hall Smouha Club, Alexandria.

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

- The basic study was applied to an intentional sample of (20) female gymnasts from the aerobic gymnastics club at Smouha Club. They were divided into two groups (one is experimental and the other is a control). The strength of each group is 10.
- While reconnaissance studies were applied to a random sample of (5) female gymnasts from aerobic gymnastics club, Smouha Club, Alexandria.

#### **Pilot studies:**

#### **First pilot study:**

Selection of the most appropriate physical tests and measurements, and determining the obligatory movement sentence for aerobic gymnastics under 11 years, and it resulted in:

The tests and measurements applied for the physical variables under study:

- A test (dome, Drape trunk and Extend the torso, leg opening to the left and right) using the goniometer to

- measure the elasticity of the shoulders, trunk and legs. (19)
- Test (stretching and extending the muscles of the arms, torso, and legs) using the Applachof dynamometer to measure muscle strength. (19)
- Test (bending the arms from oblique flatness in 10 seconds, vertical jump) to measure the force marked with the speed. (19)
- (Zigzag running) test to measure fitness. (19)
- Test (numbered circuits) to measure compatibility. (19)
- A test (standing with the instep on the balance beam, adjusted bass) to measure the static and dynamic balance. (19)

**Obligations of the motor sentence for aerobic gymnastics under 11 years:**

- Angular pivot ground.
- Arms fold down.
- Roll around the longitudinal axis.

- The torso folded forward with the leg weighted behind.

**second pilot study:**

- Choosing and defining exercises with appropriate tools directed to improve some physical abilities in order to improve the level of skill performance in the mandatory sentence of aerobic gymnastics under 11 years and resulted in the identification of exercises for the program. Attachment (1)
- Define the warm-up and end exercises for the experimental and control groups. Attachment (3)

**Statistical treatments:**

The Spss statistical program was used to extract the following statistical treatments:

Arithmetic mean - standard deviation - difference coefficient - torsional coefficient - difference between the two averages - value (T) - percentage improvement.

**Homogeneity of the sample:**

*Table (1)  
Statistical indications of the basic variables of the total research sample before experiment n = 20*

variables		statistics	measurement unit	Mean	Standard deviation	Skewness coefficient	Coefficient kurtosis	Coefficient of variation %
Basic variables	Age		Year	10.50	0.11	-0.71	-1.21	1.05
	Height		cm	130.20	0.42	1.78	1.93	0.32
	Weight		Kg	27.30	0.48	1.04	1.25	1.76

It is clear from Table (1) for the statistical significance of the basic variables of the total research sample before conducting the experiment that the values of the convolution and kurtosis coefficients are limited between ( $\pm 3$ ), which indicates their occurrence under the equinox curve, and that the values of the difference coefficients are confined between (0.32% - 1.76%) It is less than 20% of the average, which indicates the homogeneity of the research personnel in all variables under investigation.

*Table (2)  
Statistical indications of the physical variables of the total research sample before experiment n = 20*

variables		Statistics	measurement unit	Mean	Standard deviation	Skewness coefficient	Coefficient kurtosis	Coefficient of variation %
Flexibility	arms	dome	cm	-1.20	0.22	-1.78	1.96	18.33
	torso	Drape torso	degree	12.40	0.52	0.48	1.21	4.19
		Extend the torso	degree	22.60	0.70	1.66	1.79	3.10
	legs	The leg opening is right	degree	197.50	4.25	-1.36	1.58	2.15
		The leg opening is left	degree	188.00	4.83	0.81	1.13	2.33
Strength	arms	Drape arms	kg	12.37	0.42	0.52	1.15	3.40
		Extend the arms	kg	10.10	0.21	1.78	1.89	2.08
	torso	Drape torso	kg	51.20	0.42	1.78	1.94	0.82
		Extend the torso	kg	61.30	0.48	1.04	1.56	0.78
	legs	Bend the legs	kg	23.75	0.54	1.98	1.96	2.27
	Leg extension	kg	75.19	4.78	1.78	1.97	6.36	
Force marked.	arms	(Oblique flatness) the arms fold 10s	n	8.30	0.48	1.04	1.56	5.78

Statistics variables			measurement unit	Mean	Standard deviation	Skewness coefficient	Coefficient kurtosis	Coefficient of variation %
with speed	legs	Vaulting	cm	35.10	0.57	0.09	0.75	1.62
Agility		Zigzag running	second	6.90	0.21	1.78	1.93	3.04
Compatibility		Numbered circuits	second	8.50	0.71	1.18	1.76	8.35
Balance	static	Stand with the instep on a balance beam	second	40.30	0.48	1.04	1.23	1.19
	dynamic	Bass adjusted	mark	85.50	1.08	1.98	1.63	1.26

It is clear from Table (2) for the statistical significance of the variables and physical measurements of the total research sample before conducting the experiment that the values of the convolution and kurtosis coefficients are between ( $\pm 3$ ), which indicates their occurrence under the equinox curve, and that the values of the coefficients of difference are between (0.78% - 18.33% It is a value less than 20% of the average, which indicates the homogeneity of the research personnel in all variables under investigation

Table (3)

*Statistical indications of the mandatory motions of the aerobic gymnastics under 11 years for the total research sample before the experiment*

variables	statistics	measure ment unit	Mea n	Standard deviation	Skewness coefficient	Coefficient kurtosis	Coefficient of variation%
Angular pivot ground		mark	3.23	0.62	0.56	1.05	19.20
Arms fold down		mark	3.39	0.56	0.86	1.14	16.52
Roll around the longitudinal axis		mark	3.12	0.42	0.93	1.02	13.46
The torso folded forward with the leg weighted behind		mark	2.92	0.53	0.79	0.53	18.15

It is clear from Table (3) for the statistical significance of the compulsions of the motor sentence for aerobic gymnastics under 11 years for the total research sample before conducting the experiment that the values of twisting and kurtosis coefficients are confined between ( $\pm 3$ ), which indicates their occurrence under the equinox curve, and that the values of the coefficients of difference are between (13.46% , 19.20%), which is less than 20% of the average, which indicates the homogeneity of the research personnel in all variables under investigation.

#### Parity between the two groups:

Parity between the two groups was found in each of the basic variables (age - height - weight), physical variables, and the mandatory movement sentence for aerobic gymnastics under 11 years, as shown in Tables (4), (5), (6).

Table (4)

*Statistical indications of the main variables between the experimental group and the control group before the experiment*

variables	statistics	measurement unit	Experimental group		Control group		Mean difference	T Values
			Mean	SD	Mean	SD		
Basic variables	Age	Year	10.53	0.35	10.47	0.26	0.06	0.43
	Height	cm	130.65	0.86	130.01	0.65	0.64	1.88
	Weight	Kg	27.54	0.52	27.22	0.62	0.32	1.23

\* Significant at 0.05 level (T significant = 2.10)

It is clear from Table (4) for the statistical significance of the basic variables of the two research groups before the experiment, the absence of statistically significant differences at the level of 0.05 in all the measurements and the applied tests, which indicates their equivalence.

**Table (5)**  
**Statistical indications of physical variables between the experimental group and the control group before the experiment**

Statistics variables		measurement unit	Experimental group		Control group		Mean difference	T Values	
			Mean	SD	Mean	SD			
Flexibility	arms	dome	cm	-1.15	0.32	-1.23	0.21	0.08	0.66
	torso	Drape torso	degree	12.35	0.36	12.42	0.45	0.07	0.38
		Extend the torso	degree	22.15	0.78	22.72	0.66	0.57	1.76
	legs	The leg opening is right	degree	197.62	4.36	198.36	3.89	0.74	0.40
		The leg opening is left	degree	187.25	4.96	188.14	4.12	0.89	0.44
Strength	arms	Drape arms	kg	12.25	0.89	12.43	0.53	0.18	0.55
		Extend the arms	kg	10.08	0.15	10.16	0.26	0.08	0.89
	torso	Drape torso	kg	51.12	0.45	51.26	0.56	0.14	0.61
		Extend the torso	kg	61.35	0.56	61.28	0.42	0.07	0.32
	legs	Bend the legs	kg	23.63	0.52	23.78	0.63	0.15	0.58
		Leg extension	kg	75.12	4.15	75.36	4.89	0.24	0.12
Force marked with speed	arms	(Oblique flatness) the arms fold 10s	n	8.36	0.44	8.26	0.48	0.10	0.48
	legs	Vaulting	cm	35.35	0.46	35.02	0.59	0.33	1.38
Agility		Zigzag running	second	6.88	0.25	6.92	0.36	0.04	0.29
Compatibility		Numbered circuits	second	8.45	0.66	8.52	0.75	0.07	0.22
Balance	static	Stand with the instep on a balance beam	second	40.23	0.56	40.45	0.42	0.22	1.00
	dyna mic	Bass adjusted	mark	86.12	0.98	85.23	1.12	0.89	1.89

\* Significant at 0.05 level (T significant = 2.10)

It is clear from Table (5) for the statistical significance of the variables and physical measurements of the two research groups before the experiment, the absence of statistically significant differences at the level of 0.05 in all the applied measurements and tests, which indicates their equivalence.

**Table (6)**  
**Statistical indications of the mandatory sentence of aerobic gymnastics under 11 years of age between the experimental group and the control group before the experiment**

statistics variables		measurement unit	Experimental group		Control group		Mean difference Mean	T Values SD
			Mean	SD	Mean	SD		
Angular pivot ground		mark	3.12	0.75	3.35	0.63	0.23	0.74
Arms fold down		mark	3.15	0.31	3.42	0.46	0.27	1.54
Roll around the longitudinal axis		mark	3.09	0.63	3.23	0.23	0.14	0.66
The torso folded forward with the leg weighted behind		mark	2.84	0.72	2.96	0.86	0.12	0.34

It is clear from Table (6) concerning the statistical significance of the compulsory dynamics of the aerobic gymnastics under 11 years for both research groups before the experiment, that there are no statistically significant differences at the level of 0.05 in all the measurements and tests applied, which indicates their equivalence.

#### Basic experience:

The study started by applying the program as follows:

-Experimental Group: I underwent a training program using exercises with tools. Attachment (2)

-The control group: It was subject to the program of Smouha Club.

#### Program Design:

- Use the principle of pregnancy and rest as a basis for the exercise, taking into account the individual loading of the sample members, each according to his physical ability. (21: 101), (23:45).

The increase in pregnancy was taken into consideration through the gradual increase in pregnancy, continuity. (12: 76)  
 - The experiment was applied for a period of (12) weeks, with 36 units (3 weekly units) to implement the training program with tools. The control group also organized for the same period and the number of training units to implement the program followed at Smouha Club.  
 -The average time for a training unit is (120-180) minutes, and (60) minutes are specified for private physical preparation.

-Intensive (low-high) types of training were used.  
 -The program contains warm-up and closing exercises. Attachment (3)  
 -The program contains exercises with the following tools and devices (bar - balance beam - Swedish seats - wall brains - ropes - chairs - divided boxes - balls).  
**Assessing the skill level:**  
 Through a committee of arbitrators registered in the arbitration records of the Egyptian Gymnastics Federation.  
**Results and discussion:**  
**Results:**

Table (7)

*Statistical indications of physical and physical variables of the experimental group before and after the experiment*

Statistics variables		measurement unit	Pre measurement		Post measurement		Mean difference	T Values	Improvement %	
			Mean	SD	Mean	SD				
Flexibility	arms	dome	cm	-1.15	0.32	7.00	0.67	8.15	28.22*	708.70
	torso	Drape torso	degree	12.35	0.36	17.60	0.52	5.25	20.85*	42.51
		Extend the torso	degree	22.15	0.78	50.10	0.88	27.95	102.33*	126.19
	legs	The leg opening is right	degree	197.62	4.36	208.00	2.58	10.38	11.70*	5.25
		The leg opening is left	degree	187.25	4.96	207.50	2.64	20.25	14.09*	10.81
Strength	arms	Drape arms	kg	12.25	0.89	15.70	0.48	3.45	19.98*	28.16
		Extend the arms	kg	10.08	0.15	14.20	0.42	4.12	25.11*	40.87
	torso	Drape torso	kg	51.12	0.45	61.60	0.52	10.48	47.04*	20.50
		Extend the torso	kg	61.35	0.56	72.10	0.74	10.75	43.30*	17.52
	legs	Bend the legs	kg	23.63	0.52	29.60	0.52	5.97	39.00*	25.26
		Leg extension	kg	75.12	4.15	105.10	0.99	29.98	2.76*	39.91
Force marked with speed	arms	(Oblique flatness) the arms fold 10s	n	8.36	0.44	10.60	0.52	2.24	10.78*	26.79
	legs	Vaulting	cm	35.35	0.46	44.20	0.63	8.85	39.00*	25.04
Agility	Zigzag running	second	6.88	0.25	5.47	0.49	1.41	7.96*	20.49	Agility
Compatibility	Numbered circuits	second	8.45	0.66	7.22	0.19	1.23	5.21*	14.56	Compatibility
Balance	static	Stand with the instep on a balance beam	second	40.23	0.56	51.80	1.40	11.57	22.04*	28.76
	dynamic	Bass adjusted	mark	86.12	0.98	94.20	1.03	8.08	23.73*	9.38

\* Significant at 0.05 level (T significant = 2. 262)

It is clear from Table No. (7) concerning the statistical significance of the physical measurements and tests of the experimental group before and after the experiment, that there are differences of statistical significance at the level (0.05) in all measurements, where the calculated value of (T) ranged between (2.76 to 102.33) which is greater than The value of the (T) tabular, and the improvement rates ranged between (5.25% to 708.70%) in favor of the dimensional measurement .

**Table (8)**  
*Statistical indications of the mandatory motions of aerobic gymnastics under 11 years of age in the experimental group before and after the experiment*

variables \ Statistics	measurement unit	Pre measurement		Post measurement		Mean difference	T Values Mean	Improvement %
		Mean	SD	Mean	SD			
Angular pivot ground	mark	3.12	0.75	8.82	0.35	5.70	10.78*	182.69
Arms fold down	mark	3.15	0.31	8.56	0.23	5.41	12.42*	171.75
Roll around the longitudinal axis	mark	3.09	0.63	9.01	0.54	5.92	15.63*	191.59
The torso folded forward with the leg weighted Behind	mark	2.84	0.72	8.75	0.63	5.91	14.63*	208.10

\* Significant at 0.05 level (T significant = 2. 262)

It is clear from Table No. (8) concerning the statistical significance of the motions of the motor sentence for aerobic gymnastics under 11 years in the experimental group before and after the experiment, that there are statistically significant differences at the level of (0.05) in all measurements, where the calculated value (T) ranged between (10.78 to 15.63) It is greater than the tabular value of (T), and the improvement rates ranged between (171.75% to 208.10%) in favor of telemetry.

**Table (9)**  
*Statistical indications of physical and physical variables in the control group before and after the experiment*

Statistics variables	measurement unit	Pre measurement		Post measurement		Mean difference	T Values	Improvement %		
		Mean	SD	Mean	SD					
Flexibility	arms	dome	cm	-1.23	0.21	5.71	0.49	4.48	22.63*	364.23
	torso	Drape torso	degree	12.42	0.45	14.00	0.23	1.58	25.56*	12.72
		Extend the torso	degree	22.72	0.66	48.43	0.53	25.71	92.47*	113.17
	legs	The leg opening is right	degree	198.36	3.89	202.86	2.67	4.5	12.39*	2.27
The leg opening is left		degree	188.14	4.12	195.00	4.08	6.86	7.78*	3.65	
Strength	arms	Drape arms	kg	12.43	0.53	13.43	0.53	1.00	10.67*	8.05
		Extend the arms	kg	10.16	0.26	13.43	0.53	3.27	26.89*	32.19
	torso	Drape torso	kg	51.26	0.56	55.00	1.00	3.74	15.00*	7.30
		Extend the torso	kg	61.28	0.42	66.57	0.79	5.29	44.93*	8.63
	legs	Bend the legs	kg	23.78	0.63	24.57	0.53	0.79	23.24*	3.32
		Leg extension	kg	75.36	4.89	99.57	0.79	24.21	23.24*	32.13
Force marked with speed	arms	(Oblique flatness) the arms fold 10s	n	8.26	0.48	8.57	0.79	0.31	8.17*	3.75
	legs	Vaulting	cm	35.02	0.59	40.14	0.38	5.12	41.72*	14.62
Agility	Zigzag running	second	6.92	0.36	6.57	1.13	0.35	6.48*	5.06	
Compatibility	Numbered circuits	second	8.52	0.75	8.43	0.53	0.09	6.00*	1.06	
Balance	static	Stand with the instep on a balance beam	second	40.45	0.42	46.29	2.14	5.84	14.79*	14.44
	dynamic	Bass adjusted	mark	85.23	1.12	91.43	1.62	6.2	21.64*	7.27

\* Significant at 0.05 level (T significant = 2. 262)

It is clear from Table No. (9) of the statistical significance of the physical measurements and tests of the control group before and after the experiment, that there are differences of statistical significance at the level (0.05) in all measurements,

where the calculated value of (T) ranged between (6.00 to 92.47) which is greater than The value of (T) tabular, and the improvement rates ranged between (1.06% to 364.23%) in favor of the dimensional measurement.

Table (10)

Statistical indications of the mandatory motions of the aerobic gymnastics under 11 years for the control group before and after the experiment

variables	Statistics	measurement unit	Pre measurement		Post measurement		Mean difference	T Values Mean	Improvement %
			Mean	SD	Mean	SD			
	<i>Angular pivot ground</i>	mark	3.35	0.63	5.75	0.34	2.40	6.87*	71.64
	<i>Arms fold down</i>	mark	3.42	0.46	5.43	0.63	2.01	4.63*	58.77
	<i>Roll around the longitudinal axis</i>	mark	3.23	0.23	6.02	0.94	2.79	5.36*	86.38
	<i>The torso folded forward with the leg weighted behind</i>	mark	2.96	0.86	4.63	0.73	1.67	5.89*	56.42

\* Significant at 0.05 level (T significant = 2. 262)

It is clear from Table No. (10) concerning the statistical significance of the motions of the motor sentence for aerobic gymnastics under 11 years in the control group before and after the experiment, there are statistically significant differences at the level of (0.05) in all measurements, where the calculated value of (T) ranged between (4.63 to 6.87) It is greater than the tabular value (T), and the improvement rates ranged between (56.42% to 86.38%) in favor of telemetry.

Table (11)

Statistical indications of physical variables in the experimental and control groups after the experiment

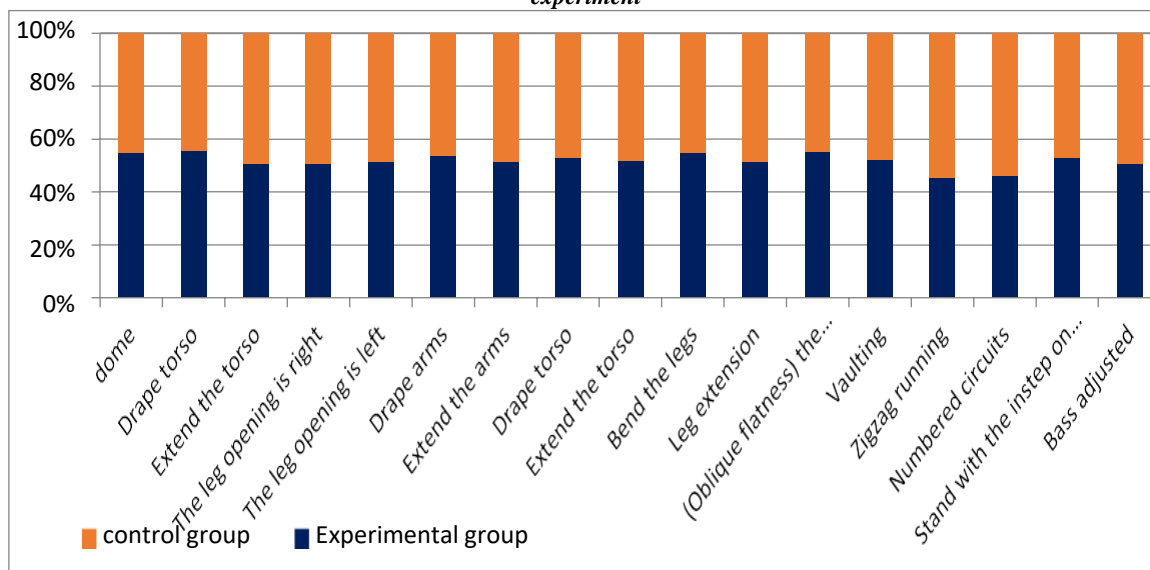
variables	Statistics	measurement unit	Experimental group		Control group		Mean difference	T Values Mean	Percentage difference % SD	
			Mean	SD	Mean	SD				
Flexibility	arms	dome	cm	7.00	0.67	5.71	0.49	1.29	4.92*	18.43
	torso	Drape torso	degree	17.60	0.52	14.00	0.23	3.6	20.00*	20.45
		Extend the torso	degree	50.10	0.88	48.43	0.53	1.67	5.22*	3.33
	legs	The leg opening is right	degree	208.00	2.58	202.86	2.67	5.14	4.39*	2.47
		The leg opening is left	degree	207.50	2.64	195.00	4.08	12.50	8.12*	6.02
Strength	arms	Drape arms	kg	15.70	0.48	13.43	0.53	2.27	6.72*	9.87
		Extend the arms	kg	14.20	0.42	13.43	0.53	0.77	3.67*	5.42
	torso	Drape torso	kg	61.60	0.52	55.00	1.00	6.6	18.33*	10.71
		Extend the torso	kg	72.10	0.74	66.57	0.79	5.53	16.26*	7.67
	legs	Bend the legs	kg	29.60	0.52	24.57	0.53	5.03	21.87*	16.99
		Leg extension	kg	105.10	0.99	99.57	0.79	5.53	13.38*	5.26
Force marked with speed	arms	(Oblique flatness) the arms fold 10s	n	10.60	0.52	8.57	0.79	2.03	6.77*	19.15
	legs	Vaulting	cm	44.20	0.63	40.14	0.38	4.06	17.65*	9.19
Agility	Zigzag running	second	5.47	0.49	6.57	1.13	1.10	2.82*	20.11	
Compatibility	Numbered circuits	second	7.22	0.19	8.43	0.53	1.21	6.72*	16.76	
Balance	static	Stand with the instep on a balance beam	second	51.80	1.40	46.29	2.14	5.51	6.80*	10.64
	dynamic	Bass adjusted	mark	94.20	1.03	91.43	1.62	2.77	4.54*	2.94

\* Significant at 0.05 level (T significant = 2. 10)



It is clear from Table No. (11) and graph No. (1) concerning the statistical significance of the physical variables of the experimental and control research groups after the experiment, that there are statistically significant differences at the level of (0.05), where the calculated value of (T) ranged between (2.82 to 21.87) It is greater than the value of the tabular (T) at the level (0.05), and the differences in the improvement rates ranged between (2.47% to 20.45%) in favor of the experimental group in all physical variables under consideration.

**Figure (1)**  
*of the statistical significance of the physical variables of the experimental and control research groups after the experiment*



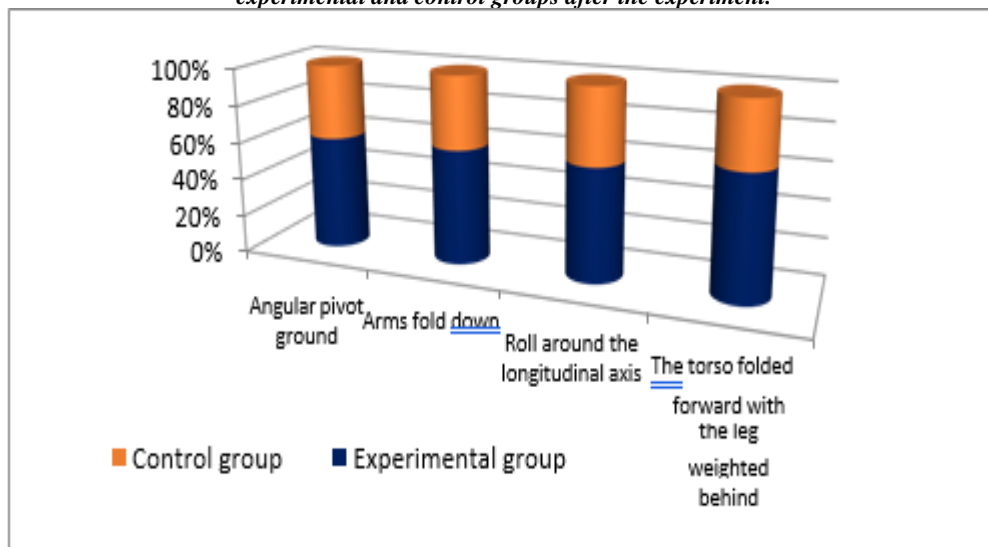
**Table (12)**  
*Statistical indications of the mandatory motions of the aerobic gymnastics under 11 years for both experimental and control groups after the experiment*

variables	statistics	measurement unit	Experimental group		Control group		Mean difference	T Values Mean	Percentage difference% SD SD
			Mean	SD	Mean	SD			
	<b>Angular pivot ground</b>	mark	8.82	0.35	5.75	0.34	3.07	19.93*	34.81
	<b>Arms fold down</b>	mark	8.56	0.23	5.43	0.63	3.13	14.76*	36.57
	<b>Roll around the longitudinal axis</b>	mark	9.01	0.54	6.02	0.94	2.99	8.74*	33.19
	<b>The torso folded forward with the leg weighted behind</b>	mark	8.75	0.63	4.63	0.73	4.12	13.51*	47.09

\*Significant at 0.05 level (T significant = 2. 10)

It is clear from Table No. (12) and graph No. (2) of the statistical significance of the compulsions of the motor sentence for aerobic gymnastics under 11 years for both experimental and control groups after the experiment, there are statistically significant differences at the level of (0.05), where the calculated value (T) ranged between (8.74 to 19.93) which is greater than the tabular value of (T) at the level of (0.05), and the differences in the improvement percentages ranged between (33.19% to 47.09%) in favor of the experimental group in all degrees of mandatory motions of the aerobic gymnastics under 11 years in question.

**Figure (2)**  
*concerning the statistical significance of the compulsory dynamics of the aerobic gymnastics under 11 years for both experimental and control groups after the experiment.*



### Discussion:

The differences with the statistical significance between the tribal measurements and the dimensional measurements of the experimental group in the physical variables and the level of obligatory performance of the aerobic system under 11 years under study, and in favor of the dimensional measurements are due to the nature of the proposed program using the training period training with its types (low - high) intensity, in addition to the regular training The continuous and repetitive performance is at

(3) units per week for a period of (12) consecutive weeks. The differences of statistical significance between the tribal and the dimensional measurements of the control group in the physical variables and the level of mandatory performance of the aerobic system under 11 years under study, and in favor of the dimensional measurements are due to the nature of the program applied at Smouha Club, in addition to the regular and continuous training and repetition of performance at (3) units per week for a period ( 12) Continuous week.

This is what achieves the results of the first hypothesis, as there are statistically significant differences between the pre and post measurements of the experimental group, the control group in the variables of special physical abilities and the level of mandatory performance of the aerobic system under 11 years, in favor of the dimensional measurements.

The differences of statistical significance between the experimental group and the control group in the dimensional measurements of the physical variables and the level of obligatory performance of the aerobic group under 11 years under study, in favor of the experimental group,

are due to the preference of using the proposed program using the periodical training training (low - high) intensity from the program applied in the club.

The improvement in flexibility is due to the nature of the training program through performing flexibility exercises in the warm-up and closing part of each training unit. Regular training contributes greatly to the increase and capacity of ligaments and tendons to elongation, which increases the extent of movement in the joints of the body and the development of flexibility. (1: 246)

Most joints of the body achieved growth in their kinetic range during the 6-9 year age period, and also the development of the level of flexibility is affected by the type of training and kinetic activity experienced by the player during the training unit, and the optimal period for developing flexibility, especially the shoulders elasticity, starts from the age of 7 to 12 years. (4: 307, 311), (32: 131)

And the practice of gymnastics continuously and regularly leads to a significant increase in the level of muscle strength when compared to the effort that non- practitioners undergo gymnastics. (5: 508)

Periodic training is one of the training methods that contribute to the development of muscle strength, the strength characterized by speed. (19: 217), (12: 104)

Also, weight training is an objective way to develop different types of muscle strength, and one of its main advantages is to increase muscle strength in all its forms. Children, if they are used to performing exercises using additional weight, can achieve the best results. (10: 259), (8:15)

In order for the player to perform the grips, the gaps and rotations are based on the balance as well as the balances must wear weights in the legs so that they do not exceed 2% of the body weight as well, it is better to use it for a period of not less than 15 minutes in the training unit. (36: 137-138)

Perhaps the best way to train strength with speed is the same as the time track during the exercise is similar to the time track during the performance of the same skill. (19: 111)

And the use of exercises dominated by the change in speed, timing and performance of the movement as well as changing the direction is considered one of the most important methods of developing agility. (26: 159), (20: 117)

And compatibility is one of the physical capabilities that have great importance, especially in activities where the movement performance is characterized by the use of more than one of the body members in more than one direction at one time and compatibility is linked to agility, balance and flexibility. (12: 169)

Aerobic gymnastics depends a great deal on the compatibility between the movements of the hands and the eyes of the two men (35), (37), so repeating the performance of the sentence for several times led to improving the compatibility of the players, as the increase in the frequency of performance leads to the development of compatibility. (25: 156)

The development of the motor link helps to improve the level of compatibility, which in turn leads to improving the level of performance. (12:46)

Stage 9-11 shows the main breakthrough in which motor development can be developed. (16: 254) Balance is a key component of most of the motor skills that require performance on a narrow anchor base (21: 124), (35: 238), as all static balance skills are performed.

on a single foot comb, which is a very small fulcrum, and most of the exercises used in the program were similar the nature of the performance of motor skills in the motor sentence, and the balance is developed by practicing training programs that include developing this quality. (22: 416)

The improvement in balance, whether it is dynamic or constant, is due to the fact that it is one of the basic skills of the difficulties of body movements as stated in international law, and thus the rate of improvement in it is high as the sentence must contain some fixed balances as well as the dynamic balance, as the program exercises took into account the increase in time The player remains in the position of stability, as well as reducing the base of the base, and lifting it using the balance beam, and this is consistent with what must be taken into account when developing the balance characteristic. (25:46)

The improvement in the level of performance of the total aerobic compulsions under 11 years, in favor of the experimental group, is due to the development of some physical characteristics specific to the skillful performance of the basic groups of the difficulties of body movements, which are represented in the constraints, balances, rotations and elasticities. The extent of work on the joints leads to

obstruction of the level of showing strength and speed as well as to weak compatibility between the muscle fibers and between the muscles, and thus leads to a decrease in economic performance, which is reflected in the results of training directed at other motor characteristics. (1: 246)

Musical accompaniment with different rhythms and linking it with the performance of movements in aerobic gymnastics, especially at the young age, working to advance the level of skillful performance. (15:21), (31:31), (37)

The kinetic performance in aerobic gymnastics requires a high degree of kinetic balance, as well as the availability of the characteristic force characteristic of speed at the bottom end when performing constancy, not only during elevation but also during landing, and depends on this characteristic along with flexibility in increasing flight time and body height in air. (2: 268)

Certain exercise tools and devices also helped in developing physical characteristics when used as additional loads to develop strength, as physical exercise programs improve muscle strength if exercises are used with the weight of the body. (27:35), (28: 90)

Exercise tools and devices also contribute to developing joint and muscle work and increasing flexibility. (18: 257), improving the level of motor abilities in general. (32: 257)

The effectiveness of the training effects of regular exercise programs is to improve job capabilities, in addition to improving (strength, ability, flexibility, agility, endurance, and compatibility), and thus the level of skill performance. (28: 20)

This is what achieves the results of the second.

hypothesis, as there are statistically significant differences between the experimental group and the control group in the dimensional measurements of the variables of special physical abilities and the level of mandatory performance of the aerobic group under 11 years, in favor of the experimental group.

#### **Conclusions:**

- The effectiveness of periodical training with its two types (low - high) intensity using exercises with tools to improve some special physical abilities among female gymnasts under 11 years, as the experimental group outperformed the control --group in all measurements of special physical abilities.
- The effectiveness of periodical training with its two types (low - high) intensity using exercises with tools to improve the performance level of aerobic compulsions under 11 years, as the experimental group outperformed the control group in all performance level measurements by compulsions of aerobic gymnastics.

#### **Recommendations:**

- The use of period training in both types (low - high) intensity, using exercises with tools to improve some special physical abilities and performance level, including mandatory gymnastics for athletes under 11 years.

Carrying out studies to identify the different training effects of exercises with tools at different dental levels, and other sporting activities.

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