

The effect of the use of rubbery resistance ropes on the body composition of female students of sports education for girls .

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First_ Introduction and the problem of research and its importance:

The physiology of sports training is a science interested in studying the physiological changes that occur during training in order to detect the direct effect on the one hand, and the long-term effect on the other, which is caused by physical exercise or movement in general on the functions of different organs and organs of the body such as "muscles, nervous system, muscle system, Therefore, the physiology of sports training is one of the most important humanities in the field of sports training.

Physiological studies help workers in the field of sports education and sports training, through which it was possible to identify the effect of physical training methods on the vital organs of the athlete's body as a result of participating in competitions or training, which affects his physical fitness, which includes preparing or preparing the body for movement. (33:4)

Abu Ala Ahmed, Tim G and others have agreed on the need to study the body's components of fat, bones, muscles and water, as the study of those components, especially muscles and all related to the possession of a large amount of muscle fibers in terms of size, mass and level of strength, became important in what was to judge more realistically and honestly on the impact of these physical practices in various forms and intensity on the human body where strength represents one of the most important components of fitness and plays the role of important in sports performance or Health in general and no other component of fitness has received a degree of importance as muscle strength. (83:2)

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The study "Heba Shaker Abdul Hamid" (2012) states that body composition is the ratio of body fat weight to the weight of other non-fatty tissues such as (bones and muscles), also known as the presence of fatty ingredients to non-fatty ingredients in the human body, and also known as the physical composition of humans because it enables us to recognize changes in body composition from parts of the body training program, or health programs (diet). (7: 21)

Hamdi Al-Amin (2011) indicates that the body consists of several tissues that form different organs of the body, including bone, muscle and fatty tissues, and the great tissue is characterized by almost stability and includes two basic components, fat and body mass without fat. (3 : 45)

Nawaf Hajji Qatwan (2006) adds that the expression of the different relationships between the measurements of body mass and its components, and the health status of individuals contribute to the identification of the functional and morphological processes that take place in the human body more specifically and deeper, as the increase in muscle mass as well as its strength is accompanied by clear changes in the muscle system, as well as the percentage of fat, as it more effectively reflects the physical and functional state of the individual. (6: 14)

The results of many studies associated with specialized references indicate that the development of muscle strength must be in the presence of external resistance whether those resistances are free weights or resistance to body weight, as varied training methods that are concerned with the development of the component of muscle strength of various types to include training of strength using barriers and stands as well as training in different media such as water, sand and sponge

The use of rubber resistance ropes is one of the most important of these modern training methods because it has a great impact in the development of the muscle tone in a sound and excellent way contrary to those previous methods, especially if it was used in line with the nature of the dynamic performance of the competition, which is called functional training of strength.

In this Evans March indicates that rubber astic is a widespread and cheap training form that is given efficiency and effectiveness when used, which leads to overcoming the obstacles of providing expensive resistance devices as well as the possibility of performing many training movements that are accomplished with this type of training through the strength rates of pull and tide of resistance used which are similar to performance in specialized sports and which cannot be performed in other ways where both page explains. Phillip, Todd S (2005) that the more the rubber stick expands, the more resistance is given to give progressive constructive stimulation to the muscle and then increase its size. .

This reinforces Lee E Brown (2007) that rubber astic resistance is a unique feature as it provides a type of progressive resistance of a low degree of tension and then begins to increase and difficulty when the rubber expands to its maximum length in addition to resistance to the degree of relaxation when the rubber returns to its original doubt. (5:4-4)

Resistance Stretching Band is one of the tools that has evolved in terms of form, method of manufacture and exercise sat in it, which has received the attention of many researchers, trainers and workers in the field of field and track training, especially the throwing competitions because of its great impact in improving the muscle strength of the arms. (8: 11).

Mufti Ibrahim (2000) adds that the use of rubber resistance bands is important to help simplify the dynamic performance with the possibility of clarifying the strengths and weaknesses in optimal performance through the possibility of adapting them and using them in the direction of movement because they are characterized by a high degree of flexibility that facilitates control of the orientation of rubber bands, this is characterized by quality and durability that make them last longer. (37: 9)

Through the experience of the researcher as a former student in the Faculty of Sports Education, she noticed that there is a clear gap in the digital level of the second division students and their counterparts in the age stage of female players and attributed it to the fact that there is a clear lack of muscle strength and a decrease in the level of digital and also they have, hence the researcher went to look for the use of training methods help easy to use such as rubber ropes as a means to help in the development of the component of muscle strength and help in the development of muscle and nerve compatibility because of their direct impact and related to the lifting of the muscle and nerve compatibility. Physiological fitness and improvement in the body component index and the digital level of the javelin race for the second division students.

Hence the importance of this research in the use of inexpensive training methods that are easy to use, which is for rubber ropes because of their benefits that reflect positively on the components of the body, which contributes to improving the level of health condition and the extent to which the individual accepts the burdens of the physical burden imposed on him represented in the physical courses that the student studies practically, which is not prepared and physically qualified for those burdens.

The goal of the search:

This research aims to study the impact of the use of rubber ropes on body components for female students of the Faculty of Physical Education girls in the island.

Research assignments:

The use of rubber resistance ligaments has a positive impact on the components of the body (burn rate, body fat percentage, body mass index, body water index, fat mass, muscle mass) and this is manifested by:

- 1- The existence of statistically significant differences between the tribal and dimensional measurement of the experimental group in the components of the body in favor of the dimensional measurement individually.
- 2- There are statistically significant differences between the dimensional measurement between the experimental group and the control in the

components of the body individually in favor of the experimental group.

Terms used in the search:

- **Resistance Stretching Band:**

Long strips made of high quality rubber with varying degrees of resistance allow them to be used for different ages and higher levels by gradual intensity. Long rubber slates are made of high quality with varying degrees of resistance that allow them to be used for different ages and higher levels by gradual intensity. jett et ,al (2004) (9:5)

- **Body composition components:**

This is called fat, muscle, bones, fluids, minerals, etc. The components of the body are usually divided into fatty and non-greasy mass, including (muscles, bones, and other components of the body). (8 : 2)

User approach:

The researcher used the experimental method because of the nature of the current study using the experimental design of two groups, one of which is an officer and the other experimental, following the method of tribal and dimensional measurement for them.

Community and sample research:

The sample of the research was selected in a random deliberate way from the students of the second division of the Faculty of Physical Education girls in al-Jazira 2017/2018 and numbered (30) students divided into two groups, one experimental and 18 students and the other (15) students.

The tools and devices used in the search:

The researcher will use the following tools, devices and tests to collect data related to the research represented in:

- A medical scale to measure weight in kilograms.
- Rest meter to measure the length in centimeters.
- Body Composition Analysis..

The statistical method used:

After collecting the data and recording the different measurements of the variables used in this research, the appropriate statistical treatments were carried out to achieve the objectives and confirm the validity of the assumptions: -

1. The average arithmetic.
2. Standard deviation.
3. The twisting coefficient.
4. The significance of the differences.
5. Percentages of the level of change.
6. The coefficient of correlation.

View and interpret the results:

First- Homogeneity of the sample:

The **researcher** found the arithmetic average, standard deviation, twisting and flatting coefficient in variables that might affect the study of the experimental and control groups under research to find homogeneity between the members of the sample in light of the time age, age of training, height, weight and components of the body in question, as described below:

Table (1)

Computational average, standard deviation, and flatness coefficient swell slabs for experimental and controlled research groups in some variables - under consideration

Variables	Unit of measure	Experimental group (n = 18)				The government's support for the			
		M	P	To	I	M	P	To	I
Age	Year	19.53	1.060	730.0	879.0	19.72	1.07	306.0	-200.0
Weight	Kg	60.22	7.139	350.0	961.0	59.30	6.94	574.0	920.0
Length	Cm	161.67	4.51	1.38	3.321	163.16	5.54	506.0	-874.0
Burn rate	Calorie	1164.26	129.97	1.297	0.756	1196.73	74.87	0.734	1.671
Fat percentage	Kg	32.033	4.55	0.744	0.553	32.073	4.797	0.693	0.667
BMI	Kg/m ²	20.172	1.79	0.276	0.867	20.79	1.2836	0.667	0.567
TBW	D ₂ O	26.33	3.23	0.376	0.754	26.06	3.769	1.765	0.451
Fat mass	Kg	33.867	3.73	0.287	1.761	32.68	3.716	1.978	0.116
Muscle mass	Kg	21.666	1.748	1.64	1.956	22.0	2.033	2.543	1.867

It is clear from table (1) that all the to anis coefficients for all variables in question ranged from ± 3 , confirming that the two research groups represent a homogeneous equinox society.

Sample parity:

After confirming the homogeneity of the research sample, the researcher conducted parity between the two experimental research groups and controlled all the variables (burn rate, body fat percentage, body mass index, body water index, fat mass, muscle mass) as described in the following:

Table(2)

Indication of the differences between the experimental and control research groups in tribal measurement in the variables of the components of the body - under consideration

Burn rate: calculated in the following equation $(\text{kg} \times 10) / \text{cm}$ by poison $\times 6.25) + (\text{age in age} \times 5) + 5$

Variables	Unit of measurement	Experimental group (n = 10)		The government's		Difference	Value t
		M	P	M	P		
Burn rate	Calorie	1164.26	129.97	1196.73	74.87	32.47	-0.485
Fat percentage	Kg	32.033	4.55	32.073	4.797	0.04	-1.00
BMI	Kg/m ²	20.172	1.79	20.79	1.2836	0.618	-1.055
TBW	D ₂ O	26.33	3.23	26.06	3.769	0.27	-0.284
Fat mass	Kg	33.867	3.73	32.68	3.716	1.187	1.163
Muscle mass	Kg	21.666	1.748	22.0	2.033	0.334	-0.614

It is clear from table(2) that there are no statistically significant differences between the experimental and control groups in tribal measurement, which indicates the equality of the two research groups in the selected variables - under consideration.

Table (3)

The differences between the tribal and dimensional measurement of the experimental group in some of the variables of the components of the body
- under consideration

(n=18)

Variables	Unit of measurement	Tribal measurement		Dimension measurement		Difference	Value t
		M	P	M	P		
Burning rate	Calorie	1194.277	147.833	1402.111	111.78	-207.83	** -4.958
Fat percentage	Kg	32.033	4.557	26.066	2.894	5.967	** 4.378
BMI	Kg/m²	20.172	1.792	25.161	2.5713	4.98	** -4.627
Body Water	D₂O	26.33	3.235	28.4	3.48	2.07	** -3.474
Fat mass	Kg	33.867	3.739	27.39	5.7189	6.47	** 4.185
Muscle mass	Kg	21.66	1.7489	28.125	2.7789	6.465	** -7.293

It is clear from table (3) that there are statistically significant differences between the tribal-dimensional measurement of the experimental group in all the variables of the components of the body in favor of dimensional measurement.

Table (4)

Indication of the differences between tribal and dimensional measurement of the control group in some variables of the components of the body - under consideration

(n=15)

Variables	Unit of measurement	Tribal measurement		Dimension measurement		Difference	Value t
		M	P	M	P		
Burning rate	Calorie	1164.26	74.87	1196.73	129.97	32.47	1.00
Fat percentage	Kg	32.07	4.797	31.300	4.545	0.77	1.2
BMI	Kg/m ²	20.79	1.283	21.82	2.1	1.03	* -2.018
Body Water	D ₂ O	26.06	3.76	27.26	2.107	1.2	*-1. 835
Fat mass	Kg	32.68	3.71	31.8	4.329	0.88	0.841
Muscle mass	Kg	22.0	2.03	23.63	5.019	1.63	-1.179

Table (4) shows statistically significant differences between the tribal-dimensional measurement of the control group in both body mass and the water index in favor of dimensional measurement while there are no differences in all variables - in question

Table (5)

Indication of the differences between the experimental and control research groups in dimensional measurement in the variables of the components of the body - under consideration

Variables	Unit of measurement	Experimental Group (N=18)		The group of officers (N=15)		Difference	Value t
		\bar{x}	P	M	P		
Burning rate	Calorie	1388.53	97.42	1196.73	129.97	191.803	** -5.117
Fat percentage	Kg	26.066	2.894	31.300	4.545	5.234	** -4.378
BMI	Kg/m ²	25.1611	2.57	21.82	2.107	3.34	** 3.535
Body Water Index	D ₂ O	28.4	3.48	27.266	2.107	1.134	1.774
Fat mass	Kg	27.394	5.71	31.8	4.329	4.406	* -2.518
Muscle mass	Kg	28.125	2.77	23.631	5.019	4.494	** 4.365

Table 5 shows that there are statistically significant differences between the experimental group and the control in the dimensional measurement in each burn rate, fat percentage, body mass index, fat mass, and muscle mass in favor of the experimental group, while there were no statistically significant differences in the water chart.

Discussing and interpreting the results:

- 1. The existence of statistically significant differences between the tribal and dimensional measurement of the experimental group in the components of the body in favor of the dimensional measurement individually.**

It is clear from table (3) that there are statistically significant differences between the tribal and dimension measurement of the experimental sample research sample in all the variables specified in the table where the value of "T" burn rate -4,958, body fat percentage 4,378, body mass index -4,627, body water index -3,474, fat mass 4,185, and mass -7,293 muscle.

The researcher believes that this is due to the effect of the use of rubber resistance ropes, which has had a positive effect on the components of the body, which led to an improvement of the experimental group in most of the qualities under consideration and it is clear that there are statistically significant differences between the tribal-dimensional measurement of the experimental group in all variables of the components of the body in favor of dimensional measurement.

- 2. There are statistically significant differences between the dimensional measurement between the experimental group and the control in the components of the body individually in favor of the experimental group.**

It is clear from table 5 that the value of "T" for the variables of the body components as follows: burn rate -5.117, fat ratio -4.378, bmi 3.535, fat mass -2.518 and muscle mass 4.365, which is statistically functioning values while the body water index 1.774 is not statistically functioning.

The **researcher** said that this is due to the effect of the use of rubber resistance ropes, which has had a positive effect on the components of the body, which led to an improvement of the experimental group in most of the qualities under consideration and it is clear that there are statistically significant differences between the tribal-dimensional measurement of the experimental group in all the variables under discussion in favor of the dimensional measurement of the water index of the body in the body

This is consistent with what the study "**Abdul Rahman Mohammed Kamal**" (2019) indicated that the use of rubber ropes has a positive effect on some components of the body, including muscle balance, and also pointed out that the use of rubber ropes by caring for the muscles and the non-factor leads to muscle balance.

The results of this study are also consistent with what indicated by the study "**Ahmed Mustafa Al-Suwaifi, Imad al-Din Nofal**" (1995) that the use of rubber inks has an effect on some physiological variables and body components in question, as pointed out in this study rubber astic exercises contribute to the improvement of physiological abilities and body components.

Conclusions and recommendations

First: Conclusions:

In light of the results of the research and within the limits of the research sample and its procedures, the researcher concluded:

The proposed educational program using rubber resistance ropes has a positive effect on improving the physical qualities of the body's components.

Second: Recommendations:

In light of the conclusions of this research and based on the resulting importance of using rubber resistance ropes because of its positive impact on the components of the body, the researcher makes the following recommendations:

1. The use of rubber resistance ropes in the development of physical and physiological abilities and some body components.
2. The use of rubber resistance ropes in the part of the public and private physical preparation because of its positive effect on the elements of fitness.

3. The need to provide rubber resistance ropes in the colleges of sports education and various sports halls.
4. The use of rubber resistance ropes in post-traumatic rehabilitation programs, treatment of malformations, and physiotherapy.
5. The use of rubber resistance ropes in the programs of the two people to develop special fitness elements and the development of body components.

List of references

Arabic References

١. أبو العلا أحمد عبد الفتاح (2003): فسيولوجيا التدريب والرياضة - دار الفكر العربي - القاهرة.
٢. أبو العلا أحمد عبد الفتاح أحمد نصر (2003): فيزيولوجيا اللياقة البدنية - الدين دار العرب - القاهرة.
٣. حمدي محمد الأمين (2011): أثر برنامج تدريبي وحمية على بعض متغيرات التمثيل الغذائي ومكونات الجسم للاعب التنس، أطروحة الدكتوراه، كلية التربية الرياضية للبنين في القاهرة، جامعة حلوان.
٤. عبد الرحمن عبد الحميد زاهر (2011): موسوعته لعلم وظائف الأعضاء الرياضية - مركز الكتاب للنشر - القاهرة.
٥. عبد الرحمن محمد كمال 2019: برنامج تدريبي باستخدام الحبال المطاطية لتحسين توازن العضلات وعلاقته بمهارة جدار الطارد في الكرة الطائرة، رسالة الماجستير، كلية التربية البدنية، جامعة بني سويف.
٦. نواف حاجي سعد قطوان (2006): كتلة الجسم وعلاقتها بألم أسفل الظهر ومستوى اللياقة البدنية للأطفال من سن 9-12 سنة"، رسالة الماجستير، كلية التربية الرياضية للبنين، حلوان الجامعة.

٧. هبة شاكر محمود عبد الحميد (2012): "تقييم الوجبات الغذائية السائدة لفقدان الوزن في الأندية الصحية وتأثيرها على مكونات الجسم في ضوء التوصيات الصحية"، رسالة الماجستير، كلية التربية الرياضية للبنات، جامعة حلوان.
٨. هزاع بن محمد الهزاع (2007): قياسات جسم الإنسان "أنثروبومتري"، بحث علمي غير منشور، جامعة الملك سعود، المملكة العربية السعودية.
٩. المفتي إبراهيم حماد (2000): أسس تنمية قوة العضلات مع مقاومة الأطفال، كتاب مرمز للنشر، القاهرة.

Foreign references:

- 10 . Erwin. (2005) : system speed improvement with speedy system IAAF New Studies in Athletics .
- 11.Tim G , Boris G (2007) : The use of physiology and junioe volley ball squad Journal of Anthropometric Atalentidenl fied strength . vol