



Research Article

## The Effect of Special Rope Training On Developing Agility, Strength Characterized By Speed, And Performing the Counterattack Skill (Direct - Indirect) in the Sword Weapon

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Abstract	Manuscript Information
<p>The purpose of the research is to create special training exercises using ropes that are specifically designed to jump, as well as the variety and diversity of the training sessions and their starting points, all of which are important in regards to sporting activities and events, particularly fencing. Because of its fundamental nature in the composition of physical preparation components. The comprehensive and integrated preparation for this sport in accordance with the scientific method, which involves choosing the appropriate training methods and methods, is the secret to every success. The concept of developing the characteristic of agility and Power through training and combining them in a precise manner in the performance of any offensive skill or defensive counter-skill is employed. The investigator, the experimental method, and the research community were all represented by participants who were trained to participate in the Babylon University Private Championship, which is known as the (University Fencer Championship). The research community was comprised of (45) players who were trained in the college, from whom (30) players were selected using the intended method with the first thirty positions, they were divided into two experimental groups, and after conducting pre-tests on them, the training was conducted for them for (8) weeks, each week two units of training on (16) units. After that, the post-test was conducted in the same manner for them during the pre-test. To accomplish this, the researchers utilized the statistical program analyze the values associated with the tests and the conclusions that were reached by the researcher is the volume of these transits and movements, as well as the type of transits employed, had an effect on the degree to which players improved.</p>	<ul style="list-style-type: none"> <li>▪ ISSN No: 2583-7397</li> <li>▪ Received: 17-11-2023</li> <li>▪ Accepted: 18-12-2023</li> <li>▪ Published: 31-12-2023</li> <li>▪ IJCRM:2(6);2023:157-163</li> <li>▪ ©2023, All Rights Reserved</li> <li>▪ Plagiarism Checked: Yes</li> <li>▪ Peer Review Process: Yes</li> </ul>
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**Keyword:** Rope, training, agility, strength and performing

### Introduction

The advancement of scientific knowledge has led to new opportunities. Everyone today attempts to achieve sporting success by maintaining a close association with the latest methods of training that are used to increase the level of sports performance. Through the science of sports training and utilizing

this science to enhance sports performance because of its established principles and regulations, the material is derived from these principles and regulations. It is undoubtedly true that general rules exist regarding sports training, as documented in

the researchers' efforts to improve sports performance in relevant and appropriate contexts were intended to benefit society.<sup>[1]</sup> The sport of fencing necessitates the performance of various and rapid movements. These movements are closely associated with the fencing abilities of the player, which are necessary for responding to the offensive behavior of the attacker. Because of this, they are considered one of the most important and powerful offensive skills. As a result, the player must have a quick and consistent response to the attacker. The response can be initiated once, or after a second, or after a third, or it can be initiated four times, with the goal of reaching the touch or the sentence's end. During the counterattacking motion, it's important to consider that it's a fundamental component of the game's outcome.<sup>[2]</sup> By concentrating on developing these two qualities, the training curriculum will revolve around Sound Base knowledge and dedicated instruction that directs the players' attention to accuracy and proper timing, this will lead to a superior touch. The significance of researching the practice of jumping is based on the development of agility and strength associated with speed, the use of different intensities that are limited to (85-90%). For the issue of the research: The researcher, as a player, coach, and teacher of the sport, observed that jump exercises had a role in enhancing the agility that players need, as well as the strength associated with speed, both of these were directly observed by the researcher as well as via video recordings of the games to verify that the level of the participating players was low during the tournament. So, the researcher decided to explore this issue.

**Research Objectives**

1. Preparing jump ropes for exercise to increase agility and strengthen the character of speed and direct and indirect counterattacking.
2. Describe the effects of jump roping on improving agility and strength associated with speed and the ability to perform direct and indirect counterattacks with the sword.

**Researcher Hypothesis**

1. There is a positive impact on the exercises associated with jiggling, the type of jiggling, and the intensity employed in developing agility and strength associated with speed, and the practice of direct and indirect counterattacks in the sword's blade.
2. There is a beneficial effect, in favor of the post-test, of the experimental group's sword strategy on agility, strength, and performance of the direct and indirect counterattack method in the sword's blade.

**Research Field**

**Human Fields:** Trained players at the College of Physical Education and Sports Sciences, University of Babylon.

**Time Range:** time from 1/13/2020 to 3/24/2020.

**Spatial Fields:** The sealed-off dual hall in the College of Physical Education, University of Babylon.

**Research Methodology**

The researcher took the experimental approach using the equivalent groups' method because it aligns with the nature of the research question.

**Research community and sample**

The research community was selected on purpose, and they are involved in fencing in the College of Physical Education and Sports Sciences. The community of research (45) students, who were selected by a simple random method as part of the sample, as the number of students in the sample reached (30) players, representing (66%) of the community after that. The researcher segregated the participants into two experimental groups (control and experimental). The number of members of one collective was (15) participants. The researcher conducted uniformity in order to individualize the research sample's variables (height, weight, age) and in tests of agility and strength that were characterized by speed, and a performance test that concerned the counter- response for each group in terms of Find the coefficient of variation as in Table (1).

**Table 1:** Indicate the variation coefficient

Variables		First group			Second group			
		mean	STDEV	Variance	mean	STDEV	Variance	
Anthropometric measurements	Length (cm)	167.14	4.43	1.16	185.16	7.35	3.72	
	Weight (kg)	84.95	6.61	11.287	70.05	5.1	7.1	
	Age (years)	22.1	1.5	5.53	22.3	1.3	5.1	
Speed-tested strength tests	Arms (number of times)	.967	.14	.153	.931	.111	.113	
	Trunk (number of times)	9.5	1.73	16.5	10.6	1.6	15.2	
	The legs (meter)	Right	5.9	0.89	13.9	.53	.06	.112
		Left	.49	.05	.83	.48	.07	.114
Skill	Counter-response test	.185	.32	.172	.177	.29	.162	

**Table 2:** Shows the similarity between the two samples, starting on a single line, this demonstrates the similarity of the Two groups in the level of performance of the counter- response

Tests	Control group		Experimental group		Calculated (t) value*	Type of significance
	mean	STDEV	mean	STDEV		
Testing the technical performance of the direct counterattack skill	.289	.08	.279	.09	.01	No Sig.
Testing the technical performance of the indirect counter-response skill (with change)	.205	.05	.26	.07	.03	No Sig.

\* The t-value of the table is (2.048), the significance level is (0.05) and the degrees of freedom are (28).

From Table (2), we can see that the calculated (t) value was smaller than the tabulated (t) value of (2.048) and (0.231). This suggests the presence of random, non-significant differences between the two groups in the degree to which they perform direct and indirect response skills; this suggests that the two groups are equal in regards to their sample.

**Training Units**

The exercises were conducted on the experimental cohort in the following way:

1. The training period is (8) weeks.
2. The distribution of training sessions at two sessions per week.
3. The total duration of the training session was (40) minutes. The special exercises that augmented strength were intended to last for (5 minutes - 10 minutes), of which (30 - 35) minutes were dedicated to the entire combined attack.

The practice of the exercises began according to the college's schedule in the lesson on fencing on two days of each week for the control group and the second experimental group on a specific date, the days were Monday and Wednesday. The

execution of the research experiment was monitored by the researcher and took place under the supervision of the second teacher regarding the subject. Strength training (power) is simple to add to power training. These exercises augment your anaerobic capacity, vertical acceleration, grip strength, and initial speed, and are part of the goals of these exercises.

- Increase the strength of the ankles, knees and ankles.
- Changing the shape of the muscles in the back, shoulders and chest.
- Increasing the sensation of the fibers of the foot, thighs and ankles.
- Strengthen the leg's muscles, including the quadriceps femoris, and increase the tendon's tensile strength.
- Creating vertical and lateral movement.

To begin with a single starting line for these exercises before executing them via the basic power jumps (which involves each rotation of the rope during each jump), the method that is employed for all exercises is considered special strength (power), this is also considered the pre-test for agility, the table (3) demonstrates this.

**Table 3:** Pretest the show's agility

Time/3 speed sets	Repeat Jump Ability Calculate reps for each set	Starting Line Calculate the sum and divide it by 3
Thirty seconds	Forty jumps	One hundred twenty six jumps ÷ Three = Forty two starting lines
Thirty seconds	Forty five jumps	
Thirty seconds	Forty one jump	

**Table 4:** Describe the training unit, the method of the jump, the technique, the alternate footstep, and the power jump, all of which were implemented in the first and second weeks

<b>Training method</b>	8- repetitions - alternate foot progression 4- consecutive attempts at the power leap without a break. 3 -Recommended the procedure for 30 seconds. Repeat the task 5 times.
<b>Duration</b>	5 minutes: 2.5 minutes of walking, 2.5 minutes of rest.
<b>Distress</b>	Jumping hard: 85-90% of maximum heart rate
<b>The goal</b>	Maintaining the same speed throughout the entire alternating foot step, including the power jump, while reducing the amount of rest between sets.

**Table 5:** The training unit, the method of jump training, the alternate foot position, and the power jump, are all implemented in the third and fourth weeks

<b>Training method</b>	- 8 repetitions- (counting the right foot 4 times) - 8 successive repetitions of the power jump without interruption - Repeat the method for 60 seconds - Rest 60 seconds - Repeat the performance 3 times
<b>Duration</b>	6 minutes: 3 minutes jumping, 3 minutes rest
<b>Distress</b>	Jumping at an intensity of 85-90% of maximum heart rate
<b>The goal</b>	Maintaining the same speed from the beginning of the alternating foot step until the power jump, while reducing rest periods between sets

**Table 6:** The unit's training, the method of technique jump, the alternate foot step, and the power jump, are all implemented in the fifth and sixth weeks

<b>Training method</b>	- Power jump 30 seconds - Rest 30 seconds - Repeat the performance 5 times
<b>Duration</b>	5 minutes: 2.5 minutes jumping, 2.5 minutes rest
<b>Distress</b>	Jumping intensely: 85-90% of maximum heart rate, or 80-120 repetitions per minute
<b>The goal</b>	Move forward and backward while jumping, while minimizing rest periods between sets

**Table 7.** The unit's training, the method of technique jump, the alternate foot step, and the power jump, are implemented in the 7th and 8th weeks

<b>Training method</b>	- Power jump 60 seconds - Rest 60 seconds - Repeat the performance 5 times
Training method	10 minutes: 5 minutes jumping, 5 minutes rest
Duration	Jumping intensely: 85-90% of maximum heart rate, or 80-120 repetitions per minute
Distress	Move forward and backward while jumping, while minimizing rest periods between sets

**Posttests**

As for the post-tests, they were conducted after the exercises were conducted on the aforementioned units, and in the same

context as the pre-tests, and in the same circumstances, the post-tests were performed on 3/14-17/2023.

**Results and discussion**

**Table 8:** Illustrates the values of the means, standard deviation, and the estimated (T) value for the speed-indicated strength Test for the arms of the experimental and control groups

Tests	Pretest		Posttest		Calculated (t) value*	indication
	mean	STDEV	mean	STDEV		
Experimental group	<b>8.96</b>	<b>1.6</b>	<b>13.9</b>	<b>1.3</b>	<b>8.1</b>	Sig.
Control group	<b>7.8</b>	<b>.11</b>	<b>.149</b>	<b>.16</b>	<b>.122</b>	Sig.

\* The t value at the degree of freedom (14) is significant at the level of significance (0.05) = 2.145.

Table (8) and Chart (1) demonstrate the average and standard deviation of the forward leaning of the arms test for the two classes. The mean for the pre-test, respectively, was (9.86) (9.20), while the standard deviation was (1,505) (1,014), while it was (1,014). The average of the post-test was 14.20, 14.80, and the standard deviation was 1.264, 1.567. To determine the degree to which the differences between the two tests are significant, the (t) test was employed, as its calculated value is (8.018) (12.018). When contrasted to the previously reported value of (2,145), the calculated value was found to be greater than the previously reported value. This implies that the discrepancy between the two tests is significant and benefits the post-test. From Table (8), it appears that the results of the two groups are significant, which indicates that the exercises employed in the training of players have had an effect on the development of the characteristic of

strength associated with speed. The researcher explains this progression in the muscles of the arms and the magnitude of their anchorage to the jump rope exercises, as it led to the stimulation of the muscle fibers. [4] Necessary, which led to the development of the characteristic of strength characterized by speed, because when the muscle is exposed to a stimulus, [3] it is either completely affected or part of it may be affected, This is influenced by the distinct intensity of the stimulus. Additionally, the training had a significant impact and was influential. (Been) states that the strength of the players' characters increases as a result of regular practice, this is especially true if the practice contains resistances that are appropriate for the player's abilities, with a progression that increases the difficulty of the practice as the player improves.[4]

**Table 9:** Illustrates the values of the means, standard deviation, and the value of (t) associated with the test of Muscular strength associated with speed in the trunk muscles for the experimental and control groups

Tests	Pretest		Posttest		Calculated (t) value*	indication
	mean	STDEV	mean	STDEV		
Experimental group	<b>8.33</b>	<b>1.7</b>	<b>12.03</b>	<b>1.6</b>	<b>4.9</b>	Sig.
Control group	<b>10.53</b>	<b>1.597</b>	<b>12.80</b>	<b>1.4</b>	<b>4.3</b>	Sig.

\*The t value at the degree of freedom (df) (14) and the significance level (0.05) = 2.145.

Table (9) and Chart (2) demonstrate the average speed and standard deviation of the speed-discriminated strength test for the trunk muscles in the two groups. The average for the pre-test was (9.33) (10.53), and the standard deviation was (1.632) (1.597), while The average for the post-test was (11.93) (12.80), and the standard deviation was (1,533) (1,320), respectively. To determine the degree to which the two tests are different. The (T) test was employed, as the calculated value was 4.880, which is greater than the tabulated value of 2.145, the difference between the two is noted. This implies that the discrepancy between the two tests is significant and benefits the post-test. It appeared that the results of the two groups were significant differences, which

indicates that the development of muscular strength associated with speed in the torso was caused by the development of strength and speed, as well as their association with one another, all of which were mentioned as being greater in one form, this led to a decrease in the test's performance time, which was reflected positively in the results. This infers that the practice of jumping rope is one of the most effective methods for improving the muscular strength.[5]

- Presentation, analysis, and discussion of the results of the counter-attack test.

**Table 10.** Illustrates the means, standard deviation, and calculated and reported (t) values between the pre and post-tests for the direct response counter-question

Tests	Pretest		Posttest		Calculated value* (t)	indication
	mean	STDEV	mean	STDEV		
Experimental group	9.57	0.8	4.3	0.5	2.6	Sig.
Control group	21.6	0.7	6.8	0.4	2.6	Sig.

\*The t value at the df (14) and the significance level (0.05) = 2.145.

Table (10) demonstrates the direct result of the counter-attack test for the two studies between the pre and posttests. The average for the control group in the pre-test was (2.50), and the standard deviation was (0.42), in the post-test, the average was (4.28), and the standard deviation was (0.78). By taking the calculated (t) value of (8.57), this number is greater than the tabulated value of (2.14) for a degree of freedom of 14 and a significance level of 0.05. This implies that the difference between the pre and post-tests for the control group is significant compared to the difference for the post-test. For the experimental group, the mean of the pre-test is (2.54), and the standard

deviation is (0.51), the mean of the post-test is (6.92), and the standard deviation is (0.63). By extracting the calculated (t) value of (21.51), it can be determined that it is greater than the tabulated value of (2.14). At a df (14) and at a significance level (0.05), this indicates that there is a significant difference between the pre and post-tests for the experimental group, and the post-test is more significant.

- Presenting, analyzing and discussing the results of the direct response counter-attack skill test between the control and experimental groups in the post-test.

**Table 11:** Illustrates the average, standard deviation, and calculated and reported (t) value for the experimental and Control groups in the post-test that evaluates the direct response capacity

Test	Control group		Experimental group		Calculated (t) value*	indication
	mean	STDEV	mean	STDEV		
Direct counterattack skill	4.3	0.8	7.2	0.7	10.2	Sis.

\*Tabular (t) value = (2.048) at a significant level (0.05) and with a df (28).

Table (11) indicates that the average of the control group in the post-test is (4.28) and the standard deviation is (0.78). For the experimental group, its average is (6.92) and the standard deviation is (0.63). By taking the calculated (t) value of (10.19), this leads to the conclusion that it is greater than the tabular value of (2.048) with a df of (28) and a significance level of (0.05), this indicates that the two groups have a significant difference in the post-test and that the experimental group is superior.

- Presenting, analyzing and discussing the results of the indirect response skill test regarding the alteration between the control and experimental groups in the post-test.
- Presentation, analysis, and discussion of the results of the technical performance test for the indirect response to alteration.

**Table 12.** illustrates the means, standard deviation, and calculated and reported (t) values between the pre and post-tests for the technical performance test, the indirect response to change, and the final technical performance.

Tests	Pretest		Posttest		Calculated (t) value*	indication
	mean	STDEV	mean	STDEV		
Experimental group	5.6	0.6	4.5	0.8	3.01	Sig.
Control group	10.01	0.9	5.8	1.01	2.98	Sig.

\*The t value of the table is (1.76) with a significance level of (0.05) and 14 degrees of freedom.

It's evident from Table (12) that there are differences in the average values between the pre and posttests, the average for the control group in the pre-test was (2.97), and the standard deviation was (0.70), while in the post-test the average was (4.41), and the standard deviation was (0.58). To determine the accurate differences between the pre and post measurements, the researcher utilized the (t) test, which results indicated that the differences were significant because the calculated value of (t) was greater than the listed value of (1.76) with a df of 14 and a significance level of 0.05, this indicates that there was a significant difference between the pre and post tests for the control group, which favored the post test. For the experimental group, the average of the pre-test is (2.98), and the standard deviation is (0.99), the average of the post-test is (5.76), and the

standard deviation is (0.81). To determine the accurate differences between the pre and post measurements, the researcher utilized the (t) test, which demonstrated that the differences were significant because the calculated value of (t) was greater than the listed value of (1.76) with a df of 14 and a significance level of 0.05. This implies that the difference between the pre and post-tests for the control group is significant compared to the difference for the post-test. It is evident from the previous table's values (5) that the experimental and control groups had a significant difference in the pre and posttests, the experimental group had a larger difference than the control group. The researcher believes this to be caused by the training sessions for each of the two groups, which had a positive effect on the technical proficiency of the numerical approach.<sup>[6]</sup>

**Table 13:** Illustrates the average, standard deviation, and calculated and reported (t) value for the experimental and control groups in the post-test of the technical ability test, the indirect response to change (indirect)

Test	Control group		Experimental group		Calculated (t) value*	indication
	mean	STDEV	mean	STDEV		
The skill of counter-response is indirect by change	5.41	0.6	5.6	0.9	5.2	Sis.

Table (13) indicates that the average of the control group in the post-test is (4.41) and the standard deviation is (0.59). For the experimental group, its average is (5.77) and the standard deviation is (0.82). By taking the calculated (t) value of (5.16), which is greater than the tabular value of (1.701) at a df of 28 and a significance level of 0.05, this indicates that the two groups have a significant difference in the post-test and favor the experimental group. It is documented in the values of the previous table (13) that the experimental group had a significant difference in the pre- and post-tests; the former favored the latter.

The researcher believes this to be true of the training units, the research's findings, the load's intensity, the volume of training, and the degree to which it was rated. All of these things had a significant impact on the performance, the researcher said. Developing speed and agility in the performance of speed and fencing, particularly the counterattack. The trained athlete is required to have agility and speed in their performance, all of which have a positive effect on the development of their skill level.<sup>[7]</sup>

**Table 14:** Indicates the means, standard deviation, and the computed (t) value and difference between the Two groups following the post-test: the strength and speed of the arms

Groups	mean	STDEV	df	Significance level	(t) value		Type of difference
					The calculated one	Tabulation	
Control	1.3	13.9	38	0.05	4.51	2.02	Sig.
Experimental	.16	.149					

To discover the truth about the differences between the means, the value of (t) was calculated for the unconnected samples, which were greater than the value of the tabular (t) of (2.0) with

a df of (38) and an error rate of (0.05). This suggests the presence of significant differences. Significant difference between the two groups, and in favor of the experimental group.

**Table 15:** Shows the average, standard deviation, calculated t value and type of difference between the Two groups following the post-test: the muscular strength of the back

Groups	mean	STDEV	df	Significance level	(t) value		Type of difference
					The calculated one	Tabulation	
Control	12.80	1.4	38	0.05	4.78	2.02	Sig.
Experimental	12.03	1.6					

**Table 16:** Illustrates the pre and posttests of the agility exam for both the experimental and control groups

Groups	Test					Significance level	(t) value	Type of difference
	Pretest		Posttest					
	Units	mean	STDEV	mean	STDEV			
Experimental	number of jumps	.417	.12	45	1.12	0.00	10.3	Sig.
Control	number of jumps	41	1.01	42.3	0.8	0.001	4.183	Sig.

When scrutinizing the data in Table (16) and the values associated with it, it's apparent in the agility test that there is a difference between the pre-test and the post-test, the mean for the experimental group was (41.66) jump and a deviation of (1.112). This was the pre-test, which was followed by a single starting point for both groups. As a result, the pre-test had a more specific location. When analyzing the mean and deviation of the

post-test, which was (46) and deviation (1.113), in comparison to the control, its mean was (40.933) and (42.266) with a deviation of (0.961). For both pre and post-test, the mean and deviation of the post-test were (46) and (1.113), respectively. It is obvious from all of this that the groups have different numbers of elevations in their favor.

**Table 17.** Illustrates the measurement after the jump of the agility test for the control and experimental groups

Test	Control		Experimental		(t) value	Type of difference
	mean	STDEV	mean	STDEV		
Agility skill	42.3	0.8	45	1.12	9.727	Sig.

\* The Sig value (0.00) at a level of significance (0.05) for the sample 30.

When analyzing the values following the measurement and statistical analysis, it was apparent that there was a significant

difference between the post-test and the experimental group's value, the latter was obtained through a program that was pre-

coded and prepared by the researcher, this program affected the training, intensity, diversity in jumps' heights, and increased the volume of training, with the stability of the training greater than mastery and stability. The capabilities of the trained athletes.<sup>8</sup> The number of repetitions was adequate and the rests periods were beneficial for the study's sample. This is what necessitates the practice of sports during the training of any sporting endeavor in order to reach the greatest degree of improvement for players,<sup>9</sup> whether it be in fencing or any other form of sports or entertainment. The training sessions were according to the preplanned agenda. Their training focused on the power and speed of the arms. Additionally, the torso muscles and the mobility of the legs in rapid, alternating, and opposes jumps, all of which are necessary for a fencing player,<sup>10</sup> regarding the speed of their movement with a constant volume, changing the positions of their body and legs with a constant speed, this contributed to the development of performance in the direct and indirect responses by changing, the latter of which is necessary for a fencing player. On the quickness of movement in the arm and the agility of the leg during the attack as well as the defense, and that the response is undertaken by the players,<sup>11</sup> whether a defender or an attacker. All of this must be taught in different ways and methods, including the use of a variety of motions while maintaining the same level of performance, a good fencer is a good student.<sup>[12]</sup>

### Conclusions

1. The exercises that jump had a positive effect on the players.
2. The exercises during the training sessions had an influence on the performance of the players in terms of developing agility and strength characterized by speed. For the research sample, this was the case.
3. The degree of training intensity associated with those moves and the type of jumps employed was appropriate and had an indirect effect on the level of players' performance in the counterattack ability (direct or indirect, via alteration).
4. These exercises increased the agility and strength of the fence players, particularly the training collective.

### Recommendations

1. It is suggested that you incorporate these jump ropes into other athletic events as well.
2. It is suggested that you exercise on all other physical and motor abilities besides sports, because they have an effect on them.
3. The application of jump ropes and this method is beneficial to players of any age or sport, because of its effects on multiple physical, mental and physical abilities.

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