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The Effect of Combined (physical skill) Exercises on Some Physical Abilities That Affect the Technical Skills Accuracy In Squash Game

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Abstract

The player's achievement to access to higher levels requires concerted efforts, a proper diagnosis of strengths and weaknesses, and work to develop what serves the effectiveness or skill. The research problem lies in a difference in the physical effort performed by the players in every match and this is shown by repeating skill errors through late reach to the ball is a result of the effort exerted in the match. This difference appears in the last half of the match and the accompanying decrease in the physical and functional effort of the players, especially since the squash player needs to invest all physical abilities and employ them with skillful performance, as squash is one of the games that need physical and skillful abilities high throughout the interchange of playing balls until an opportunity is obtained to implement a skill precisely in a place far from the presence of the opposing player and win the match.

Keywords: physical effort, Technical Skills Accuracy, Squash Game

Research objectives: To prepare complex exercises on some physical abilities that affect the accuracy of technical skills in squash.

An experimental approach based on scientific foundations was used to suit the topic of the research. The research sample was chosen by the method of one experimental group with two pre and post tests, and by the deliberate method, which included the Iraqi national team players applying for squash and their number (8) players and they represent the community of origin in a sincere and true representation and by 100% and who have conducted the main experiment of the research . The results showed significant differences in some physical and skill tests among the research sample. The most important conclusions: Compound exercises (physical skills) have proven effective in developing explosive power of the muscles of the arms and feet, which reflected positively on the skill performance. The development of the physical aspects led to the development of the skill side through

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early access to the ball as well as regaining control of the control area (T) faster than the opposing player. The exercises used led to the development of the leg muscles and thus the movement of the players (FootWork) was faster in reaching the ball.

I. Introduction and importance of the research:

Reaching the higher levels requires a concerted effort, a proper diagnosis of strengths and weaknesses, and work to develop what serves the event or skill in order to be among developed countries in sporting events and raise the country's flag high in international forums and meetings in the squash game. And through the scientific and technological development, equipment and the latest training methods that are achieved through exercises used to develop functional capabilities and physical indicators associated with the skillful performance of technical skills in the game, analyzing and studying the effect of those exercises on the functions of the athlete's body and thus on developing the level of achievement after it became obvious. Known that it is not possible reaching a high level of achievement without events, functional adaptations in the organs and members of the athlete's body through the integration of physical aspects with skill through complex exercises (physical skills), especially among squash players in particular, as the training process depends on scientific foundations and principles aimed at preparing the player from all aspects of physical, skill and planning, to reach the highest level of sporting achievement in a particular sport.(1) Among the sports games, squash, like most games, has general physical characteristics and abilities, special physical characteristics and abilities that distinguish it from other games, as each sport has its general and specific physical requirements that help improve the performance of its skills and create functional adaptations typical of the game with the help of other sciences and try to analyze kinematic various technical skills affecting play to be starting points for developing players by focusing on developing weaknesses and strengthening strengths in the functional and physical aspects to reach the ideal performance for squash players. Hence the importance of research lies in knowing the effect of combined exercises on some physical abilities that affect the accuracy of technical skills in squash.

Research problem :

Through the field experience of the two researchers, being workers in the field of squash training, observations were recorded about some of the national team's matches for the applicants and they found a difference in the physical effort performed by the players in each match and this is evident through the repeated skill errors through the late arrival of the ball as a result of the exerted effort. In the match in which someone who gets 3 consecutive runs out of 5 wins, this difference appears in the last half of the match and the accompanying decrease in the physical and functional effort of the players, especially since the squash player needs to invest all physical abilities and employ them with skillful performance. Squash is one of the games that require high physical and skillful abilities throughout the interchange of playing balls until you get an opportunity to implement a skill precisely in a place far from the presence of the opposing player and win the match.

(1) Tariq Desouki: A proposed program for developing the special physical requirements of squash players and its effect on the level of performance, Master Thesis, Helwan University, 2001, p.2.

The two researchers sought the research's problem and find out the effect of combined exercises on some physical abilities that affect the accuracy of technical skills in squash.

Research aims :

Preparing complex exercises on some physical abilities that affect the accuracy of technical skills in squash.

- To identify the effect of compound exercises on some of the physical abilities of squash players.

- Identify the effect of complex exercises on the accuracy of some technical skills in squash.

Research hypotheses :

- There are statistical differences between the pre and post tests in some physical abilities of the national squash players.

- There are statistical differences between the pre and post tests in the accuracy of some technical skills in squash performance.

Research areas:

The human field: the advanced players of the Iraqi national team registered with the Central Iraqi Federation.

The time frame: for the period from (2/7/2019) to (3/9/2019).

Spatial domain: Squash courts in the College of Physical Education and Sports Sciences / University of Baghdad / Al-Jadriya.

II. Research Methodology:

The experimental approach based on scientific foundations was used to suit the topic of the research, "experimental research is the most accurate type of scientific research that can affect the relationship between the independent variable and the dependent variable in the experiment" (1). The two researchers used the experimental approach with one group with two pre and post tests.

The research sample :

The sample “is the part that represents the community of origin or model that the researcher conducts as a whole and the focus of his work on it.” (2) Where the research sample was chosen by the method of one experimental group with two tests, pre and post test , and by the deliberate method, which included the Iraqi national team players applying for squash and their number (8) players ,they represent 100% of the original community, on whom the primary research experiment was conducted.

Devices and tools used in the research:

Arab and foreign sources. Metal tape measure. A legal squash court, number (6). (16) Dunlop squash balls. (16) modern type (PRINC) squash rackets. (8) An electronic stopwatch (Casio) for planning and identifying test areas. (2) sirens, flags and flags, a medical ball, boxes of different heights (20, 30, 40), rubber ropes, a device for light signals.

Determine the research tests:

In order to determine a group of physiological, physical, and special skills in order to put them under research and study, and then take a step to determine the group of tests, and appropriate standardized tests have been determined through modern scientific sources and references in the field of tests and measurement, which can measure abilities as follows: -

- Physical exams:
- Long jump stability test(3)

The purpose of the test: to measure the explosive force of the leg muscles

Medical ball throw test (3 kg) from standing (4)

The purpose of the test: to measure the explosive force of one arm.

Arm bending and extension test from the front support position (5)

The purpose of the test: to measure the force characteristic of the velocity of the arms

(1) Ikhlas Abdel Hafeez and Mustafa Hussain Bahi. Methods of scientific research and statistical analysis in the educational, psychological and SPORT fields, (Cairo: Al-Kitab Center for Publishing, 2000), p. 107.

(2) Wajih Mahjoub: Methods of Scientific Research, 2nd Edition, Baghdad, Dar Al-Hikma for Printing and Publishing 1993) p. 310.

(3) Layla El-Sayed Farhat: Measurement and Examination in Physical Education, Edition 1, (Book Center for Publishing, 1999) p. 316.

(4) Ali Salman Abdul-Tarfi: Applied Tests in Physical Education, (Al-Nibras Press, Baghdad, 2013) p. 47.

(5) Ali Salloum Jawad Al-Hakim; Tests and Measures in the sport field: (Al-Qadisiyah University, Higher Education Press, 2004), p.101

Five-step test of the persistence (1)

The purpose of the test: to measure the force characteristic of velocity in the leg muscles.

Speed test for front straight strikes (2)

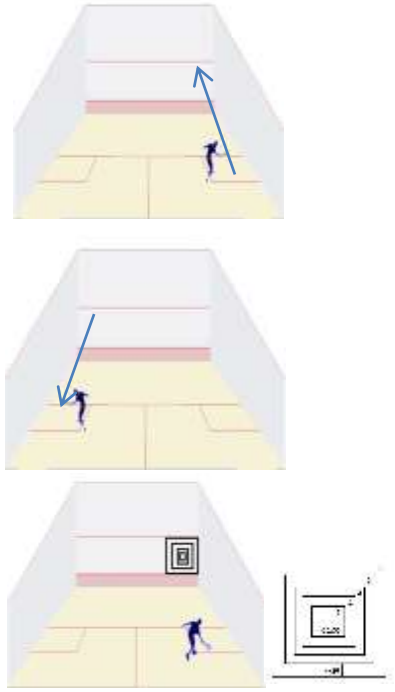
Scoring: The tester records the number of correct forwards in 30 seconds for the best out of (3) attempts.

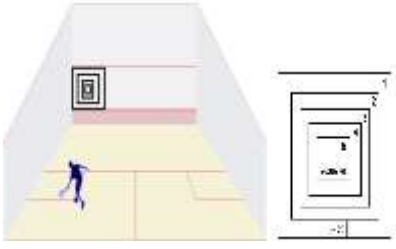
Speed test of back straight strikes (3)

Scoring: The tester records the number of correct forwards in 30 seconds for the best out of (3) attempts.

• straight front hit towards the split target (4)

The purpose of the test: to measure the accuracy of the straight backhand ground stroke in squash.





Scoring points: Points are awarded for every correct hit as follows:

5 points if the ball touches square number (5), 4 points if the ball touches square number (4), 3 points if the ball touches square number (3), two points if the ball touches square number (2), one point if the ball touches square number (2) (1), zero if outside the drawn limits.

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A straight backhand ground blow towards the split target (5)

The purpose of the test: to measure the accuracy of the straight backhand ground stroke in squash.

Test procedures: The same specifications and measurement method for the previous test, but the test is performed from the left side of the field with a backhand kick.

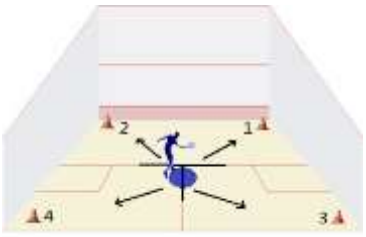
(1) Muhammad Sobhi Hassani: Measurement and Evaluation in Physical Education and Sports, 3rd Edition (Cairo: Dar Al Fikr Al Arabi, 1997) p.265.

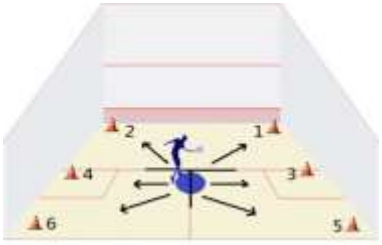
(2) Tariq Desouky Kamel: A proposed program for developing the special physical requirements of squash players and its impact on the level of performance, Master Thesis, Helwan University, College of Physical Education, 2000, p. 111.

(3) Tariq Desouky Kamel: a previously mentioned source, 2000, p. 115.

(4) Fakhri Al-Din Qasim: A proposed training curriculum using the weighting method to develop special physical characteristics and its effect on the accuracy of performance of some basic skills in the game of squash, PhD thesis, University of Baghdad, 2005, p.67.

(5) Fakhri El Din Qasim: A previously mentioned source, 2005, p. 69.





• A test of the speed of moving to the corners of the playing field during (30) seconds. (1)

The purpose of the test: To measure the speed of movement (Foot Work) to the four corners within (30) seconds.

Scoring points: The number of times you move to the corners of

the field is calculated during 30 seconds.

A test of moving speed to the corners of the field during (45) seconds.

Scoring the points: The number of times back to the middle of the court (T) is calculated within 45 seconds.

Exploratory experience:

The aim of this experiment is to identify difficulties and problems that the researcher may face during the implementation of his main experiment, especially those related to the administrative and organizational aspects, as well as to identify the time it takes for each test and the logical sequence to perform the tests. And the

extent of the players' response and interaction with those tests and their suitability in terms of age and training level, as the exploratory experiment was conducted on Tuesday 7/2/2019 at four o'clock in the afternoon on squash courts at the College of Physical Education and Sports Sciences / University of Baghdad.

Pre-tests:

The pre-tests were applied to the members of the research sample after the completion of the identification of the most important physiological, physical and skill tests approved in the research on Thursday 4/7/2019 at four o'clock in the afternoon on the squash courts at the College of Physical Education and Sports Sciences / University of Baghdad.

The main experience

The two researchers have prepared a set of special exercises, relying on specialized scientific sources and references in the field of sports training science, as follows: - A period of (8) weeks was determined over a period of two months, meaning (24 daily training units). Three training units have been determined per week, according to the agreement with the coach of the national team.

(1) Ali Jihad Ramadan: The Impact of a Proposed Training Curriculum on Developing the Most Important Schematic Techniques and Aerobic and Anaerobic Capabilities for Squash Players at the Ages (19-17) Years, PhD Thesis, College of Physical Education, University of Baghdad, 2005, p. 49.

(2) Ali Jihad Ramadan: A previously mentioned source, 2005, p. 51.

(*) Prof. Fakhri El Din Qasim / Fitness Trainer for the National Youth Team.

Dr. Ali Hassan Shukr / coach of the national youth team.

Captain Haider Caesar / Referee with the Iraqi Squash Federation.

Captain Hamza Farman / Age groups coach at the Iraqi Squash Federation.

And the approval of the Central Union for this period. Training days were determined on (Saturday, Monday and Wednesday of each week). The exercise continued for a period of two months. The training curriculum began on Saturday 6/7/2019 and the training curriculum ended on Saturday 3/9/2019, and the two methods of high intensity interval training and the repetitive training method were used, where it is preferred to use these methods when working according to the phosphogenic energy system without the accumulation of lactic acid (1). Where exercises were used to move to the signs on the field at different times to develop the correct movement method and quickly to the control center (T)

The number instruction exercises were also employed by the coach to move in the specified areas, as well as exercises with rubber ropes that were attached to the waist of the player to move inside the field to the corners of the field at the instruction of the coach to develop physical abilities and strength distinguished by speed. While the skill exercises used to develop the accuracy of the front and back strokes in Squash, which is carried out by the player himself at the beginning of the curriculum, as well as exercises with two players and exercises

with three players to enter competition and make the training similar to the conditions of the match, and the use of the ball thrower device to deliver the balls to the player in different areas of the stadium and determine the area to be delivered to the ball by performing front and back strikes from the front and back of the stadium, front and back strikes from the back of the playing field, as well as the use of complex exercises (skill physical) to develop foot movements and train them in a coherent manner, taking into account the skills training according to the appropriate style of play in order to prepare the player and balance between his performance and his way of thinking and the implementation of plans and methods of playing in squash.

Post- tests:

All the conditions for the post-tests have been set and all the procedures carried out by the researchers in carrying out the pre-tests are taken into account and the same period and the same assistant staff to carry out the procedures for the post-tests to move away from the circumstances of chance affecting the results of the post-tests after the completion of the main experiment of the exercises on the research sample on Wednesday, 9/2/2019 at 4:00 pm, at the squash courts in the College of Physical Education and Sports Sciences / University of Baghdad.

11 - Statistical methods:

The statistical bag ((spss)) was adopted in extracting the statistical results.

(1) FOX , E . etal **. THE Physiology Basis of Physical Education and Athletics** .Iowa ; Brown and Benchmsk Publishers1999, p44 .

View and analyze results of physical and skill tests

Table (1)

The table shows the arithmetic mean, standard deviations, and (T) value calculated between the pre and post tests of the physical tests.

Variables	Pre-test		Post-test		F-	F H	Calculated value of T	Level of error	Significance
	S-	H+	S-	H+					
Two-legs explosive force test (long jump)	**2.08**	**0.03**	**2.20**	**0.05**	**0.11**	**0.02**	**5.09**	**0.001**	Significance

Arms explosive test (throwing a 3 kg ball)	**7.95**	**0.30**	**8.90**	**0.12**	**0.95**	**0.102**	**9.293**	**0.000**	Significance
Test the force characteristic speed of the arms (front support)	**27.62**	**1.30**	**29.50**	**1.06**	**1.87**	**0.35**	**5.35**	**0.001**	Significance
The two-legs characteristic strength test (5 stamina)	**8.13**	**0.19**	**8.70**	**0.21**	**0.57**	**0.051**	**11.08**	**0.000**	

With a kinematic degree (1-8 = 7) and a significance level <(0.05)

Table (2)

The table shows the arithmetic mean, standard deviations, and (T) value calculated between the pre and post tests of the skill tests.

Variables	Pre-test		Post-test		F-	F H	Calculated value of T	Level of error	Significance
	S-	H+	S-	H+					
Speed test for front strike	**32.50**	**1.64**	**36.50**	**1.17**	**4.00**	**2.66**	**4.74**	**0.001**	Significance
Speed test for back strike	**30.40**	**1.57**	**32.70**	**1.41**	**2.30**	**1.41**	**5.12**	**0.001**	Significance
Test the accuracy of the front strike	**41.45**	**0.82**	**43.81**	**0.98**	**2.36**	**1.20**	**6.500**	**0.001**	Significance

Back strike accuracy test	**39.36**	**1.28**	**42.36**	**1.20**	**3.00**	**1.67**	**5.94**	**0.0007**	Significance
Moving speed (Foot Work) to the four corners within (30) seconds	**12.09**	**0.83**	**14.45**	**1.03**	**2.36**	**1.50**	**5.22**	**0.0005**	Significance
Moving speed (Foot Work) to the four corners within (45) seconds	**21.87**	**1.45**	**23.12**	**0.99**	**1.25**	**0.31**	**3.98**	**0.005**	Significance

With a kinematic degree (1-8 = 7) and a significance level <(0.05)

Table (1) shows the results of the pre and post tests of the research variables, and the presence of significant differences between the measurements pre and post tests. The researchers attribute these differences to the combined exercises that contributed to the development of the physical variables, including the explosive strength of the arms and legs, as the structured physical training carried out through compound exercises (skilled physical) according to a program prepared on scientific foundations leading to the development of various physical abilities. The exercises carried out by the research sample were to develop the explosive ability of the two legs through jumping exercises at different heights (30 cm, 40 cm, 50 cm) have shown us improvement in the explosive strength of the two legs in the post-test, and this is what Valdan (2008) indicated that training with devices and assistive devices, especially resistance, is a method that contributes to the process of improving the muscular capacity of the legs, arms, and the body in general (1)

([1])Vladan Milić, Dragan Nejić, Radomir Kostić : The effect of plyometric training the explosive strength of the leg muscles of volleyball players on single foot and tow foot takeoff jumps, facts university Series: physical Education and Sport,2008, p 169.

The muscular capacity of the legs, arms, and the body in general was used well and appropriately for the sample during training units and prepared for eight weeks. This period was sufficient to improve the muscle strength of the legs and arms, and also contributed very clearly and effectively to improving the exerted strength,

especially when performing the front and back strikes in squash by moving quickly and providing the front foot to start performing the blow and effective reaching areas far from the opponent's presence, where the strength gained in this type of training gave the kinetic performance the development resistance and preference in the post tests of the explosive ability of the arms and legs, with the ability of the muscles to contract muscle at a faster and more explosive rate during the range of motion of the striker arm of the ball.

This is in agreement with (Muhammad Reda 2009) in order to increase the level of achievement, coaches must urge athletes to raise adaptive states in a systematic manner, and this means in practice that coaches must plan high-intensity training stimuli in a succession so that high-intensity training days alternate with training days low intensity. This can enhance the process of compensating the consumed energy and lead the athletes to the state of overcompensation, meaning that the adaptation processes are closely related to the correct scientific planning with the method of applying repetitions and stresses (1) .. As for the reason for the emergence of significant results of the force variable characteristic of velocity for arms and legs in favor of post-tests, it is attributed. The two researchers referred to the standardized exercises that were applied that led to the occurrence of adaptations that had an effective impact on the development of the force characterized by speed, and that these exercises that were used with devices and tools in developing the ability to move with maximum strength or close to its level helped in the development of this ability in line with the physical and movement capabilities. As this is indicated by " Mekkelson" who confirmed (that athletes must perform high training exercises for this ability, as it should be up to 80-90% as possible as a player can (2), As for Table (2), the results showed the presence of significant differences and in favor of the post tests for footwork tests, which showed an improvement in the speed of foot movements by shortening the movement and reaching the corners of the field by steps through the application of the players special exercises through the optical instructions device that it shows the correct steps of movement on the field as well as the indication with arrows for the correct place of movement, and the performance of the players. By making good balls (3) and this is due to the use of complex exercises that have proven effective in reducing errors and moving in correct paths that led to a reduction in the effort exerted by the player and to benefit from it in focusing on the performance in playing the balls as “to take the correct steps, the second movement and preparation for hitting the ball will have more time and this will improve your hitting the ball. "(1)

(1) Muhammad Reda Ibrahim: Field Application of the Theories and Methods of Sports Training, 2nd Edition, Baghdad, National Library, for Publication, 2008, pg.176.

(2) (2) Lasse Mekkelson: How to train to become a top distance runner. In New studies in athletics. No. 4 . 1996, p44 .

(3) ([3]) Hesham EL Attar : **Squash in the veins** , Tactics, Italy , 2002 , p43.

This is confirmed by (Amin Al-Khouli 2007) that the basic skills related to the front and backhand strike need extreme precision in hitting the back corners of the stadium by directing the ball to areas far from the opponent's presence (2).

As for the results of the accuracy of performing the front and back straight strokes in squash, the researcher attributes that to the exercises used, which focused on developing aspects that were effective, as they included exercises that moved inside the field at different times and included exercises with one player, and then the introduction of competition with two players in order to make the exercises similar to conditions. As this confirmed by (Abu Al-Ula Ahmed 1997), "The high physical level of an athlete depends on competition and special exercises related to the type of activity of the specialized athlete." (3)

The researcher attributes the reason for this to the use of special physical vocabulary that has a clear and effective impact on improving the physical abilities that serve the skill conditions of the squash game in the research sample through their adaptation to the approach that relied on organizing training periods and using the appropriate intensity and appropriate rest which are compatible with the development of the players, especially skills of front and backstroke in squash, which is one of the most skills during play, as (Mufti Ibrahim 1998) states, “The athletic skill is the jewel in any sport and its achievement (development) depends on the physical preparation on which linear, psychological and mental preparation depend (4).He also attributes that to the use of special physical vocabulary with an effective impact , which contributed to the development and strengthening of the squash player's special muscles, especially the working arm muscles, which led to an improvement in the speed of the performance of the technical skills when performing a hitting the ball and which works on "an increase in the flexibility of the muscles as a result of the repeated movement of the muscles, ligaments and joints." (5), (Talha Husam Al-Din, on Bloomfield 1997) also states, "There is a high correlation between endurance, muscle strength, accuracy and speed of skillful performance." (6)

(1) Magdy Ahmed Hegazy: Squash between theory and practice, 1st Edition, Alexandria, 1993, p. 135.

(2) Amin Anwar El-Khouly: Racquet Games - Squash, 1st Edition, Cairo, Dar Al Fikr Al Arabi, 2007, p.2.

(3) Abu Al-Ela Abdel Fattah. Sports Training, Physiological Foundations, (Cairo: Dar Al Fikr Al Arabi, 1997), p. 200.

(4) Mufti Ibrahim. Modern Sports Training, 1st Edition, (Cairo: Arab Thought House, 1998), p. 180.

(5) Qassem Hassan Hussein and Abd Ali Nassif. The Science of Sports Training, 1st Edition, (Mosul: Dar Al Kutub Foundation for Printing and Publishing, 1980), p.57.

(6) Talha Hussam El-Din and (others). The Scientific Encyclopedia of Sports Training, 1st Edition, (Cairo: The Book Center for Publishing, 1997), p.16.

III. Conclusions and Recommendations:

Conclusions:

1. Compound exercises (physical skills) have proven effective in developing the explosive power of the muscles of the arms and feet, which reflected positively on the skill performance.

2. The development of the physical aspects led to the development of the skill side through early access to the ball as well as regaining control of the control area (T) faster than the opposing player.

3. The exercises used led to the development of the leg muscles and thus the movement of the players (FootWork) was faster in reaching the ball.

4. The exercises used led to the development of the arm muscles and thus increased the accuracy of the front and back strikes by controlling the racket while hitting the ball.

5. Combined exercises have proven effective in developing the physical and skills aspects in a balanced manner.

6. Resistance exercises, rubber bands, and the tools used have proven effective in developing the abilities that serve the skillful performance of squash players.

Recommendations:

1. Using early exercises on similar samples of non-age groups in a game of squash.

2. The necessity of using special exercises to develop the skillful physical aspects in a complex way that serves the skilled physical aspect of the game of squash.

3. Conducting physical and skill tests for the players periodically to reveal the strengths and weaknesses of the players and thus developing appropriate training programs for them.

4. Conducting research and studies on other physical and skill abilities in the game of squash.

5. Paying attention to footWork exercises, as it is the basis for the movement of the player and thus good access allows the performance of high skill with accuracy.

6. Take advantage of the analysis of motor skills to develop the training aspects because it is considered one of the objective means in detecting errors in skill performance.

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