Strength Training of the Elastic Ropes of the Archer's Arm and Its Relationship to Some Bio Cinematics Variables and Achievement of the Effectiveness of Discus Throwing for the Iraqi Champion for the Handicapped Category F551 - Definition of Research

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Abstract

Importance of research in knowing the strength training of rubber ropes and their relationship with biomechanics to develop the strength of the aiming arm, which is positively reflected in the achievement that the contestant intends to reach The research problem due to physical disability in the lower extremities and the implementation of discus throwing from the sitting position on the chair and the weakness of the upper limbs was the cause of the low achievement of this competition, so the researcher decided to know the effect of special strength training of rubber ropes on the archer's arm and the extent of their contribution to digital achievement according to some biochemical variables in Discus Throwing Competition for the Disabled Category F55 in order to help the contestant to standardize these exercises in a scientifically sound manner within the training program, in light of the results achieved, the researcher concluded that there is a significant correlation between the explosive force, shoulder angle and maximum disc height in the stage of the maximum twisting of the trunk before throwing, and the presence of a significant correlation between Explosive force, maximum disk height, and velocity in the break phase of the disc connection, the wojo D significant correlation between explosive force and discus performance.

Key Words: *Special Strength Training, Rubber Bands, Discus Event:*

Introduction

The current era that we are witnessing is characterized by an amazing, unprecedented development in all areas of knowledge, scientific and technological research, and this development came as a result of scientific research and studies (2). These studies have led to the expansion of ideas and opinions in points of view to find various solutions to the problems that an athlete may face in his field of work or any Another field, and the sports field is at the forefront of the fields that have witnessed a remarkable development in recent times. This development has included all sports, including in particular the Paralympic Games, which are concerned with disabled athletes and their integration into societies to alleviate their suffering through the introduction of many psychological, physiological, physical and mechanical sciences that would have it (2). Studying all that is influential in reaching the highest sporting achievements and in all games, as well as studying the manifestations of weakness and treating them in various methods and modern training methods, including the rubber ropes method that helps the development of sports performance and the linkage of this performance with biomechanics, which is the study of the causes of movement and its status, i.e. interested in the study of forces The internal and external causes the movement, the manifestations and the conditions for the (3) A disease that offers the most appropriate kinematic solutions by using the kinematic analysis to reach the best achievement for various activities, including the effectiveness of discus throwing for the disabled category. Hence, the importance of research in knowing the strength training of rubber ropes and their

relationship with biomechanics to develop the strength of the aiming arm, which is positively reflected in the achievement that the contestant intends to reach. (1)

Search terms: (F55) category, who suffers from a severed spinal cord at a level between the eleventh thoracic nerve and the third lumbar nerve, and the performance is from sitting on a chair

Research Problem

Because of the physical disability in the lower extremities and the implementation of discus throwing from the sitting position on the chair and the weakness of the upper limbs was a reason for the low achievement of this competition, so the researcher decided to know the effect of special strength training of rubber ropes on the archer's arm and the extent of their contribution to digital achievement according to some biochemical variables in the discus competition F55 class for the disabled, to help the contestant to scientifically legalize these exercises within the training program(2)

Research Objectives:

The research aims to

- Knowing the percentage of the contribution of special strength training of rubber ropes and its relationship to some variables on the achievement of the effectiveness of discus throwing class F55

- Learn about the physical contribution of special strength training rubber ropes to the body of class F55 handicapped contestant.

practical part

Research Methodology

The researcher used the experimental method, which is the only method that can genuinely choose the hypotheses of cause-and-effect relationships (1)

Research Sample

The research sample was chosen by the intentional method and it is the Iraqi champion in throwing the disc for physically handicapped people, F55 class of sitting, and as (Muhammad Nasreddin Radwan) indicated that the sample represents "a group of units or observations that are taken from the research community in different ways, called sampling methods." (2)

Tests used in the research

- Special strength tests for rubber ropes

Grip strength test (the maximum strength of the grip muscles) using an electrometer)

- Iron bar test on the flat bench from lying on the back (maximum strength of the arms and chest muscles (1)

- Medical ball push test (3 kg) to measure the explosive power of the arm and shoulder (2)

As for the bio-kinematic variables related to the search, namely:

The angle of the shoulder and the aiming arm - the height of the disc from the ground - the angle of inclination of the torso - the angle of the shoulder and the aiming arm - the height of the disc from the ground - the angle of the torso tilt - the angle of departure - the velocity of departure - is calculated by videotaping in the Biomechanical Laboratory through the film-cutting process before. Specialist 0

Videography:

The researcher used video photography intending to extract the biomechanical variables while throwing the disc from sitting on the chair, where a Japanese-made video camera (Casio) was used at a speed of (1200 images/sec) where it was placed on the right side of the player at a distance of (10, 4) meters and a height (20, 1) meters from the ground level and the camera was installed by its holder. The studied biochemical variables were converted into mathematical values through the Kinovea program to statistically process the data. (3)

Designing the training curriculum:

The researcher developed a training program for strength training of rubber ropes that included (24) training units applied to the research sample during (12)

weeks and at (2) training units at a rate of (60) minutes per day.

Exploratory experience:

On 6/6/2018, an exploratory experiment was conducted on the same player who represents the research community to identify the most important difficulties and obstacles that the assisting team may face during the tests and videotaping.

Main experience:

The experiment was conducted for the pre-test on 7/6/2018 at the Sports Talent Center in Diwaniyah to identify the special strength of rubber ropes and some biochemical variables and the achievement of the Iraqi champion in throwing the discus

Method of conducting the tests:

- The special strength tests of the rubber ropes were conducted on 7/9/2018 at 4:00 pm at the Sports Talent Center after the contestant performed a good warm-up.
- After a 45-minute rest period, on 7/9/2018, a discus test was conducted at the Sports Aptitude Center at four in the afternoon under the same conditions, where the contestant sat on the chair, holding the disc weighing (1 kg), where she threw the disc while the hand extended from the level of The shoulder where the contestant was given (6) attempts according to the international law of athletics, where the successful attempts were analyzed from the front and the right side of the contestant. [4]

Statistical means

The researcher used the program (spss) in processing the data as it was extracted by:

Results

Presentation, analysis and discussion of the relationship between the special strength of rubber cords and some biochemical variables and achievement in discus throwing:

Table (1): It shows the relationship between the special strength variables of the rubber ropes and some biochemical variables at the stage of the maximum twisting of the trunk before throwing

Variables	The stage of the maximum twisting of the trunk before throwing			Disk contact fracture stage					Achievements
The special strength of rubber ropes	Shoulder angle	Highest disk height	The angle of inclination of the torso	Shoulder angle	Highest disk height	The angle of inclination of the torso	Angle of departure	Cruising speed	
Grip strength	0.01	-0.09	0.17	-0.48	-0.74	-0.35	-0.34	-0.13	0.18
The maximum strength of the arms	0.67	-0.72	0.12	0.62	-0.15	0.41	0.45	0.81	0.55
Arm's explosive force	-0.81	0.83	-0.57	0.60	0.85	0.28	-0.15	0.27	0.82

Through Table (1), which shows the relationship between the special strength of the rubber cords and some biochemical variables and the achievement of discus throwing for the Iraqi heroine of the handicapped category F55, where we note there is a negative significant correlation between the explosive force of the throwing arm and the angle of the shoulder at the stage of the maximum wicking of the torso before throwing, as well as there is a correlation relationship Significant with the maximum disk height at the same stage, as well as there is a significant correlation with the highest disk height and the speed of release in the disc contact break stage and the values were respectively (-0.81), (0.83), (0.85) and (0.81) as well as with the achievement, where their value reached (0.82) at the level of significance (0.05) and the degree of freedom (0.811), where we note from Table (1) that the calculated value is greater than the tabular value, indicating the significance of the correlation 0. As for the rest of the other investigated variables, when compared to the tabular value, we notice that the calculated values the aforementioned is smaller than the tabular value, which indicates the lack of significance of the association. Shoulder angle in the stage of the maximum twisting of the torso The small angle of the shoulder increases the explosive force by bringing the throwing arm closer to the body of the player to increase the forced outcome through two forces acting in the same direction (arm strength and trunk strength) as well as the spinal injury is a helpful factor in approximating the disc and thus decreasing The shoulder angle [(5)] is the significance of the correlation between the explosive force of the arm and the highest height of the disc in the extreme phase of the torso. The researcher attributes this to the increase in the height of the disc working to increase the distance travelled as the increase in the distance is related to the force and speed of throwing (1) As for the significance of the correlation between the explosive force of the arm and higher Disc height in the disc contact phase and the researcher attributes that to increase the explosive force on the target is to take a good position and at an appropriate height at the moment of launching the disc to achieve the best possible distance, and as Muhammad Othman indicated, "beyond any doubt that there is a strong correlation between the force and the distance obtained." The higher the force, the greater the distance." [(6)] Also, there is a significant correlation between the explosive force of the firing arm and the speed of launch, and the researcher attributes that to the characteristic of the force. A fundamental and effective role in achieving high achievement, especially in firing activities, which depend on the speed of launching the tool, and this is what Muhammad Othman confirmed that this is only possible with the presence of a large force through the ability of the explosive force 0 and also a correlation appeared between the explosive force of the throwing arm and the achievement and the researcher attributes that to my position Force and speed are a major and effective role in achieving achievement in the discus throwing process, and force is the pinnacle of the sequence of these characteristics because the high level of achievement in throwing competitions depends on the speed of the launch of the tool, and this is only possible with the availability of high muscle strength that emerges through the ability of explosive force [(7)]

Presentation, analysis and discussion of the relationship between the percentage of special force contribution and achievement in discus throwing

Table (2): Shows the percentage of the contribution of special strength training rubber bands to the achievement of a discus throw

The researched variables related to the rubber bands	the percentage of contribution to the achievement
Grip strength	0.32
The maximum strength of the arms	0.302
The explosive force of the arm	0.672

The researched variables related to the rubber bands, the percentage of contribution to the achievement

Through the observation of Table [(7)], it becomes clear that the percentage of the special force contribution of the rubber ropes, represented by tests of the strength of the grip, the maximum strength of the arms and the throwing of the medical bill in the completion of the

discus throw, where we notice the highest contribution rate of achievement was (0.672), which represents the explosive force (throwing the medical ball). The second contribution was the maximum strength of the arms (ping press) and its value was (0.302). The last contribution was (0.032), which is the characteristic of the maximum strength of the extensor muscles of the hand (grip strength).[8] Characteristics regarding discus performance and this are what (Muhammad Othman) emphasized, "The two elements of great power and quick power are among the most important physical elements affecting the digital level for throwing competitions,[9] so it is natural for the training process to focus on these two elements" [10]

Conclusions

In light of the results achieved, the researcher concluded the following:

- There is a significant correlation between the explosive force, shoulder angle and maximum height of the disc in the stage of the maximum wicking of the trunk before throwing

- There was a significant correlation between explosive force, maximum disk height, and firing velocity at the stage of disc contact fracture 0

- There was a significant correlation between explosive force and discus performance

- The explosive power of the aiming arm contributes to the highest percentage in the achievement of discus throwing for the physically challenged class F55

- The grip strength of the aiming arm was the proportion of the contribution compared to the rest of the special strength tests of the rubber ropes

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Conflict of Interest: None to declare.

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