THE EFFECT OF BATTLE ROPE EXERCISES ON INCREASING THE NUMBER OF SINGLE, DOUBLE AND MULTIPLE PUNCHES IN ELITE BOXING

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Abstract

The purpose of this paper is to identify the effect of battle rope exercises with Slam and Wave movements on increasing the number of punches of all kinds (single - Double - compound). The researchers used the experimental method on a sample of elite boxers with an average age of 24,451 years (± 3.451), continued The application of exercises for a period of eight weeks with three training units per week for a period ranging from (10-20) minutes in one training unit, and the researchers concluded that the use of battle rope exercises is a good tool for obtaining an increase in the number of punches of all kinds, single, Double and compound, as well as About that the use of battle rope exercises has a positive effect in developing special strength and adapting to muscular work similar to performance, which in turn increases skill capabilities, and the researchers recommended the adoption of exercises prepared by researchers in developing the special strength of boxers, emphasis on the correct performance of the Battle Rope exercises according to the type of exercise (Slams - Waves), as it must reach the level of the head in the slam exercises and to the level of the shoulders in the Wave exercises. The researchers also recommended the adoption of performance periods between (10-20) minute as an appropriate duration this type of exercise with appropriate intensity.

Keywords: Sport Psychology**.** Exercise. Boxing. Punches. Single. Double. Multiple

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Introduction

Resistance exercises stand on top of boxing exercises, especially non-stationary resistance exercises, "as non-fixed resistance exercises are one of the most popular training methods for developing muscular abilities, and it represents functional training. In developing muscular abilities such as muscular strength, muscular endurance, balance and speed, and most of these exercises are similar to the performance of the game." (Guler, Tuncel, & Bianco, 2021).

The battle rope exercises are one of the types of resistance training, and the name (battle rope) came from the literal translation from the English language (Battle Rope), which "has become very popular for its great benefits to the athlete's body, and its popularity is increasing day by day due to the positive effects." The wide range offered to the athlete" (Kavikumar & Arumugam, 2020, p. 402), which are braided and sheathed ropes with a length of (10-15) meters and a thickness of (3-5) cm. These ropes are stretched on the ground and one end is tied to a fixed place, and the athlete performs Holding the other ends with both hands and performs certain movements. (Marín, García-Gutiérrez, Da Silva-Grigoletto, & Hazell, 2015) "It is a promising training tool that has received and will receive more attention in training programs to improve strength and endurance," states (MEIER, QUEDNOW, & SEDLAK, 2015). Specialists agree that there are common movements during exercises on this tool, which are Waves and Slam movements. This type of exercise in which ripples are made in the ropes for a period ranging from (10-30) seconds with fast repetitions, and it targets the upper part of the body more than the rest of the parts (Fountaine & Schmidt, 2015). Many researchers dealt with the issue of training using battle ropes, as (Martino & Dawes, 2012) indicated that these exercises are very important in gaining physical fitness, and (Wong, Bergen, & Nordvall, 2020) found that this type of exercises has Positive physiological effects on the cardiovascular system. As for the study (Wijaya, Wijono, & Widodo, 2020), in which the researchers presented an alternative way to improve physical conditions and increase the strength of the muscles of the arms using the battle ropes, the results showed a development in the strength of the muscles of the arms and muscular endurance. In another study the researchers used exercises using battle ropes, and the results showed a development in the strength of the arms, strength endurance and skillful performance of the experimental group compared to the control group(Rosario & Prakash, 2017). The aim of our study is to identify the effect of battle rope exercises on increasing the number of single, double, and multiple punches in elite boxing.

And by the two researchers working as boxing trainers, they noticed that most of the exercises concentrate on training boxing skills with the use of the focus Mitts and the punching bag on a daily basis, which made the boxers' body adapt to a certain type of training, this made many players suffer from weakness in the muscles, especially the muscles of the arms and shoulders, so the researchers introduced a training method that may not be new in the field of training in general and boxing in particular, but it was not used systematically repeatedly within the training programs according to a correct periodization.

Research objective:

Identify the effect of exercises using battle ropes on increasing the number of punches single, double, and multiple punches for the research sample.

Research methodology and field procedures

Research methodology and sample research

According to the nature of the research, the researchers used the experimental method. Ten players participated in this study whose weights ranged between (63-75) kg, with an average age of (24.451) years (±3.451), and an average length of (171.124) cm (±3.410).

The research tests included the following:

The first test: conducting bouts between players of close weights, three times over three days, with the competitors changing every day. The fights were video recorded and presented to three international judges holding the international badge (2Star), for the purpose of determining the number of punches in each round and then extracting the average punches per round for the three days.

To complete the research procedures, the researchers used battle ropes of lengths (10, 12, 15) meters, one end of which was tied to the pillars of the punching bags, so that the boxer holds the two ends of the rope and the distance between the feet is shoulder width or slightly more, with the trunk bending at an angle between (30-45) degrees, emphasizing the use of minimal movements in the trunk and focusing on the movements of the arms and shoulders.

The application of exercises continued for a period of (8) weeks at a rate of (3) units per week, for a period ranging from (15) to (20) minutes in the main part of the training unit.

The researchers aimed to develop the special abilities directly involved in performance, which leads to an increase in the number of punches performed by the boxer during bouts. The researchers used the most common types of battle rope exercises (Antony, Uma Maheswri, & Palanisamy, 2015):

- Slams: in which the two ends of the rope are raised to the level of the head, then the rope hits the ground with maximum force, then raised again and re-hit continuously. Two types of strikes were used:
  - Double-arm slams
  - Single-arm slams
  - Waves: in which the two ends of the rope are raised to the level of the shoulders and then waves are made. Several types of wave movements were used:
  - Single-arm waves

- Double-arm waves
- Double alternating arm waves
- Double outside circles (Tables 1 and 2 and Figures 1 and 2).

Results and Discussion

All data were processed using IBM SPSS Ver. 23, and independent samples t-tests were used to analyze the data statistically and to identify the differences between the pre-tests and the post-tests of the research sample (Tables 3 and 4).

Table 1: Details of exercises program.

	Details
Total program duration	8 Weeks
Pre-tests (Three Days)	01/02/2022 - 02/02/2022 03/02/2022
Program start	05/02/2022
Program end	23/03/2022
Post-tests (Three Days)	16/02/2022 - 17/02/2022 18/02/2022
Number of units per week	3
Total number of units	24
Battle rope exercises duration	20 Minute
Total program duration (hours)	8 Hours
Training load	Medium – High - Maximum
Training formation	(1:2)

Discussion

Through the results in Tables (3, 4), we find that the values of significance (Sig.) for the differences between the pre and post tests were all less than the significance level of (0.05) and under the degree of freedom (9). The mean values of the post-tests are greater than the mean values of the pre-tests, which indicates a development in the results of boxers and in favor of the post-test.

The researchers attribute this development to the use of battle rope exercises in the training units. Boxing skills, as it is known, does not depend on the correct kinetic paths only, but the nature of punches in terms of being fast, strong, accurate and range of motion commensurate with the basic goal of the type of skill, which is determined in terms of productive punches at the advanced level in this game, and (Martino & Dawes, 2012) confirm that the Battle Rope exercises are the type of exercises with a fixed base and movement in the rest of the body, which is called special moving exercises effective (dynamic specific action training) (DSAT) These exercises affect boxing skills positively. The researchers believe that the kinetic achievement in boxing can only be achieved by raising the level of specific strength necessary for muscle contraction according to the desired direction. (Bruzas, Kamandulis, Vencunas, Snieckus, & Pranas, 2018).

Special exercises are the main factor that leads to anatomical and physiological changes related to the requirements necessary to achieve achievement in boxing, as the boxer's body adapts to the physical, kinetical and physiological work that they perform, and this adaptation does not aim to bring physiological changes only, but leads to changes in performance in the skills and tactics in the direction required by that sport, and the researchers stress here that the training means or special exercises implemented to achieve an effective training effect must be in the form of exercises targeting the muscle

Table 2: Training load units Examples.

Example 1	**C**			**Double-arm slams**	**Total duration**
Duration	10			10	0:09:30
repetitions	8			8	
Rest between repetitions	30			30	
Example 2	Single -arm Waves			Double-arm Wavs	Total duration
Duration	15			15	0:14:30
repetitions	6			5	
Rest between repetitions	45			45	
Example 3	Single-arm waves		Double-arm waves	Double alternating arm waves	Total duration
Duration	15		15	15	0:19:45
repetitions	8		7	7	
Rest between repetitions	45		45	45	
Example 4	Double-arm slams	Double-arm waves	Double alternating arm waves	Double outside circles	Total duration
Duration	15	15	15	15	0:20:00
repetitions	6	6	6	5	
Rest between repetitions	45	45	45	45	

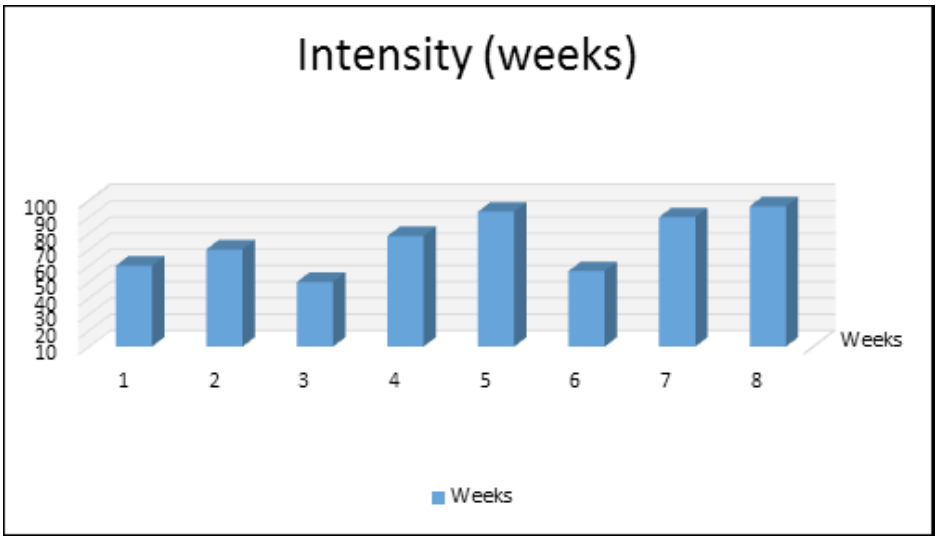

Figure 1: Intensity (weeks).

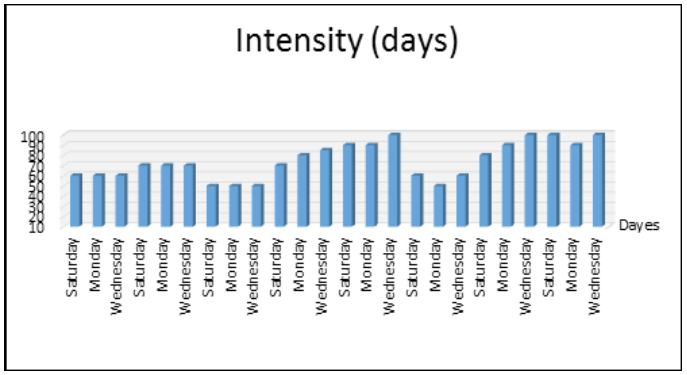

Figure 2: Intensity (days)

Table 3: Shows the descriptive statistic for the pre and post tests (Mean ± SD).

Punch Combination	Round No.	Pre-Test		Post Test	
		Mean	Std. Deviation	Mean	Std. Deviation
Single Punches	R1	15.70	1.95	19.70	3.33
	R2	25.90	3.03	29.90	1.37
	R3	16.20	2.39	19.90	4.01
Double Punches	R1	15.00	2.91	28.10	0.99
	R2	24.70	2.11	28.10	0.99
	R3	15.50	3.57	19.90	3.03
Three Punches	R1	10.00	2.91	23.10	0.99
	R2	19.70	2.11	23.10	0.99
	R3	10.50	3.57	14.90	3.03
Four or more Punches	R1	3.70	2.31	9.00	2.26
	R2	7.00	1.33	11.00	2.91
	R3	4.00	1.41	7.20	3.49

Table 4: Shows the results of the differences between pre and post tests.

Punch Combination	Paired Differences			t	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean		
Single Punches	-4.00	3.94	1.25	-3.21	0.01
	-4.00	2.58	0.82	-4.90	0.00
	-3.70	4.11	1.30	-2.85	0.02
Double Punches	-13.10	3.31	1.05	-12.50	0.00
	-3.40	2.59	0.82	-4.15	0.00
	-4.40	5.76	1.82	-2.42	0.04
Three Punches	-13.10	3.31	1.05	-12.50	0.00
	-3.40	2.59	0.82	-4.15	0.00
	-4.40	5.76	1.82	-2.42	0.04
Four or more Punches	-5.30	2.79	0.88	-6.01	0.00
	-4.00	3.02	0.95	-4.19	0.00
	-3.20	3.91	1.24	-2.59	0.03

group involved in the actual performance, as well as the supporting and the corresponding muscles, in a way close to the speed and directional strength the movement performed by the muscles during the match.

The use of battle rope exercises helped the muscle groups participating in the performance to adapt to work similar to what the boxer needs for the actual performance in increasing the number of punches during the bout. In addition, speed by shortening the muscle contraction as fast as possible, that is, using the so-called muscular ability. Battle rope exercises are an example of the muscular exercises for boxing, although the boxer depends on increasing the number of punches on all the muscles of the body, the greatest effort to increase the number of punches is on the muscles of the shoulder muscles group, and the trunk, this is what the battle rope exercises provide, as it gives comprehensive development for the shoulder muscle group, and the muscles of the trunk, thus giving a better effect, less effort and greater number of punches when boxing, due to the variety of types of muscle strength, we call the types of strength that the boxer needs (special boxing strength), which enables the boxer to regulate the strength of the muscle groups in order to control the accuracy of muscle contractions and organize them in order to suit the required motor performance, because punches are done to varying types of muscle strength according to their timing and placement from the quantitative group in the style of the tactic followed by the boxer.

One of the known properties of boxing is that the numerical increase is not only achieved by the development of strength, but also the strength must be performed with high speed (KWANG, Seung, & Saejong, 2018). The performance of punches with high speed is the reflection of the level of strength owned by the boxer, accordingly, the development that occurred with the participants in this study in the post-tests was caused by the use of battle ropes, as battle rope exercises represent one of the forms of training functional resistance, the wave movements in the arm, with wave and slam movements being the primary goal of which is concentrated in directing the strength resulting from the fast muscular contraction in the direction of muscular work for boxing skill performance.

Conclusions and Recommendations

Conclusions

- Battle rope exercises are an important exercise in increasing the special strength of the shoulder muscle group and the muscles of the arms, which are the muscles on which the greater burden falls when performing punches of all kinds.
- The use of battle rope exercises is a good tool to increase the number of punches of all kinds, single, double, and multiple.
- The use of battle rope exercises has a positive return in developing special strength and adapting to the muscular work similar to performance, which in turn increases the skill capabilities.
- The used battle rope exercises lead to physiological changes required to achieve an increase in the number of punches during bouts.

Recommendations

- The researchers recommend the use of battle ropes during training, mainly in the special preparation period.
- Adoption of exercises prepared by the researchers to develop the special strength of boxers.
- Emphasizing the correct kinetic performance of the battle rope exercises according to the type of the exercise (Slams - Waves), as it must reach the level of the head in the slam exercises and to the level of shoulders in the waves exercises.
- Adoption of performance periods between (10-20) minutes as an appropriate period for exercises and emphasizing the appropriate intensity.
- Adopting rest periods that are appropriate to the performance time and intensity.

References

Antony , B., Uma Maheswri, M., & Palanisamy, A. (2015). Effect of Battle Rope Training on Selected Physical and Physiological Variables Among College Level Athletes. Physical Education, 5(5).

Bruzas , v., Kamandulis , s., Venckunas , t., Snieckus , a., & Pranas , m. (2018). Effects of plyometric exercise training with external weights on punching ability of experienced amateur boxers. The Journal of Sports Medicine and Physical Fitness(11), 221-226. doi: DOI: 10.23736/S0022-4707.16.06674-3

Fountaine, C., & Schmidt, B. (2015). Metabolic cost of rope training. The Journal of Strength & Conditioning Research, 29(4), 889-893.

Guler, O., Tuncel, O., & Bianco, A. (2021). Effects of Functional Strength Training on Functional Movement and Balance in Middle-Aged Adults. Sustainability Journal, 13(3). doi:https://doi.org/10.3390/su13031074

Kavikumar, R., & Arumugam, S. (2020). Effect of Battle Rope Training on Arm Strength and Hand Explosive Power among Basketball Players. Journal of Information and Computational Science, 10(9), 402-408.

Kwang, J. K., Seung, B. L., & Saejong, P. (2018). Effects of Boxing-Specific Training on Physical Fitness and Punch Power in Korean National Boxers. Exercise Science, 27(4), 296-302. doi: https://doi.org/10.15857/ksep.2018.27.4.296

Marín, P., García-Gutiérrez, M., Da Silva-Grigoletto, M., & Hazell, T. (2015). The addition of synchronous whole-body vibration to battling rope exercise increases skeletal muscle activity. Journal of musculoskeletal & neuronal interactions, 15(3), 240-248.

Martino, M., & Dawes, J. (2012). Battling ropes: A dynamic training tool for the tactical athlete. Aust Strength Cond, 20(3), 52-57.

Martino, M., & Dawes, J. (2012). Battling Ropes: A dynamic training tool for the tactical athlete. Journal of Aust Strength Cond(20), 52-57.

MEIER, J., QUEDNOW, J., & SEDLAK, T. (2015). The Effects of High Intensity Interval-Based Kettlebells and Battle Rope Training on Grip Strength and Body Composition in College-Aged Adults. International Journal of Exercise Science, 8(3), 124-133.

Rosario, C. K., & Prakash , R. C. (2017). IMPACT OF BATTLE ROPE TRAINING ON SELECTED PHYSICAL FITNESS COMPONENTS AND PERFORMANCE VARIABLES AMONG VOLLEYBALLPLAYERS. Indian joournal of research, 6(4).

Wijaya, D. B., Wijono, & Widodo, A. (2020). Effect of Slam Waves Battle rope Exercise and Up down Waves Battle rope Exercise to Arm Strength And Arm Endurance (Study of boxing exstracurriculer at senior high school 3 Kediri). BirLe-Journal, 3(2).

Wong, A., Bergen, D., & Nordvall, M. (2020). Cardiac autonomic and blood pressure responses to an acute session of battling ropes exercise. Physiology & Behavior, 227. doi:https://doi.org/10.1016/j.physbeh.2020.113167.