

Predicting the Level of Technical Performance of Rope Skills in Rhythmic Gymnastics in the Light of the Anthropometric Variables of Students of the Faculty of Physical Education

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Abstract--- *This research aims to identify: the relationship between anthropometric variables, the level of technical performance skills, the athletic gymnastics cord and rhythmic students in the Faculty of Physical Education and Sports Science, and predictive equations of the level of technical performance skills with gymnastics and rhythmic rope. In terms of anthropogenic variables, the researcher used the descriptive method Tan, and like a sample of 34 students from the Faculty of Research in the College of Physical Education and Sports Science, and the researchers concluded that there is a relationship between the anthropometric variables. The level of technical performance of the rhythmic gymnastics skills of the athletic rope contributes to the anthropometric changes reached by the researcher Tan, which is an important criterion in determining the level of technical performance of female students in the rhythmic gymnastics of rope skills, and access to the equations of human responses and their regression in the level of skill performance.*

Keywords--- *Faculty of Physical Education, Rhythmic Gymnastics.*

I. INTRODUCTION AND RESEARCH PROBLEM

The progress of sport in our time is considered a national and human necessity because it is one of the most important means for preparing and developing all the resources of society to face civilizational challenges, and the amount of educational and educational opportunities granted by nations. Their youth have become one of the most important things that reflect their progress and progress, and there is no doubt that physical education is one of the most important The fields of health education for generations, through various sporting activities that develop through scientific results, research related to physical education in the light of current scientific and technological development, which is the hallmark of this era.

Mathematical training is related to the theories and other scientific foundations that depend on it to form its various knowledge, information, and methods. Thus, sports training is the result of this mix of other sciences and aims to reach players to high levels of sports depending on the scientific method, and the specialist in sports training is the method that affects the achievement of the goal of targeted sports planning, so organized training for long periods of sports activity Its players gain some distinctive indicators, which are similar to the basic forces to reach the highest level in this activity.

Muhammad Hassan Allawi and Muhammad Nasreddin (2000) indicate the importance of me to the individual or

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group scale in the phenomenon at a certain time to know the current level and try to estimate the level expected to be reached in the future for the same age, which was measured or in some behavior related to this phenomenon to tell us about Differentiation when some players choose sports activities. (8:38)

The disadvantages of Owais al-Jabali (2003) to reach high mathematical levels that do not depend on the implementation of the programs prepared according to scientific foundations only, but to link them to the physiological, physiological, physical, and psychological determinants of athletes, and these specific people can, through their displacement, achieve the general goals of the training process. (6: 467)

Abu El-Ela Ahmed Abdel-Fattah and Nasr El-Din Radwan (2003) agree that now in the most difficult situations we need to evaluate the physiological and morphological processes under the most severe waves in the sports field, whether at the local level or at the international level, at the local level, we are still We need to stop to find out more about our physical capabilities in terms of physiology and morphology, and is it possible with these capabilities, whether inherited or acquired, to reach high levels 0 (1: 6)

Jenny Boot (2001) explains that rhythmic gymnastics is one of the sports that requires its practitioners to perform motor skills with certain specifications characterized by a precise technical technique that needs special physical capabilities and requirements, capabilities and perceptions of movement because it has an effective role in the process of training and strengthening those motor skills in order to be implemented In a harmonious kinetic art series. (14: 64).

The name of the sea and Susan Tantawi (2004) indicate that the rhythm of gymnastics depends on special anthropometry measurements such as height, weight, body composition, leverage ratios, standard ratios of the cost of body parts to each other, and the center of gravity 0 (12: 354)

The researcher believes that many scientists and specialists in the sports field agree that every sporting activity is distinct from other activities in terms of anthropometric specifications and anthropometric measurements for players such as height, weight, body surface, vital ability, etc., which are consistent with the requirements of this activity and stressed that morphological measurements The career growth of athletes is of great importance in building the sports training process, and therefore it is an important pillar that controls the choice of female education and training.

The skill of ropes in the sport of rhythmic gymnastics is one of the forms and types of sports work that are difficult because of the multiplicity and diversity of its skills and the short period devoted to competition, as well as it is an interesting sport. Because of the rapid change of conditions of the female body through multiple positions of performance, which leads to different and changing positions during the competition that makes students aware and aware of all these situations, because the physical capabilities here play a large role in controlling the conditions of this mental process that facilitates him access to the best level of performance. By following the researcher Tan on the level of female students 'performance in rope skill with rhythmic gymnastics, I noticed that there is a big difference between the performance levels of female students in the level of performance. Tanto study the semantics that distinguishes the student rhythmically, as the identification of these semantics may contribute directly to the process of selection, education, and training, as well as direct planning for the specialist related to the physical and

physical capabilities of students. The skill that is considered the first step for excellence by trying to extract some equations that predict the level of female students in rhythmic gymnastics in an attempt to develop and spread this sport through proper planning.

Research Aims

This research aims to identify :

1. Relationship of anthropometric variables and the level of technical performance of rope skills in rhythmic gymnastics for students of the Faculty of Physical Education and Sports Science.
2. Set predictive equations for the level of technical performance of rope skills in gymnastic rhythmic gymnastics in terms of anthropometric variables.

Research Questions

1. What is the relationship of anthropometric variables and the level of technical performance of rope skills in rhythmic gymnastics in female students of the Faculty of Physical Education and Sports Science?
2. M A Can the predictive performance of the level of technical skills in terms of cord Briyadhajlmnacetek rhythmic Alanthermitrih variables?

Research Fields

1. The human field: Students of the Faculty of Physical Education and Sports Science / University of Maysan.
2. Timeframe: 7/10/2018 to 5/11/2018
3. Spatial domain: Gymnastic Hall, Faculty of Physical Education and Sports Science / University of Maysan.

II. RESEARCH PROCEDURES

Research Methodology

Researcher Tan used the descriptive approach appropriate to the nature of this research.

Research Society and Sample

The research community was chosen intentionally by students of the College of Physical Education and Sports Science for the academic year , (2018/2017) and the total sample of the research consisted of students from the College of Physical Education and Sports Science and their number was (34) students , and the number (10)students were withdrawn to conduct scientific transactions (Honesty - Consistency), and thus the basic research sample (24) became a student ,and this is shown in Table 1

Table 1: Description of the Research Sample

The ratio	the number	the sample
%70.59	24	The basic research sample
%29.41	10	Survey study sample
%100	34	Total

Moderation of the Population and Sample of the Research

To ensure the moderation of the research population and sample ,heterogeneity was found in some of the variables under investigation ,and this is shown in Table (2 and 3)

Table 2: Arithmetic Mean Standard Deviation, Median, and Torsional Coefficients of (Anthropometric) Variables are being Investigated N = 34

Coefficient of torsion	Mediator	deviation	The average	measuring unit	Variables	No.
0.631	00. 7 1	0.28	2.2 7 1	Year	Age	1
0.351-	3.00 5	4.39	4.65 5	Kg	the weight	2
0.438-	00. 65 1	2.12	5.59 6 1	cm	Total height	3
0.198	00. 83	2.55	3.82 8	cm	Tallness	4
0.177-	9.00 5	1.89	8.86 5	cm	Length of the trunk	5
0.680	00. 32	2.46	35. 32	cm	Forearm length	6
0.335	00. 31	1.70	65. 31	cm	Upper arm length	7
0.836	00. 18	0.92	38. 18	cm	Palm length (hand)	8
0.253-	00. - 64	2.84	62. 63	cm	Arm length	9
0.486-	00. 38	1.71	79 38	cm	Leg length	10
0.178	00. 51	2.81	93. 53	cm	Thigh length	11
0.507	00. 27	2.75	85. 29	cm	Foot length	12
1.059	00. 94	3.93	44. 94	cm	Length of the lower end	13
0.398-	00. 28	2.70	79 28	cm	Chest width	14
0.554	00. 39	2.95	62 .39	cm	Show the afflicted	15th
0.234-	00. 27	1.87	81. 26	cm	Pelvic width	16
0.641	00. 79	3.98	41 79	cm	Chest circumference	17
1.091	00. 68	2.83	32. 68	cm	Abdominal circumference	18
0.082-	00. 25	2.61	43. 26	cm	Upper arm circumference	19
0.723-	00. 50	4.29	93. 50	cm	Thigh circumference	20
0.154-	3.00	0.31	2.70	Mm	Thickness of the abdominal wall	21
0.438	3.00	0.44	3.07	Mm	The thickness of the folds below the plate bone	22
0.331	2.00	0.34	2.08	Mm	Thigh thickness	23
0.300-	3.00	0.39	2.90	Mm	The thickness of the folds at the pelvis	24
0.323	2.00	0.50	2.04	Mm	At the middle armpit line	25
0.375	2.00	0.41	2.19	Mm	Thickness of the hummers	26

It is clear from Table (2) the torsional coefficients for all the physical variables of the individuals of the research sample. It ranged between (-0.723, +1.059), meaning that the coefficients of torsion were limited to ± 3 , which indicates that the research sample is free from defects of non-moderate distributions, which means homogeneity of the sample members in Those variables.

Table 3: Average, Standard Deviation, Median and Torsion Coefficients, the Technical Performance Level of Rope Skills N = 34

Coefficient of torsion	Mediator	standard deviation	Variables	The average	No.
0.403	00. 12	0.66	The level of technical performance of rope skills	53. 12	1

It is clear from Table (3) the torsional coefficients of the skill variables under investigation for the members of the research sample and it reached ,(0.403) i.e., those values were limited to ± 3 , which confirms that the research sample is free from defects of non-moderate distributions, which means the homogeneity of the sample members in

these variables.

A. Hardware and Tools

Restameter (Restameter) to measure height in centimeters and weight in kilograms.

- Centimeter tape to measure the circumference.
- Bending the skin.
- Stopwatch.
- Swedish seat.
- Colorful flags.
- Colored signs.

B. Forms and Personal Interviews

Expert survey form to determine the most important anthropometric variables for female students. The researcher was satisfied with 80% or more. (Attachment2). A model for assessing skill level performance for rhythmic gymnastics skills. (Attachment 3).

C. Tests

1. Anthropometric Variables

Table 4: The Relative Importance of Expert Opinions in Determining Human Variables Number = 10

percentage	Number of approval	Anthropometric variables	No.
-	-	Lengths:	
%100	10	The total length of the body	1.
%90	9	Length of the trunk	2.
%80	8	Arm length	3.
%100	10	Upper arm length	4.
%80	8	Forearm length	5.
%80	8	Palm length (hand)	6.
%100	10	Length of the lower end	7.
%90	9	Thigh length	8.
%90	9	Leg length	9.
%80	8	Foot length	10.
-	-	Oceans:	
%80	8	Chest circumference	1.
%80	8	Circumference of the medium	2.
%80	8	Upper arm circumference	3.
%90	9	Thigh circumference	4.
-	-	Symptoms:	5.
%80	8	Show the afflicted	6.
%80	8	Chest width	7.
%90	9	Pelvic width	8.
-	-	Skin fold thickness:	9.
%80	8	Below the board bone	10.
%80	8	At the middle axillary line	11.
%90	9	Thickness of the abdominal wall	12.
%90	9	Thigh thickness	13.
%80	8	At the sink	14.
%90	9	Thickness of the humerus	15.

Through the reference survey and access to research and studies related to the research and sports rhythmic gymnastics, the researcher Tan was able to draw a set of anthropometric measurements and is performed by placing

them in a model questionnaire (Attachment 2), and was submitted to the experts (Attachment 1) through a personal interview To determine the most important rhythmic gymnast and table (4) clarifies this.

The relative importance of the anthropometric variables is evident from Table (4). The researcher fulfilled the percentage confined between (80% -100%).

D. Assessment of Skill Level

Evaluating the level of skill performance through a specialized committee of experts (specializing in rhythmic gymnastics) to determine the degree of level of technical students' performance in rhythmic gymnastics skill and the final grade (20) stairs.

Survey Study

The researcher Tan conducted an exploratory experiment during the period from 5/2/2018 to 12/2/2017, to find scientific transactions (honesty - consistency) to form a technical level of technical performance skill (understudy) and on the MEU sample. They were chosen from the research community and (10) students from the same research community and outside the basic research sample (as a non-distinct sample), and a sample (distinct group) of rhythmic gymnasts to find the truth of differentiation.

Honesty

The calculation of honesty through "honesty of distinction" is explained by the two mentioned above (group property - undisclosed group) and table (5) illustrates this.

Table 5: Differentiation was Investigated for the Technical Performance Evaluation form of Rope Skill in Rhythmic Gymnastics the number 1= the number 2=10

T value	The group is special		Undetected group		Skills	No.
	P	s	P	s		
* 7.766	1.524	17.412	2.214	6.310	Rope skill level	1

The scheduled value of "T" is 12, $0.05 = 2.179$

From Table (5), it is clear that there are statistically significant differences at the level of significance (0.05) between the values of the distinct group mean and the mean of the unmarked group in the physical variables under discussion, which indicates the validity of the tests under consideration in measuring what was prepared for them.

Stability

The consistency of the model was calculated by application and re-application at a time interval of one week over the above-mentioned group (unmarked group). Table (6) illustrates this.

Table 6: Reliability of the Technical Performance Appraisal Model for Rope Skill in Rhythmic Gymnastics n = 10

Value of "t"	Return the application		The first application		Skills	No.
	P	s	P	s		
* 0.863	2.016	7.016	2.214	6.310	Rope skill level	1

Scheduled "t" value = 0.532

It is clear from Table (6) that all the correlational coefficients of the relevant physical tests were statistically

significant at a significant level (0.05) and ranged between the values (0.914 and 0.761) which are significant values and greater than the value of the table “R” which indicates the consistency of the tests in the chosen research.

III. RESEARCH IMPLEMENTATION PROCEDURES

Applying the tests to the players devoted to rhythmic gymnastics in the halls 5/18/2017 to 5/23/2017 during the transitional period of the 2012/2013 season the data collection, classification, scheduling, and statistical treatment were

Statistical treatments.

- SMA
- Standard deviation
- Coefficient of torsion.
- Broker
- Pearson Simple Correlation Coefficient.
- Test the importance of differences.
- Multiple regression equations using the regression equation $Y = a + b^{-1} x_1 + b_2 x_2 + \dots + b_n x_n$

While:

(Y skill level).

(A (= fixed amount) Q) = the value of the contributory variable measurement.

(B) = regression coefficient.

Firstly

The regression equation for performance level in terms of anthropometric measurements extracted from correlation coefficients

Performance level = (0.613 total length + 72.13) + (0.605 lower limb length + 32.14) + (0.571 upper arm circumference + 45.60) + (0.630 thigh circumference + 35.73) + (1.14 chest width + 32.97).

IV. PRESENT AND DISCUSS THE RESULTS

First Presentation Results

Table (7) shows the arrangement of the links of the anthropometric variables under discussion with the level of skill performance among the individuals in the main sample. The most closely related variants were the total length, then the length of the lower end, followed by the circumference of the humerus, then the circumference of the thigh, then the width of the chest, and these variables are to be included in following the regression equation for the level of performance rather than the human variables. Correlation coefficients ranged between 20 correlation coefficients with values (0.872 and 0.600), while unimportant correlation coefficients between them and the performance level reached 5 correlation coefficients whose values ranged between (0.418 and 0.409).

Table 7: Correlation Coefficient Values for Human Body Measurements and Performance Level Number = 20

Order ranking for performance level	Correlation coefficient	Variables	No.
15th	* 0.675	the weight	1
the first	* 0.872	Total height	2
6	* 0.722	Tallness	3
13	* 0.690	Length of the trunk	4
14	* 0.688	Leg length	5
12	* 0.694	Upper arm length	6
19	* 0.605	Palm length (hand)	7
7	* 0.719	Arm length	8
11	* 0.700	Leg length	9
8	* 0.710	Thigh length	10
20	* 0.600	Foot length	11
The second	* 0.814	Length of the lower end	12
Fifth	* 0.732	Chest width	13
9	* 0.708	Show the afflicted	14
16	* 0.650	Pelvic width	15th
10	* 0.705	Chest circumference	16
17	* 0.641	Circumference of the medium	17
the third	* 0.810	Upper arm circumference	18
the fourth	* 0.744	Thigh circumference	19
25	0.409	Thickness of the abdominal wall	20
22	0.415	Thickness below the plate bone	21
21	0.418	Thigh thickness	22
24	0.413	Fish at the aquarium	23
23	0.411	At the middle armpit line	24
18	* 0.622	Thickness of the humerus	25

The scheduled "t" value is 18, $0.05 = 0.444$

The researcher believes that the correlation coefficients in the lengths of students and their surroundings, and that these oceans are a basis for selecting players from the morphological point of view are very important as we see that the chest circumference (normal, inhale, exhale) is very important, as this appears during the performance of female student movements with the extent of the ability of female students to Regulating breathing, exhalation, and acceptance of inspiration while performing skills and ability to move under the regulation of breathing, as well as the circumference of both the center and the aquarium, which helps to accelerate the performance of the hops and jumps that students perform in the rhythm and the ability to master them, as well as the circumference of the fist, which indicates their shape pushing the tribute E caught a Rope, as well as the perimeter of the thigh and leg, which helps students grocery balance and balance during the skills, and various jumps and hops performance.

Issam Abdel-Khalek (2005) and Mohamed Sobhi Hassanein (2002) confirm that athletic training leads to an increase in the physiological section of the muscles, and the more the physiological section of the muscle increases, the stronger the muscles, so measuring the circumference is an important variable in favor of players with a high level because of its impact on the amount of power that can be unleashed during the skillful performance (3: 99), (9: 241).

The researcher sees Tan and the presence of correlation coefficients for the thickness of the folds of the skin that show a decrease in the percentage of fat among female students, which suggests that a large amount of muscle is due

to the researcher Tan a lack of fat in the continuous training of students. The rhythm of motorsports that need long periods of training to master different skills is enough to burn any amount of fat in the student's body.

Muhammad Subhi Hassanein (2002) confirms that the high percentage of body fat is an indication for athletes of their lack of physical capabilities and their inefficiency in performing the activity well (9: 137).

As Wilmore pointed out, Costel Wilmore and Costel (2004 AD) indicated that in general the lower the body fat, the better physical performance, as the degree of obesity is the one that negatively affects physical performance and not the total body weight the higher the percentage of fat, the lower the Physical performance, that is, it is an inverse relationship (15: 390)

By presenting and discussing the results, the researcher can extract predictive equations in terms of human variables through which the technical performance of rope skills in rhythmic gymnastics cannot be predicted. These equations are:

The regression equation for the level of performance in terms of (anthropometric) measurements extracted from correlation coefficients.

Performance level = (0.613 total length + 72.13) + (0.605 lower limb length + 32.14) + (0.571 upper arm circumference + 45.60) + (0.630 thigh circumference + 35.73) + (1.14 chest width + 32.97).

From the above equation, it is possible to predict the level of technical performance of rope skills in rhythmic gymnastics in terms of anthropometric variables.

V. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- In the light of the research objectives and questions and the sample on which the study was conducted, and from the results of statistical results and treatments, researcher Tan reached the following conclusions:
- Determining the anthropometric variables that can be relied upon to determine the level of technical performance of rope skills in rhythmic gymnastics.
- There is a relationship between the anthropometric variables and the level of technical performance of rope skills in rhythmic gymnastics.
- The researcher (lengths, oceans, symptoms, thickness of skin folds) reached by the researcher contributes to an important criterion in determining the level of technical performance of students in the sport of rhythmic gymnastics for rope skills.
- Finding and retracting equations for anthropometric measurements
- Performance level = (0.613 total length + 72.13) + (0.605 lower limb length + 32.14) + (0.571 upper arm circumference + 45.60) + (0.630 thigh circumference + 35.73) + (1.14 chest width + 32.97).

Recommendations

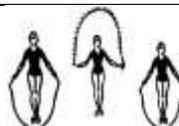
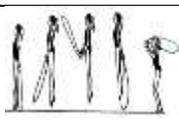
- Objectives, research questions, and sample light, conducted by the study, the reality of results, and statistical treatments Researcher Tan recommends, including the following:

- Use the regression equation for the level of performance in terms of human measurements, to determine the level of technical performance of rope skills in rhythmic gymnastics.
- The anthropometric determinants resulting from the current study are among the most important foundations to be taken into consideration when determining the level of technical performance of rope skills in rhythmic gymnastics.
- Conducting similar studies and in different stages of dentistry
- The need to pay attention to the coordination of work in the field of training between scientifically qualified (biologically) athletic trainers and specialists in the field of sports biology to ensure that training and stage-building programs are based on a sound scientific basis.

REFERENCES

- [1] Abu El-Ella Ahmed Abdel-Fattah, Nasr El-Din Radwan (2003): *Physiological Physiology*, Dar Al-Fikr Al-Arabi, Cairo.
- [2] Ahmed Farouk Azab El-Shafei (2007): biological and psychological determinants for selecting karate youth.
- [3] Owais Al-Jabali (2003): theoretical and practical sports training, fourth floor, Dergham, Cairo.
- [4] Muhammad Ibrahim and Muhammad Jaber (1997 AD): physical measurements and kinetic performance tests, Dar Al-Maarif, Alexandria.
- [5] Muhammad Hassan Allawi and Muhammad Nasruddin (2000): Measurement in Physical Education and Psychology, *Arab Thought Center, Cairo*.
- [6] Heba Abu Al-Maati (2000 AD): Predicting the level of skill performance in light of some physical and physical variables among fencing students at the Faculty of Education, Tanta University.
- [7] Yasser Youssef Abdel Raouf (2009): headed some anthropometric measurements for high-level athletes in judo.
- [8] Yasmine El-Bahr and Susan Tantawi (2004): foundations of rhythmic gymnastics training, the first part, *Alexandria University*.
- [9] Schwen. D & Other (2001): The Physical and Morphological Factor of the Upper End Affecting the Speed of Tennis Service; *American Journal of Sports Medicine*. Volume 22; November; New York
- [10] Jenny Pot: Rhythmic gymnastics, gaming skills, Al-Roud Press, *British language publication*, 2001.
- [11] Wilmore, JH & Costill, DL (2004): Sports Physiology and Exercise, *Bang Printing, VSA*

Attachments 1: Model for Assessing Skill Level Performance for Rhythmic Gymnastics Skills

Full score for skill	Themes of Evaluation		Pictures	Skills
	Technical points for body elements	Technical points of the tool		
5	<ul style="list-style-type: none"> • A suitable height for the student • The figure is clear and specific d • Jump on the fingertips 	<ul style="list-style-type: none"> • Rotation of the rope from the wrist forward • The rope does not touch the ground 		Skill jump rope ahead
5	<ul style="list-style-type: none"> • A suitable height for the student • The shape is clear and definite d • Jump on the parties to the fingers 	<ul style="list-style-type: none"> • The rope rotates from the wrist back • The rope does not touch the ground 		Skill jump rope with a successor

5	<ul style="list-style-type: none"> • A suitable height for the student • The shape is clear and definite • Jump on the parties to the fingers 	<ul style="list-style-type: none"> • The rope rotates from the wrist forward • The rope does not touch the ground 		Skill on one foot
5	<ul style="list-style-type: none"> • Running with regular steps • In an independent line running and the m • The rotation of the arm 	<ul style="list-style-type: none"> • Turning from the attachment • The rope does not touch the ground 		Running by rope either