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The effect of bungee and similar physical exercises using rubber ropes on learning some skills of Backstroke for female students, third stage, College of Physical Education and Sports Sciences for Women - University of Baghdad

Sabah Latif Hassan [1], Mawahib Hameed Al-Jubouri [2]

1&2 Physical Education and Sport Sciences college for women, University of Baghdad

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Abstract

In view of the tremendous development we are experiencing today and the information revolution, researchers and specialists, despite their different views on the best methods of education in general and motor learning in particular, are seeking to innovate modern educational methods to acquire motor skills that are based on the foundations and principles of motor education, which requires variable learning processes. Its priority is the methods and types of applied exercises used in the learning processes, especially if there are some motor skills that need to choose the appropriate method to learn them according to their requirements. Therefore, the research problem was crystallized by considering that the swimming lesson is one of the students' favorite lessons, and because it deals with the water environment, it generates may be great fears that hinder the students from learning the skill in a healthy manner, so the researchers decided to use bungee ropes because they teach the student to perform the exercise correctly, which makes it easier for her to perform it in the water. The research community was chosen from the female students of the third stage, for the academic year (2022-2023), who numbered (106) students distributed among (3) classes. As for the research sample, it amounted to (30) female students distributed among three classes who were chosen randomly, with a percentage 28.30%, then the two researchers prepared a questionnaire about swimming skills and three tests were chosen: backstroke with only legs for a distance of (15) meters, backstroke with only arms for a distance of (15) meters, and backstroke for a distance of 15 meters. Then the two researchers, with the help of the assistant work team, conducted the exploratory experiment on a sample of (10) students. The two researchers prepared the educational units. After determining the backstroke skills, the two researchers developed the educational units for the experimental group in a way that suits the subject and sample of the research, distributed over (6) weeks and two educational units per week. Then the educational units were implemented on the research sample, under direct supervision by the two researchers, and they were achieved. The researchers concluded from the results using the SPSS system that learning using bungee ropes helped teach backstroke skills and proved its worth through the results of the two experimental groups versus the control group. Learning backstroke skills using bungee ropes helped the students solve the problems they may face while performing in the pool. The bungee ropes also helped the students to strengthen the muscles of the limbs, which in turn contributed to the method of performance, and this achieves one of the sustainable development goals of the United Nations in Iraq which is (Good Health). The researchers recommended adopting bungee ropes in teaching sports skills and conducting a similar study on different sports skills.

Keywords | **bungee exercises, backstroke**

Introduction:

In view of the tremendous development we are experiencing today and the information revolution, researchers and specialists, despite their different views, are seeking the best methods of education in general and motor

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learning in particular, and to innovate modern educational methods to acquire motor skills that are based on the foundations and principles of motor education, which requires learning processes from different variables. The priority is the methods and types of applied exercises used in learning processes, especially if there are some motor skills that need to choose the appropriate method to learn them according to their requirements. Swimming is one of the important sports that has found its place in our lives due to its importance from the physical, therapeutic and recreational aspects, as it leads to the development of the level of physical qualities, as it increases the efficiency of the vital systems in the body, raises the general capacity and improves its work. Many types of exercises have appeared in recent years, including: Bungee exercises, which are a type of exercise performed using suspended elastic ropes. Through the two researchers 'exposure to research, studies, and ideas related to learning, teaching, and analyzing swimming, the research idea was born, including a study (the effect of bungee and similar physical exercises using rubber ropes in learning backstroke skills for third-year female students in the College of Physical Education and Sports Sciences for Women). Therefore, the research problem was crystallized by considering that the swimming lesson is one of the students 'favorite lessons, and because it deals with the water environment, it generates fears among the students that may be great, which hinders the students from learning the skill correctly. Therefore, the two researchers decided to use bungee ropes because they teach the student to perform the exercise correctly, which makes it easier for her to perform it inside water. The researchers aimed to prepare similar physical exercises using bungee exercises with rubber ropes to learn backstroke skills and to identify the effect of these similar physical exercises before using bungee exercises with rubber ropes to learn backstroke swimming. The research hypotheses are: There are no statistically significant differences in the post-tests for the Experimental group skills test for backstroke. There are no statistically significant differences between the post-tests of the experimental and control groups in the research sample. The human field: third-year students in the College of Physical Education and Sports Sciences for Girls / University of Baghdad for the academic year 2022-2023. Temporal scope: 11/20/2022 until June 15, 2023. Spatial scope: Swimming pool, College of Physical Education and Sports Sciences - University of Baghdad / Al-Jadriya. Definition of terms: Bungee ropes work to move all the muscles of the body and are a high-intensity, low-impact activity. Because it is attached to an elastic belt and a safety belt, the impact on the joints is greatly reduced, and the bungee exercise consists of an enjoyable sport with a rhythm that allows us all kinds of movements, rotations and suspension in the air. Learning through it requires intensive units, but with the resistance of the elastic cord and belt, teaching it is not difficult.

Method and procedures:

Anwar Hussein states that "one of the things that must be taken into account in scientific research is choosing a sample that represents the original community honestly and truly, as the process of selecting the sample is closely linked to the nature of the community from which the sample is taken, as it represents the part that represents the community of origin on which the researcher conducts the entirety and focus of his work and is known as "the whole." The individuals, things, or people who constitute the subject of the research problem" (3)

Therefore, the two researchers used the experimental method in the style of equal groups (two experimental groups and a control group) because it suits the nature of the problem." As Vian and Alan confirmed, it is "a deliberate and controlled change of the specific conditions of an accident and observing the

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resulting changes in the accident itself and interpreting them" (7).

Buthaina Rashwan also confirmed (the goals that the researcher sets for his research and the procedures he uses will determine the nature of the sample he will choose (11).

The research population was chosen from the female students of the third stage, for the academic year (2022-2023), who numbered (106) students distributed among (3) sections. As for the research sample, it amounted to (30) female students distributed into two sections, who were chosen randomly, with a percentage of 28.30. %.

Table (1)
Shows the sample distribution

Group	Group type	The used educational method	Samples members number
First	Control	The method followed by the school	10
Second	Experimental	Bungee rope exercises similar to backstroke	10
Third	Experimental	Bungee rope exercises to prepare body parts	10

The researchers identified the basic skills in backstroke swimming, which are: (the skill of leg strikes, the skill of arm movements, the skill of breathing, the skill of overall coordination). The researchers prepared a questionnaire for a group of tests that was presented to the experts and specialists, and the following tests were approved, which were mentioned by Osama Kamel Rateb (2) :

First test:

Backstroke with both legs only for a distance of (15) meters

Test objective: To measure the distance that the student covers when swimming with both legs only.

Testing tools: swimming pool, tape measure.

Description of the test: The student stands inside the pool, facing the edge of the pool, holding the edge of the pool with her hands, and her feet bent at the knee joint and resting on the wall of the pool. Upon hearing the start signal, the student pushes the wall with her legs, glides over the surface of the water, and performs swimming with her legs only.

Recording the test: The distance traveled from the edge of the basin until the student stands on her feet is recorded.

The second test: (Iman and Mona) (8)

Backstroke with arms only for a distance of (15) meters

Test objective: To measure the distance that the student covers when swimming with the arms only.

Testing tools: swimming pool, tape measure.

Description of the test: The student stands inside the pool, facing the edge of the pool, holding the edge of the pool with her hands and her feet bent at the knee joint and resting on the wall of the pool. Upon hearing the start signal, the student pushes the wall with her legs, glides over the surface of the water, and performs swimming with her legs only.

Recording the test: The distance is calculated from the edge of the basin until the student stands on her feet.

Third test:

15m backstroke swimming:

Test objective: Measure the distance that the student covers when performing the backstroke.

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Testing tools: swimming pool, tape measure.
Performance specifications: The student stands inside the pool, facing the edge of the pool, holding the edge of the pool with her hands and her feet bent at the knee joint and resting on the wall of the pool. Upon hearing the start signal, the student pushes the wall with her legs, glides over the surface of the water, and performs swimming with her legs only.
Recording the test: The test is recorded by calculating the distance from the pelvic wall until the student stands on her feet.

Then, with the help of the assistant work team, the two researchers conducted the exploratory experiment on a sample of (10) female students on Saturday, February 18, 2023. The two researchers prepared the educational units, which, as confirmed by (Ahmed Muhammad and Susan Ahmed), "are a basic structure for the experiment, enabling the two researchers to by carefully testing their hypotheses." (1)

After determining the backstroke skills, the two researchers developed the educational units for the experimental group in a way that suits the subject and sample of the research, distributed over (6) weeks and two educational units per week. Then the educational units were implemented on the research sample, and under direct supervision by the two researchers. The two researchers followed the following steps:
Implementation of educational units:-
1 - The application of the educational units began on (Saturday), corresponding to (2/25/2023) for the two research groups, and the period of application of the educational units ended on (Saturday), corresponding to (4/8/2023), and the prepared educational units were implemented (school Subject).
The two researchers then conducted the post-tests at the end of the curriculum application period on Saturday, April 15, 2023, and the same procedures as the pre-tests. After completing the implementation of the main experiment, the two researchers tabulated the data of the application sample members after collecting and arranging them in preparation for statistical analysis.

Results:

Table (2)
Shows the results of the statistical parameters of the nine research groups in free swimming skill tests

Test name	Group	N	Measurement unit	Statistical features	
				A	STD+
Swimming with arms only for (15m)	Control	10	Swimming by meters	6.10	0.875
	Experimental 1	10		7.80	0.632
	Experimental 2	10		7.40	0.699
Swimming with only two legs for (15m)	Control	10		5.20	0.788
	Experimental 1	10		8.30	0.823
	Experimental 2	10		7	1.56
Swim the backstroke for a distance	Control	10		6.20	0.788
	Experimental 1	10		8.90	0.875

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(15m)"	Experimental 2	10		8.70	1.52

Table (3)
Shows the results of the analysis of variance between the posttests of the three research groups in backstroke skill tests

Test	Source of variance	Sum of squares	Degrees of freedom	Mean squares	Calculated T value	Degree (Sig)	Significance
Swimming with arms only for (15 metres)	Between groups	15.80	2	2.90	14.31	0.000	Sign
	Inside groups	14.90	27	0.552			
Swimming with legs only for (15 (metres	Between groups	48.46	2	24.233	19.415	0.000	Sign
	Inside groups	33.700	27	1.248			
"Swim the backstroke for a distance (15m)"	Between groups	45.267	2	22.633	27.040	0.000	Sign
	Inside groups	22.600	27	0.837			

Table (4)
It shows the results of the LSD test for the search tests between the three research groups

Test	Groups	Results of mean differences	(Sig) degree	Significance
Swimming with arms only for (15 metres)	2-1	1.700*	.0000	Sign
	3-1	1.300*	.0020	Sign
	3-2	.4000	.2390	Unsign
Swimming	2-1	-3.100*	0.000	Sign

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with legs only for (15 (metres	3-1	-1.800*	0.001	Sign
	3-2	1.300*	.0150	Sign
Swim the backstroke for a distance (15m)"	2-1	-2.700*	0.000	Sign
	3-1	-2.500*	0.000	Sign
	3-2	.20000	.6290	Unsign

The difference is significant at the significance level (0.05) and the unit of measurement (distance)

Discussion:

The results of Table (4) show the significance of the differences between the arithmetic means in the backstroke test with arms only for a distance of (15 m) in favor of the first experimental group, which came in first place, followed by the second experimental group, then followed by the control group. As for the backstroke test with both legs only for a distance of (15 meters), the differences were significant in favor of the first experimental group, which came in first place, followed by the second experimental group, then followed by the control group. As for the backstroke swimming test for a distance of (15 meters), the differences were significant in favor of the first experimental group, which came in first place, followed by the second experimental group, then followed by the control group. The two researchers attribute the significant differences to the bungee exercises that were applied to the two experimental groups, which helped the female students to learn skills with the least time and effort, and this is what was confirmed by (Mawahib and Nour): "Exercise helps facilitate the method of performance and learning in a faster manner." (16).

(Abdulaziz Ahmed and Nariman Muhammad) stated, "Bungee ropes are one of the tools used in all fields of teaching or training that aim to strengthen the work area because they work to react to the body's weight according to the person's capabilities (4). The study of (Fadhil Kamel and Aws Muhammad) agrees by saying, "Using the method of rubber ropes in training leads to physical, skill, and functional changes through correct scientific foundations" (10) with a study by (Mawahib Hameed), saying, "These methods depend on the principle of investing time and effort as a result of following one of the concepts of transferring the effect of learning." Thus, it helps to speed up the learning process (14) and (Mawahib Hameed) mentioned, "Reciprocal learning methods have a great impact on acquiring and learning skills of different types of sports, including swimming, because it has its own specificity" (15) and this was confirmed by the study of (Issam Abd Al-Khaleq) saying, "Continuity and progression in education are among the factors that help the learning effect exist." (5)

The researchers also attribute the superiority of the two experimental groups to the educational units prepared using bungee exercises, which have a major role in strengthening the muscles of the limbs, which enabled the students to perform the skill with the lowest percentage of errors, and this in turn helped in the learning process more quickly. This is consistent with the study of Kholoud Abdel Wahab (that aspiration to alternative educational models that must be compatible with the educational objectives, as we find them fruitful) (12) As stated by (Vian Abdul Karim and Alan Khorshid) "The learning process accompanies the acquisition and development of motor skills and plays an important role in determining the learner's behavior and is the basis for mastering the backstroke." (7) Muhammad Ali mentions, "The rubber rope exercises that require the exertion of

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greater force to maintain the swimmer's position in the water environment (6), as confirmed by (Mawahib and others)," by pulling the body, which is characterized by elasticity to allow the swimmer's body to be pulled in the horizontal direction. That is, the effect of resistance is the opposite of swimming and in a horizontal manner" (9) and (Tabarak Muhammad) confirmed (that through the use of proper planning and a comprehensive scientific vision in the process of preparation and training, and some studies have proven that the use of training methods has a positive role) (13)

Author's declaration:

Conflicts of interest: None

We confirm that all tables and figures in this article are ours and written by the researchers themselves.

Ethical-Clearance: this manuscript approved by local ethical committee of physical education and sport sciences college for women on (July /2023)

Author's contributions:

All contributions of this study were done by the researchers (S.L. and M.H.) who get the main idea and work on writing and concluding also with number of experts, Warda Ali Abbas (Physical Education and Sport Sciences College for Women/ University of Baghdad) in Statistics, Khitam Mousa in revision, Nour Riadh in translating, Manal Bayyat in proofreading.

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تأثير تمرينات البينجي البدنية والمشابهة باستخدام الحبال المطاطية في تعلم بعض مهارات سباحة الظهر للطالبات المرحلة الثالثة كلية التربية البدنية وعلوم الرياضة للبنات ـ جامعة بغداد

صباح لطيف حسن [1]، مواهب حميد نعمان [2]
2&1 جامعة بغداد/ كلية التربية البدنية و علوم الرياضة للبنات

مستخلص البحث

نظرا للتطور الهائل الذي نعيشه اليوم والثورة المعلوماتية يسعى الباحثون والمختصون على الرغم من اختلاف وجهات نظرهم حول افضل الطرق والاساليب التعليم بشكل عام والتعلم الحركي بشكل خاص والى ابتكار اساليب تعليميه حديثه لاكتساب المهارات الحركية التي تستند على اسس تعليم الحركي ومبادئه مما يتطلب عمليات التعلم من متغيرات مختلفة تكون في اولياتها اساليب التمرينات التطبيقية المستخدمة في عمليات التعلم وانواعها, خاصه ان كان هنالك بعض المهارات الحركية التي تحتاج الى اختيار الاسلوب الملائم لتعلمها وفقا لمتطلباتها لذا تبلورت مشكلة البحث باعتبار درس السباحة من الدروس المحببة لدى الطالبات ولكونه يتم التعامل مع الوسط المائي يولد لدى الطالبات مخاوف قد تكون كبيرة مما تعيق تعلم الطالبات المهارة بصورة صحية لذا ارتأت الباحثتان الى استخدام حبال البينجي لكونها تعلم الطالبة أداء التمرين بصورة صحيحة مما يسهل عليها اداؤه داخل الماء . وتم اختيار مجتمع البحث من طالبات المرحلة الثالثة ، للعام الدراسي (2022-2023)م والبالغ عددهن (106) طالبة موزعات على (3) شعب، اما عينة البحث فقد بلغت (30) طالبة توزعن على ثلاثة شعب تم اختيارهن عشوائياً ، وبنسبة مئوية 28.30%، بعدها قامت الباحثتان بإعداد استبانة حول المهارات في السباحة وتم اختيار ثلاث اختبارات وهي سباحة الظهر بالرجلين فقط لمسافة (15) م ، سباحة الظهر بالذراعين فقط لمسافة (15) م ، سباحة الظهر لمسافة 15م. بعدها اجرت الباحثتان بمساعدة فريق العمل المساعد التجربة الاستطلاعية على عينة مكونة (10) طالبات. وقامت الباحثتان بأعداد إن الوحدات التعليمية بعد تحديد مهارات سباحة الظهر قامت الباحثتان بوضع الوحدات التعليمية للمجموعة التجريبية وبما يلائم موضوع وعينة البحث وموزعة على (6) أسابيع وبواقع وحدتين تعليمية في الأسبوع، ثم تم تنفيذ الوحدات التعليمية على عينة البحث، وبإشراف مباشر من قبل الباحثتان وتحققت الباحثتان من النتائج بنظام ((SPSSلتكون الاستنتاجات ان التعلم باستخدام حبال البينجي ساعد على تعليم مهارات سباحة الظهر واثبت جدارته من خلال نتائج المجموعتين التجريبيتين مقابل المجموعة الضابطة. وأن تعلم مهارات سباحة الظهر باستعمال حبال البينجي ساعد الطالبات في حل المشاكل التي قد تواجههن في الأداء داخل المسبح. كما ان حبال البينجي ساعدت الطالبات على تقوية عضلات الأطراف وهذا ما ساهم بدوره في طريقة الأداء، وهذا ما يحقق احد اهداف التنمية المستدامة للامم المتحدة في العراق (الصحة الجيدة). واوصت الباحثتان الى اعتماد حبال البينجي في تعليم المهارات الرياضية وإجراء دراسة مشابهة على مهارات الألعاب الرياضية المختلفة.

الكلمات المفتاحية | **تمرينات البينجي ، سباحة الظهر**