

The impact of Functional Strength Exercises on Some Muscular Abilities to Develop Technical Performance for The grip of Throw from Above The Chest among Young Wrestlers Aged (18-19) years old

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Abstract

This study aimed at identifying the impact of a developed approach for the exercises of functional strength on some muscular abilities related to promoting the technical performance for the the grip of throw from above the chest, identifying the impact of functional strength trainings on some muscular abilities as well as identifying the impact of the abilities of working muscles on the technical performance for the the grip of throw from above the chest. The study used the experimental approach. The study sample was chosen from the youth group in Al-Kathemiya Sports Clubs that consisted of (10) wrestlers. The results revealed that the trainings of functional strength included within the training approach contributed to improving the capacities of the working muscles and the level of performance among the sample wrestlers. The study recommended the necessity of adopting the specified trainings (functional strength training) when developing the physical abilities and performance level of wrestlers.

Keywords:(functional strength, Muscular Abilities, Technical Performance, Wrestlers

Study introduction and importance:

In order to develop performance level, wrestlers should have effective methods and mechanisms in order to maintain their capabilities in facing the conditions and states that they face during training. These trainings include functional strength training, which is considered as one of the training forms that are currently used in the sports domain; they constitute a mixture of power training and balance training that are performed spontaneously and include different types of trainings, such as jumping, medical balls, barriers training, as well as jumping with two feet and one foot, or with various weights.

Functional strength:

"They are qualitative trainings specified with the nature of performance, that aim at developing both elements of strength and balance by focusing on strengthening the muscles of the center which is considered as the origin of motion"¹.

Hence, we can see the importance of diversification in using the various training patterns, including the functional strength, which is considered as a major requirement for performing the technical grips, either in defence or offense situations, particularly the grips of throw in Roman wrestling. The performance of such grips requires strength and speed without disturbance in balance by changing the center of body weight regularly during the diversity in performing these grips.

The study problem:

Based on the wrestler's pursuit for the majority of local competitions since he was a wrestler, coach and teacher of wrestling courses, he noticed that there is an obvious weakness in the level of performing the grip of throw from above the chest. This type of grips enables the wrestler to score more points. The researcher attributes that to the low capacity in the level of specified physical skills, represented by the central strength of the wrestler's body and kinetic speed.

Furthermore, based on the researcher's review of most training approaches used by coaches in sports clubs, he noticed that the trainings of functional strength are rarely used and that little attention is paid to developing working working; therefore, he made a serious scientific attempt to promote the level of technical performance among wrestlers by using the

¹ Young, W. B., & Farrow, D. (2006): A review of agility: Practical applications for strength and conditioning. Strength and Conditioning Journal 28(5): 24-29.

trainings of functional strength and identifying its impact on the level of performing the grip of throw from above the chest. The current study also represents an attempt to add more information about this sport, since there is a paucity in the studies that addressed this domain, where further studies should be conducted to promote this sport and reach the best levels.

The study objectives:

The study aimed at:

- 1- Preparing the trainings of functional strength to improve the capacity of some working muscles and promote the technical performance of the grip of throw from above the chest.
- 2- Identifying the impact of functional strength exercises on the capabilities of some working muscles in the technical performance of the grip of throw from above the chest among the study sample individuals.

The study hypotheses:

- 1- There are statistically significant differences between pre and post tests in some abilities of the working muscles.
- 2- There are statistically significant differences between the results of pre and post tests for the technical performance of the grip of throw from above the chest.

The study domains:

The human domain: the young wrestlers aged (18-19) years old in Al-Kathemiya sports club.

The temporal domain: the period from (21/8/2020) to (23/10/2020).

The spatial domain: the sports hall of Al-Kathemiya sports club.

The study methodology and field procedures:

The study methodology:

The researcher used the experimental approach due to its compatibility to the study nature, where pre and post tests were held for the study groups.

The study population:

The study population consisted of (10) young wrestlers aged (18-19) years old in Al-Kathemiya sports club, who are enrolled in the Iraqi wrestling federation in (2020-2021). Two wrestlers were excluded to conduct the pilot study; therefore, the final number of the sample was (8) wrestlers, which is (75%) of the original study population.

The researcher used the following tests:

1- Bench press test (press from the position of laying on a flat bench).²

This test aims to measure the strength of the muscles of chest, shoulders, biceps and triceps muscles.

2- Half squat (half-bearded) measuring the extending muscles for legs³ , and trunk.

3- Deadlift test for the strength of back muscles: it measures the maximum strength of back muscles.⁴

4- The test performance level (appendix 1):

As for the technical test, the researcher conducted it to the study sample, where a certain selected grip was selected, which is (the grip of throw from above the chest). The researcher assigned certain scores for the parts of the grip using a specified assessment questionnaire, that was introduced to international arbitrators and specialists in this sport, as follows: the baseline position (2 points), the main part (6 point), and the final position (2 points) as illustrated in appendix (1). In this context, the wrestler performs two attempts for the targeted grip, and the best attempt is recorded.

² Mohammad Hassan Allawi, and Mohammad Nasir Aldeen Radwan, tests of kinetic performance, first edition, Cairo, Arab Thought House.

³ Mohammad Sobhi Hasanin: evaluation and measurement in physical fitness, part 1, Cairo, Arab Thought House, 1987.

⁴ Qasim Hassan Hussein, Bastawisi, Ahmad, isometric muscular training, Cairo, Arab Thought House, 1979.

****international arbitrators:-**

- Prof. Moath alman Ibrahim

- Labib Jamal Dawood

- Ibrahim Khalil Jomaa

The researcher conducted a pilot study on (9/8/2020 – 14/8/2020) on a sample of (2) wrestlers in order to:

- Verify the validity of the instruments and materials used in the study.
- Verify the security of implementing tests and the relevant procedures according to the set conditions.
- Arrange the proceedings and performance of tests and determine rest periods between them.
- Determine the extent to which the study tests are compatible to the age group of the selected sample.
- Determine the severity of performance, number of frequencies and rest periods between periods.
- Verify the validity and reliability of tests.

The researcher performed the pre-tests over a period of two days, Wednesday and Thursday, 17-18/8/2020. The tests started by testing the level of performance, and then the test of the strength of working muscles. There were rest periods between tests to ensure the effective participation of the sample individuals. The training program was applied during (21/8/2020 –23/10/2020); it consisted of five training sessions per week, five days a week over a period of (10) weeks under the supervision of the team's coach during the stage of special preparation. While implementing the trainings of functional strength, the researcher used the following procedures:

- The focus will be on the strength and fixation of the central muscles.
- At the end of the training unit, certain stretching exercises are given to reach relaxation, so that muscles would return back to their normal state.

The training program consisted of (50) training units, and followed the following items:

- 1- The principle of individual differences was taken into consideration, considering it as a basic element in training to set the components of training load.
- 2- There was a diversity in the training methods used in this approach, where they consisted of two parts:

a- Interval training method, with low intensity to develop the technical aspects.

b- Interval training method, with high intensity of functional strength trainings to develop the physical abilities.

1- There was a diversification of the used training methods, where they included medical balls and rubber hoses , in addition to the used methods in weight trainings, including dumbbells, steel bars, pulling rollers, and different weights.

2- Due to the nature of the study sample and objectives, the appropriate intensity was determined and graded from (low to moderate, above moderate and below the maximum intensity), with an intensity that ranged between (70%- 95%) of the maximum intensity.

3- The time of functional strength trainings was (30) minutes of the main time during the training unit.

Post tests were performed in conditions similar to the conditions of pre-tests. Post tests were performed on Monday and Tuesday (24-25/10/2020). The researcher used skewness coefficient, Pearson correlation coefficient, means, standard deviations and Wilcoxon test for data analysis.

Displaying, analyzing and discussing the results:

Table (1)

	Test	Measure ment unit	Wilco xon value	z- value	Error probability	Sig. level
1	Bench press test	Kg	5.10	- 2.53	0.011	significant
2	Half squat (half-bearded)	Kg	4.50	- 2.55	0.012	significant
3	Deadlift test for the strength of back muscles	Kg	4.30	-2.26	0.015	significant

*statistically significant at (0.05) The results of the tests of working muscles abilities

Table (1) revealed that there are significant differences between the results of pre and post tests concerning the abilities of working muscles, where the value of error probability was less than error level at (0.05) regarding all the study variables, which means that there are significant differences between the results of pre and post tests in favor of the post tests.

Table (2)

The results of test results for the level of technical performance for the grip of throw from above the chest

Test	Measurement unit	Wilcoxon value	z-value	Error probability	Sig. level
level technical performance for the grip of throw from above the chest	degree	3.50	- 2.23	0.026	significant

*statistically significant at (0.05)

Table (2) revealed that there are significant differences between the results of pre and post tests in the level of technical performance for the grip of throw from above the chest, where the value of error probability was less than error level at (0.05) regarding all the study variables, which means that there are significant differences between the results of tests.

Discussing the results:

By displaying and analyzing the results of tests, we can see that there are significant differences between pre and post tests in favor of the post tests, which indicates that there is an improvement in the abilities of the working muscles. This agrees with the study hypothesis. The researcher attributed this result to the positive effects of functional strength trainings , where such trainings involved the largest number of muscular fibers through training which has an effective role in producing the maximum power. The maximum power increases with the increase in the number of muscular fibers involved in the training. Indeed, this represented one of the advantages of using functional strength within the training approach, since strength is based on the number of fibers involved in the muscular activity. This finding was confirmed by scientists, as they suggested that maximum power increases when stimulating the fibers of the same muscle or stimulating the largest number of needed muscular fibers. When the intensity of stimulation increases, it entails the involvement of as many muscular fibers as possible and increasing the strength that can be produced by the muscle.⁵

⁵ Qasim Hassan Hussein, and Mansour Jamil Al-Anbaki, physical fitness and the methods of achieving it, Baghdad, higher education, 1988, p. 167.

Mohammad Hassan Allawi, and Mohammad NasirAldeen Radwan, tests of kinetic performance, first edition, Cairo, Arab Thought House.

The trainings of functional strength increase the effectiveness of muscles' work in conjunction with strong central muscles; the strong central muscles contribute to connecting the lower part with the upper part of the body, in addition to retaining power and the ability to perform trainings in more than one direction, since our bodies have the ability to move directly to the front, back, left and right. The trainings of functional strength have the potential of improving these abilities by focusing on the main fixation muscles that exist in the center. This finding agrees with (Fabio Comana), which revealed that "functional strength trainings are complete multilevel movements (front, transverse, and sagittal) that include acceleration, stability and slowness in order to develop the motor strength and central power (which represents the spine and the middle of the body) in addition to the muscular nervous efficiency".⁶

As for the test of performance level, the results revealed that the test demonstrated significant differences in favor of the post test. The researcher suggested that the ability to change directions is derived from the efficacy of central muscles which have a vital role in performing the grip of throw from above the chest, where the role of these muscles lies in the fixed balance while changing directions in addition to their role in transmitting movement with the same speed and power from one direction to the other. Therefore, we can notice the importance of the central area in the grips of kidnapping in the game of Roman wrestling, since the good wrestler is the one who has functional strength (ability – balance) as well as agility, due to his ability to perform the grips in the cases of disturbed balance.

In this vein, (Dave Schmitz) suggested that the most important characteristics of functional strength training is the focus on the center, where the strong central muscles connect the lower limbs and upper limbs with each other. Additionally, the trainings of functional strength include multi-dimension movements, and thus they are considered as the best trainings used in improving physical abilities.⁷

Mohammad Sobhi Hasanin: evaluation and measurement in physical fitness, part 1, Cairo, Arab Thought House, 1987.

Qasim Hassan Hussein, Bastawisi, Ahmad, isometric muscular training, Cairo, Arab Thought House, 1979.

⁶ Fabio comana (2004): function training for sports, Human Kinetics: Champaign IL, England, p87.

⁷ Dave Schmitz (2003): Functional Training Pyramids, New Truer High School, Kinetic Wellness Department, USA, p164.

Therefore, the alternative hypotheses are accepted for all the study variables, since there are statistically significant differences between the pre and post test for the experimental group in favor of the post test.

Conclusions:

- 1- There are statistically significant differences in the pre and post tests regarding the capabilities of the working muscles among the study sample individuals in favor of the post tests.
- 2- There are statistically significant differences in the pre and post tests regarding the level of technical performance for the grip of throw from above the chest in favor of the post tests.
- 3- The trainings of functional strength contributed to developing the capabilities of the working muscles and the level of performance among the wrestlers in the study sample.

Recommendations:

- 1- Using the training approach based on the trainings of functional strength developed by the researcher in order to develop the skilled and physical abilities among the wrestlers of Roman wrestling.
- 2- Using the specified trainings (functional strength trainings) when developing physical abilities and performance level among wrestlers.
- 3- Using the method of low and high intensity interval training in accordance with the functional strength.
- 4- The training approach can be applied in accordance with the training of functional strength developed by the researcher to other samples for both males and females.

References:

Arabic references:

Qasim Hassan Hussein, Bastawisi, Ahmad, isometric muscular training, Cairo, Arab Thought House, 1979.

Qasim Hassan Hussein, and Mansour Jamil Al-Anbaki, physical fitness and the methods of achieving it, Baghdad, higher education, 1988.

Mohammad Hassan Allawi, and Mohammad NasirAldeen Radwan, tests of kinetic performance, first edition, Cairo, Arab Thought House.

Mohammad Sobhi Hasanin: evaluation and measurement in physical fitness, part 1, Cairo, Arab Thought House, 1987.

Foreign references:

Dave Schmitz (2003): Functional Training Pyramids, New Truer High School, Kinetic Wellness Department, USA, p164.

Fabio comana (2004): function training for sports, Human Kinetics: Champaign IL, England, p87.

Sheppard, J. M. & Young, W. B. (2006): Agility literature review: Classifications, training and testing, Journal of Sports Sciences, September; 24(9): 919 – 932.

Young, W. B., & Farrow, D. (2006): A review of agility: Practical applications for strength and conditioning. Strength and Conditioning Journal 28(5): 24-29.

Appendix (1)

The developed questionnaire to evaluate the used grip
Wrestler's name: age:

Parts of grip	First trial		Second trial	
Baseline position (2)	Attempt 1	Attempt 2	Attempt 1	Attempt 2
Main part (6)				
Final position (2)				
Total				

Appendix (2)

A model of the training unit for Roman wrestling

	Training	Performance	Training time	Frequency	Rest	Intensity	Groups	Interval between training
1	Putting feet on the ball while extending legs, bending trunk and the arms are extended and laid on the ground	15 times	20 seconds	2-3	45 seconds	80%	1-2	1.5 min
2	Lying down on the ground while arms are on chest, and raising legs while catching the ball between them	15 times	20 seconds	2-3	45 seconds	85%	2-3	2 min
3	Extending the body in a straight way by putting a mat under the player and throwing the medical ball from above the head.	2-25 times	30 seconds	4	75 seconds	80%	1-2	2-3 min
4	Putting the ball below the back while legs are on the ground and the arms raised up and dumbbells are on both sides	25 times	50 seconds	5	90 seconds	90%	2-3	2-3 min
5	The posture of front support, pushing the arm with the opposite leg for a distance of (15) meters	5 times	40 seconds	2	120 seconds	85%	1-2	2-3 min