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The effect of special exercises using water resistance in developing special strength and its effect on achievement

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Abstract

The study aimed to use water resistance training to develop special strength in the aqueous medium for triple jump players and to identify the level of special strength for triple jump players in the aqueous medium, as well as to identify the level of performance and achievement development after using the aqueous medium.

The research hypotheses included there are statistically significant differences in the level of the special strength tests between the pre and post tests after using the aqueous medium among the members of the research sample and in favor of the post test, and there are statistically significant differences in the level of performance and achievement between the tribal and the post exams among the members of the research sample and in favor of the post test.

The researcher used the experimental approach to design the one group, that is, the pre and post test for one group, as the sample consisted of (5) players representing the national team for athletics in the triple jump, where the vocabulary of the training curriculum was started, the researcher addressed a number of theoretical studies in training with resistors and training conditions Resistors and how to design resistors programs, as well as dealing with resistance training in water, the benefits of using resistance training in water, the types of resistors in water, as well as the stages of technical performance in a triple jump, as well as physical characteristics of performance and the method of repetitive training

The researcher used video imaging for the purpose of evaluating the technical performance of the triple jump, on which it was based in preparing the training curriculum using water resistance.

After statistically processing the data, the researcher concluded that the proposed training curriculum was effective in the development of the force characterized by speed for the members of the research sample, which confirms that there is an evolution in the reactions of the working muscles in the lower limbs as a result of resistance training inside the water, which gave a positive return on the kinematic paths of the anatomical joints For these parts, as the results of the statistical treatments

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showed significant differences between the pre and post tests, and in favor of the post test for the members of the research sample.

And the use of jumping exercises with rapid reflexes contributed to the excitement of these muscles, which contributed to the development of physical and motor efficiency within the movement requirements and the distinctive mechanical conditions for it.

I also concluded that the continuation of training according to the approach prepared by the researcher in the aqueous medium has strengthened the increase of the efficiency of the muscular nervous system to adjust, adapt, and regulate the different motor processes that are commensurate with the technical performance of the triple jump, where the use of new exercises strengthens and contributes to the integration of different functions and is consistent with this difference and was This is evident through the technical level of performance.

And it appeared that the members of the research sample who were exposed to different resistances inside the water have relatively integrated their control over the motor work during the performance of this effort and this means increasing the efficiency of the nervous system for them as a result of these exercises.

And controlling the increase in the water level by increasing or decreasing has contributed to controlling the intensity of training and its graduation, and it has contributed to achieving control of the various rapid movements in the strength training that was taking place in the aqueous medium.

Key words : *special exercises , water resistance ,special strength , achievement*

I. Introduction

The various sciences of physical education that emphasized the importance of innovation and creativity, and finding the most appropriate training methods to influence the development of achievements and achieve the record numbers for various sports. It has become clear that training has been linked to scientific and technical progress to a large extent, the training process has taken shape and organization consistent with the new development in the methods and methods used that led to the development of numbers in various individual events and this is what made developed countries in this field show their best potential for advancement In this aspect, and the direct reason behind this is that the sports training process is a holistic process for applying the various sciences related to the human movement system in order to achieve the best in sporting achievements. The triple jump is one of the athletics activities in which performance is affected by the development of the special force, including (explosive force) Characterized by the speed and strength of the performance), which constitute the type of force to be achieved while performing the technical stages of this event.

As is known, the resistance shown by the aqueous medium is one of the methods that can cause the development of muscle strength through the use of exercises that have a direct relationship to the stages of performance of activities depending on the speed of the body's movement when using various strength exercises with body weight, and since the effectiveness of the triple jump is A

combined effectiveness of several technical stages that are interlinked with each other and participate in the use of the distinctive force of speed and explosivity, which is one of the physical and basic characteristics in the application of the stages of this activity, so the importance of research comes through the uses of the aqueous medium, which provides a better opportunity for the researcher's belief when applying rapid strength exercises The different features that are characterized by these stages during performance, which is one of the indicators of the strength of performance, which is an opportunity for workers in this field of application to clarify the role of this training method in influencing the development of technical performance and the digital level of this effectiveness and in proportion to what is used of new training methods in countries The developed world and explaining the importance of the water community as a new training medium and its impact on developing special forces.

Research problem

The need has become urgent to break the monotony of the exercises, as it may lead to muscular nervous conditioning. Here, it was necessary to increase the adaptation by creating new methods that might give a greater effect to the development of special strength and adaptation and positively to the muscular work of the triple jumpers in particular. Jumping exercises in a water medium have been used in developing special strength training and its impact on the level of technical performance and achievement to match the development taking place at the international, Arab and Asian levels. Creating modern training methods that may be of benefit to develop the level of performance and special physical attributes of triple-proof in Iraq in order to develop the technical and digital level, and thus the researcher may contribute to the development of some scientific solutions in addressing the problem of the weak Iraqi figure for women in this game.

research aims

-The effect of special exercises to resist water to develop special strength.

-Learn about the special strength level of the three jump players in the aqueous environment.

- Knowing the level of development performance and achievement after using the aqueous medium.

Research hypotheses

- There are statistically significant differences in the level of special strength tests between the pre and post tests after using the aqueous medium among the members of the research sample and in favor of the post test.

- There are statistically significant differences in the level of performance and level of achievement between the pre and post tests for the members of the research sample and in favor of the post test.

II. Research Methodology

The choice of the scientific method to solve research problems is essential as the research problem imposes the approach that can be used, so the researcher adopted the experimental approach to suit the nature of the research problem**.**

Research community and samples

The researcher selected the members of the research sample in an intentional manner, among the players of the national team for athletics in the triple jump, and they number (5)**.**

Research Tools

To provide a set of devices and tools necessary for the purpose of using them to solve the problem, whatever those tools, and to make sure that these tools are suitable for research to achieve hypotheses. In fact, the researcher used the devices, tools and means that helped the researcher to conduct his research, as follows:

Height and weight measuring device, DIAMOND electronic stopwatch, PANASONIC 30 MPPS video camera, scale scale, plastic mat , 50m Tape Measure Tape, Burk to Determine and Mark Test Zones, 20 x 2 Dimensions Swimming Pool

The Testes

Measured variables:

- The triple dash test of stability, a 3-step test in the form of a mutual durability of persistence, a 30-meter running test of persistence, the five-step test of stability for each leg, a three-dart test of approach (digital level) and performance.

Applied Test

The paragraphs of the proposed training curriculum were prepared after reviewing a set of sources and references related to the subject of the research and after presenting it to the supervisors to avoid the training errors that the researcher might make. The training curriculum was applied on 7/10/2019 for a period of ten weeks and included (30) training units at the rate of three training units per week. The repetitive training method was used and the principle of increasing resistance to strength training by body weight in the aqueous medium was adopted and the principle of graduation increases with the level of water height in which it is applied. These jumps to develop the special strength of the members of the research sample where all the exercises were.

It is characterized by the kinetic performance of the effectiveness of the triple dart, and the stages of the triple dart include several movements in the working muscles and multiple joints, which gives it the character of complexity. And since the aqueous medium is among a resistance, this requires the researcher to take into account the resistance shown by this medium when performing triple jump movements and special movements included in the training program and emphasizing the achievement of the correct performance, as it was one of the main tasks that the researcher emphasized to develop the special force.

The gradual rise in the water level achieved this principle for the researcher. The beginning of the training was the height of the water level (30 cm), which was adopted by the researcher as a result of the exploratory experiment, this height constitutes a major obstacle (resistance) when conducting these exercises for the members of the research sample and adopting this height as a result of many experiments that concluded the researcher Through it to provide accuracy in performance when performing the movements. And to obtain a clear effect of training by increasing the training load by increasing the intensity and distribution of exercises while controlling the height of the water as a resistance medium where the researcher controlled the water level by placing a graduated ruler to know the level of the water height.

Training is required on it, and then the performance of the training units directly. The time of one training unit took approximately 50 minutes, including warm-up and rest. The curriculum was completed on Wednesday 15/15/2019 and note that all the vocabulary of the training was under the supervision of the three-jump Al-Wathba certified trainers without interference The researcher

III. Results and discussed

View and discuss search results:

Table (1) Shows the mean differences, the sum of the differences, the calculated and tabulated T value, and the significance of the differences for the triple dash test of stability for the members of the research sample.

sample	A1	A2	Differences	Total differences	Calculated value of T	Tabular value of T	Significance
5	5.90	5.98	0.34	3.85	9.17	2.78	Sign

And through the results that appeared in this table, which showed a clear indication that the strength marked by the speed of the research sample has evolved clearly for the muscle groups working in the two men in particular in the post-tests and that the exercises that were used in the water within the training method prepared by the researcher had given a clear effect in This development is a result of the resistance to which the members of the research sample were exposed, which resulted in taking the correct and appropriate technical position in the working corners and parts of the body to allow the movement to be implemented according to its correct paths, which gave the appropriate muscular conditioning they were exposed to this resistance. This effect was evident in the development of the force characterized by the speed of the members of the research sample through the use of jumping exercises with rapid reactions in the water environment, which the researcher believes contributed to the direct impact in the development of this force. And the identification of rapid and kinetic reactions

in the body while performing a physical effort are positive indicators for evaluating physical and motor efficiency within the requirements of mechanical conditions1.

Table (2) Shows the mean differences, the sum of the differences, the calculated and tabulated T value, and the significance of the differences for a 3-step test in the form of mutual stability of stability for the members of the research sample.

sample	A1	A2	Differences	Total differences	Calculated value of T	Tabular value of T	Significance
5	7.90	8.98	0.45	5.85	7.17	2.78	Sign

The cross-test test (three steps) expresses the ability of working muscles to produce the highest strength at the fastest possible speed and this is the content of the rapid force that comes from the law of mechanical ability (strength x speed) and it is noted that the level of completion of the research sample in the dimensional tests for this test was much better One of the tribal tests where effective training in the water experienced by the individual research group is the best guarantee for the development of these movements, as the kinetic work style has been similar to the kinetic work style (outside of the water), noting that the correction of the mistakes that are usually committed when The application of these exercises on land, such as the occurrence of inappropriate corners in the trunk and legs, or the failure to achieve the correct kinetic ranges during the performance of the jumping steps to the end, the reason being the absence of the effects of gravity relatively when training with water2.

As this positive impact was evident through the density of the water used for training, which worked to reduce the relative force of the Earth's attraction, whose value is greater as a resistance force when training on land to perform such exercises, therefore this positive gave the ability with control over the performance of these rapid movements in the water In this way, the field can work according to the appropriate motor pathways, so that the water resistance of the two men's movements was the main factor for the occurrence of direct resistance to the work of the two muscles of the working men. The triple. As the nervous and muscular systems are considered one of the most important means of integration of the living organism and its functioning as an integrated and integrated unit, through which the individual can deal with the internal and external resistances and forces that are under his control during the performance of the physical3.

Shows the mean differences, the sum of the differences, the calculated and tabulated T value, and the significance of the differences for a test run of 30 meters of stability for the members of the research sample.

Table (3) Shows the mean differences, the sum of the differences, the calculated and tabulated T value, and the significance of the differences for a test run of 30 meters of stability for the members of the research sample.

sample	A1	A2	Differences	Total differences	Calculated value of T	Tabular value of T	Significance
5	4.52	4.34	0.18	0.02	13.17	2.78	Sign

The results of the test ran 30 meters of stability from the high start that appeared in favor of the dimensional tests showed that the water exercises had a clear impact on increasing the ability of the muscles to produce the highest possible capacity in the rapid movements represented by the repetition of the legs of the legs and the movements of the arms arm and the position of the trunk while performing special strength exercises in the middle Watery and a certain depth where it was found that this effect was in two directions. The first direction is a direction in strengthening the working muscles according to the appropriate kinetic performance angles, which gives a high movement balance and muscle balance with the ability to correct these correct mechanical conditions when performing these rapid movements. The second direction is physiological, as these exercises gave a high agreement in the blood quantities received for the muscles and in the thermal equilibrium, as the mechanical pressure of water on the parts of the body contributing to the performance in the water environment causes the contraction of blood vessels, which increases the physiological effects on these parts4.

All of this has caused acceleration, such as the occurrence of adaptations of rapid and basic functional movements as a main duty of the working muscles and according to what has been applied from the exercises within the proposed training program applied by the researcher, which aimed to bring about an evolution in the special strength of the working muscles while increasing the water resistance as it is known that the more they are Movements are faster in the water, the higher the water resistance of these movements, which can be employed by reducing or increasing the water level, which gives an increase or decrease in the difficulty of training5.

Table (4) Shows mean differences, squared sum squares, calculated and tabulated T value and difference significance for step and jump test for sprint for the individual sample.

sample	A1	A2	Differences	Total differences	Calculated value of T	Tabular value of T	Significance
5	5.52	4.34	0.51	5.1	8.17	2.78	Sign

This test represents one of the important tests of the strength of performance for proving the triple jump and that the remarkable development that appeared in the results of the post-tests has clarified the effectiveness of the exercises used in the aqueous medium, which had a direct relationship with the parts of the movement or technical skill as these exercises gave an impact in the integration of

angular ranges in the joints The working body, which is imposed on the working muscles on these ranges, with appropriate contraction and extensibility, in a way that is consistent with the special motor pathway, and this has contributed to the development of the working muscles on the knees and hips joint, where this appearance was within what is required of a dynamic path that can be achieved in the skill of triple jump, which the researcher was keen on The application must be in accordance with the correct technical performance in order to ensure effective and effective training in the water6.

The researcher emphasized directing the members of the research sample with the correct movements required of them in accordance with the skill method and the appropriate mechanical conditions required. Where the results of this study agree with the results of multiple studies that emphasized that the use of strength training in water can give an effect on stimulating and strengthening the muscular system and the possibility of training the largest number of groups without shedding a great effort on the joints operating under cases of physical stress with high intensity and thus can conduct various exercises Related to the technical movements and the kinetic performance stages of the triple jump in the aqueous medium and in a manner consistent with achieving the best mechanical conditions for it in terms of achieving the appropriate kinetic speed and application of kinetic ranges in the working joints which must be applied according to what the real kinetic performance of the skill requires7.

Table (5) Shows the mean differences, the sum of the differences, the calculated and tabulated T value, and the significance of differences for the five-test stability test sample.

sample	A1	A2	Differences	Total differences	Calculated value of T	Tabular value of T	Significance
5	11.52	11.34	0.31	2.19	11.17	2.78	Sign

The emergence of significant differences in testing five records of stability indicates that the water training has increased the ability of the members of the research sample to achieve the spatial and temporal field of the movements of these two men and the highest strength and speed required for this performance, as the exploitation of the mechanical advantage of water as a training medium has given opportunity to individuals The research sample is to perform the best kinetic duty required of special strength training and according to the facilities provided by the aqueous medium for the individual when training (decreasing the pull force and increasing the buoyancy force) which allows the application of the best technical performance and the highest possible intensity to overcome the resistance shown by the aqueous medium to the body during the application of these movements Rapid and thus the researcher believes that the training that you used to develop the special force in the water has been appropriate and the goal of these exercises is to obtain the best production of strength according to the specific kinetic ranges of performance for the muscles of the two men and in proportion to the individual capabilities of the members of the research sample8. Where the sources

confirm that the strength exercises against the water resistors that necessitate the person from the constant change in the arms of the strength and resistance (of the moving part) give an effective and positive benefit in the development of the kinetic efficiency of these parts when applying these movements on land.

IV. Conclusions and recommendations

Conclusion

Through the above presented results and the researcher's analysis and discussion of these results, he reached the following conclusions:

-The evolution of the force marked by speed appeared to the members of the research sample, which confirms the evolution of the reactions of the working muscles in the lower limbs in rapid movements, which are characterized by the resistance exercises inside the water.

-The use of jump exercises with rapid reactions contributed to the excitement of working muscles, which contributed to the development of physical and motor efficiency within the requirements of movement.

-The continuation of training according to the approach prepared by the researcher in the aqueous milieu has promoted an increase in the efficiency of the nervous and muscular systems to adjust, adapt, and regulate the different motor processes that are appropriate and the technical performance of the triple jump, as the use of new exercises strengthens and contributes to the integration of different functions and is consistent with this difference and this was Clear by the technical level of performance.

-It appeared that the members of the research sample who were exposed to different resistances inside the water have relatively integrated their control of the motor work during the performance of this effort and this means increasing the efficiency of the nervous system for them as a result of these exercises.

-Controlling the increase in the water level by increasing or decreasing has contributed to controlling the training intensity and its graduation, and it has contributed to achieving control of the various rapid movements in the strength training that was taking place in the water environment.

- Achieving a good achievement in the three dimensional tests in the triple jump gave evidence that all the training that the researcher used was carried out according to the correct technical performance in order to ensure effective and effective training in the aqueous medium.

Recommendations

Through what has been concluded, the researcher recommends the following recommendations:

- Using the aqueous medium exercises, because this medium has an effective effect on developing muscle strength and then achievement.
- Carrying out similar studies for the rest of the jumping events with strength games in particular and other activities in general.
- -Conducting a complementary research to this research, looking at the accompanying physiological effects when hydrotherapy
- A comparison of special power exercises on land and special strength exercises in water to determine the most effective exercises in this development.
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