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The effect of special exercises in the super set style in developing some kinematic variables and achieving javelin throwing for youth

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Abstract

The importance of the research came from the serious interest of researchers in this subject to develop some scientific solutions to address this problem by designing explosive strength training in the Super C style, and according to the correct sports training foundations that ensure the athlete's development in proportion to the method of technical and kinetic performance of this effectiveness and with high economics, and this may help the trainers Those interested in this event work to improve the elements of this event in terms of training and technology, and the study aimed to prepare training exercises The explosive power in the super set style for the members of the research sample, as well as the identification of the effect of the explosive power training in the super set style in developing some kinematic variables and the achievement of javelin throwing for youth., The researchers used the experimental method to fit the nature of the problem by designing one experimental group. The research community was determined from the javelin throwers for young people, aged (14-16) years, and their number was (6), from the players of Diyala Governorate clubs registered within the Sub-Athletics Federation, and they were selected The research sample by the intentional method, because the objectives of the research require athletes who are good at performing javelin throwing, and the sample represents (100 %) of the research community. The head of the training unit and it lasted from 45-50 minutes at a rate of (3) units per week for a period of (8) weeks, as the number of training units reached (24) units and the duration of the training units was (8) weeks and with two medium courses, and (3) training units In one small session, the researchers automatically concluded that the exercises that the exercises of the super set style had had an effect in improving the level of kinematic variables during the throwing and completion steps through the results obtained and thus obtaining a total strength on it. And transferring it through the parts of the body to the spear at the moment of launch, and this is reflected in the level of achievement. The researchers recommend emphasizing the importance of using exercises and different resistances in the superset, which has a great role in developing physical abilities and to the need to conduct experiments and other applied forms of superset

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exercises to develop other physical abilities such as endurance and other abilities They stress the need for those in charge of the training process for young people to know that their physical training is in accordance with mechanical requirements, and according to sound scientific foundations.

***Keywords**: super set, kinematics, javelin throwing*

Introduction

The training process based on sound foundations and keeping pace with the latest developments comes through a relatively stable technical performance through which all principles that can serve the skill and then achieve the desired goal are used. We see that there is a general framework that determines the course of the sports training process by achieving an increase in the player's efficiency and preparations to reach the highest levels in the practiced sports activity" (Bashtawi: 26:2010). The effectiveness of javelin throwing is one of the games that is directly affected by the physical preparation as the basis for developing the skill side, which inevitably has to do with the application of the various conditions accompanying the performance, whether these conditions are technical or mechanical. Important field competitions in which the movement of the body and its ability to achieve kinetic are related to the tool that is thrown, pushed or thrown so that the distance to which it is launched is Which expresses the individual's ability to motor achievement. Javelin throwing is one of the throwing activities in athletics, which is characterized by a complex and sequential performance between parts of the body, which combines two basic physical characteristics: speed and strength, as well as coordination and kinetic balance. The javelin throw is one of the throwing competitions that needs to link the motor path of the body parts involved in the movement in order to put the muscles and joints that work on them, so that the muscle contraction results in a great thrust that is consistent with the path and motor level without falling into a path contrary to what is required to be assembled Of the sources of forces that affect the amount of the total forces of the working muscle groups, and the nature of performance in the throwing competitions in general and the effectiveness of javelin throwing in particular aims to develop and develop the general and special physical abilities of these competitions, which is why javelin throwers must develop and develop each of (explosive power, strength characterized by speed), along with other physical abilities to reach the level of competition and achievement (Shibli: 3:2009). There have been many training methods regarding the development of explosive strength qualities for javelin shooters in particular, and among these methods are super set training, which is widely used in strength training for various sports skills in developing explosive power and speed of performance. It can be done through traditional exercises using different resistances, if It was not used in large groups, as it is of great importance to improve the level of performance and improve the ability of the nervous and muscular system and speed of motor performance. And that superset training is one of the modern trends to develop many physical attributes that fall within the physical requirements of sports activities and for each activity according to its physical and performance specificity. Al-Riyadi accomplished it (Jassim: 135: 2010). As the superset training method is a training principle used as a modern trend for muscle building and for developing muscular strength, as (Mansour Jamil 2002) mentions that the superset method is one of the very important methods in sports training because it achieves a high training intensity (Al-Anbaki: 94:2002), and this method is summarized by a group of Overlapping exercises for the same muscle or for opposite or close muscles, and this exercise consists of two exercises and without a rest period between the two exercises (Copeland, Candice: 1:2006). Superset training method means "performing any two

successive physical exercises at the same time without a rest period between them or with very little rest.", or that "the method of resistance training that is widely used includes a set of exercises for converging and antagonistic muscles without a rest period" (Sandor Balsamo: 123: 2012). The javelin in Iraq and through its practice of this activity at the level of the universities of Iraq and its training for the throwing activities, he noticed that there is a clear weakness in the skill performance (technique) and achievement, and from the researcher's point of view that this is due to mechanical errors, which in turn affect the digital level of the javelin throwers, so it is necessary to Strengthening the training aspect that has the best impact on the development of this level of achievement despite the modest level in this activity that our players suffer from compared to the Arab and international levels, and from here the research problem crystallized, and for this reason the researcher took a serious interest in this topic to develop some scientific solutions to address this problem through Designing special exercises in the style of the super set in the development of some kinematic variables and the achievement of javelin throwing for youth, and according to the correct sports training foundations that ensure the athlete's development in a proportional manner B and the method of technical and kinetic performance of this event in a highly economical way, and this may help the trainers and those interested in this event work to improve the elements of this effectiveness in terms of training and technical.

The study aims to prepare exercises Especially in the super set style for the members of the research sample, as well as identifying the effect of special exercises in the super set style in developing some kinematic variables and accomplishing javelin throwing for youth.

The researchers also assume that special exercises in the super set style have an impact on developing some kinematic variables and accomplishing javelin throwing for youth.

Methodology

Research Methodology: The researchers used the experimental method to fit the nature of the problem by designing a single experimental group.

The research sample: The research community was determined from the javelin throwers for young men and their ages (14-16) years and their number is (6) players, from the players of Diyala Governorate clubs who are registered within the Sub-Union of Athletics, and the research sample was chosen in a deliberate way, because the objectives of the research require Athletes who are good at javelin throwing, and the sample represents (100%) of the research community. The homogeneity of the sample was carried out using the skew coefficient as shown in Table (1). The results showed the homogeneity of the sample, as the skew coefficient was little, and this is a good indicator, as whenever this value is zero or close to zero, this indicates that the distribution is moderate or close to it(Small:195:1970) and thus the research sample is homogeneous.

Table (1)
Homogeneity of the research sample

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.000	.894	15.00	15.00	raey	ega eht	1
1.313	4.179	69.00	70.66	gk	colB	2
-1.139	3,619	175.00	174.50	mc	htgneL	3

.000	.5477	3.500	3.500	**raey**	**ega gniniart**	**4**
.851	2.350	48.50	49.56	**retem**	**tnemeveihca**	**5**

Equipment and tools used in the research:
Sony camera (2) for shooting the test and experiment, Dell computer (2), mass measuring device (weight), stopwatch (2), discs (CD), data dump form, tissue tape measure With a length of (10) m, one (1) dynaFoot measuring system, model 2017 - the French company Techno Concept, one (1) Casio camera (camera) with a speed of (30-1000) am/ Tha with (1) tripod camera holder, tape measure, electronic scale to measure mass, computer (laptop) type (DELL), 2 legal spear, platform of different heights, barriers, various weights.

Field research procedures:
The researcher used digital photography, and for the purpose of controlling the research variables to be extracted using kinetic analysis techniques, a Japanese-origin Exillim video camera was used with a high speed (1000) r/s to extract the kinematic variables from fast cameras, and the camera was used at a speed of (210 images/sec). The camera was placed from the right side of the throw to extract the variables around the horizontal axis of the athlete for the preliminary and final stage of javelin throwing and the starting variables. m, to extract the following variables:

1. The angle of inclination of the body in approach: These angles are measured between the vertical longitudinal axis of the body passing from the fulcrum point and the center of gravity of the body to the temple bone or the point of the shoulder joint at the moment of fulcrum with the vertical vertical line (gravity line) passing from the fulcrum (fulcrum foot), during the moment of approach The moment the front foot touches the ground ( ).(Al-Janabi: 69:2018)
2. The angle of inclination of the body with thrust: These angles are measured between the vertical longitudinal axis of the body passing from the fulcrum point and the center of gravity of the body to the temporal bone or the point of the shoulder joint at the moment of fulcrum with the vertical vertical line (gravity line) passing from the fulcrum (fulcrum foot), when thrust at a moment leave the spear. (Yasser Najah and Ahmed Thamer: 87:2015)

Figure 1 shows the angle of inclination of the body with thrust

Figure 2 shows the angle of inclination of the object when approaching

3. The length of the last step: It is the horizontal distance confined from the right metatarsal to the heel of the left foot during the last step in the double pivot position, and it is measured in meters and its parts.

Figure 3 shows the length of the last step

4. Speed of the javelin point at the starting stage: The distance traveled by the hand and the javelin was measured from the moment of placing the thrust (the position of the force) the moment of the double pivot when the feet of support touch the ground to the moment when the javelin is released and this distance is divided by its time (measurement unit m / s).
5. Angular velocity of the shooting arm:- The number of degrees that the shooting arm travels was measured by measuring the angular difference of the shoulder angle formed between the torso line (from the point of the shoulder joint to the point of the hip joint) and the connecting line (from the point of the shoulder joint to the point of the wrist joint) moment The thrust position (force position) during the moment of thrust position (force position) between the moment of double anchoring when the supporting foot touches the ground and the moment when the spear is released and these degrees are divided by its time (the unit of measurement is degrees / sec).
6. The starting angle: The javelin launch angle was measured by determining the trajectory of the center point of the javelin's mass before leaving the thrower's hand and to the moment after its launch with the line passing from the javelin's center of mass parallel to the ground before leaving the javelin's hand. (Yasser Najah and Ahmad Thamer: 87: 2015)
7. Launching speed:- is the rate of speed calculated by dividing the starting distance calculated from the moment the javelin is left from the thrower's hand to what After starting on the starting time.

Figure 4 shows the starting speed

Survey experiments:
The first exploratory experiment on extracting variables was conducted on Wednesday (7/8/2019) at Diyala University / College of Education and Sports Sciences on the same research sample:
What the researchers have done in the exploratory experiment has been summarized in several points:

- The validity of the equipment used in the test.

- Knowledge of the modus operandi of the sports movement analysis system (Dynafoot3).
- Ensure the validity of the video imaging camera, determine its location, fix its dimensions, and ensure the clarity of the image.
- Ensure that all devices can work as a single work unit.
- The staff's readiness and adequacy to take the test.
- The time it takes to perform the experiment.
- Extent of application of the sample to the test.

The second reconnaissance experiment on the exercises was conducted on Saturday, 10/8/2019 at exactly nine o'clock in the morning and at the Diyala Sports Club stadium, where various exercises were performed from several training units included in the training program, the purpose of which was the following:

- Identifying the suitability of the physical exercises used in the training program to the sample level, and changing the difficult physical exercises and replacing them with exercises that are more appropriate for the research sample.
- Identifying the time taken to perform each exercise, so that the researcher can organize the time of the training units.
- Ensuring the ability and efficiency of the assistant work team in implementing the vocabulary of the training units.

Tribal tests:

The tribal tests were carried out on the research sample, and the conditions related to the implementation of the tests were established from the sequence and location. The preparation and preparation of the registration form for the results of the tests of physical variables and achievement, the preparation of the assistant work team, informing them about the vocabulary of the tests and distributing tasks among them, as well as preparing the tools and devices necessary to apply the tests and ensure their validity and others., for the purpose of carrying out post-tests Implementation of the javelin throw test (achievement) on the playground of the College of Physical Education and Sports Sciences / University of Al-Qadisiyah, on Wednesday, 14/8/2019. As well as measuring the completion of the sample by throwing the javelin.

The exercises used:

training and athletics. The sample of the research in overcoming the obstacles encountered in the application of the program, and after studying the training curriculum with the specialists in this event, and emphasizing the special preparation stage.

The training program started on Saturday (31/8/2019) and ended on Wednesday (23/10/2019). The training program included the following:

A training program was built for a period of (12) weeks, with (3) training units in the small training session, so that the total number of training units was (24) training units.

The exercises were distributed within the main section of the training program only, and the researchers did not interfere in the rest of the training unit sections (the preparatory section and the final section).

Legalization of training loads and their components (intensity, size, comfort) according to the principle of gradation in difficulty and in proportion to the age stage and training status of the research sample, their abilities and capabilities, and the specificity of javelin throwing as it is one of the activities that require high levels of

speed and strength as well as complex and accurate technical performance, and accordingly the method of training was chosen Intense interval and repetitive training, and determining the intensity of exercise performance is one of the best achievements for athletes, with allocating sufficient rest periods for recovery and an appropriate and relatively few repetitions to suit the high intensity used in training.

The weekly wave training was in a ratio (3:1), meaning the use of three weeks of high pregnancy and one week of lower gestation, as the load was raised for the first, second and third weeks and lowered in the fourth to be an overcompensation stage, raised in the fifth, sixth and seventh weeks, and lowered in the eighth in preparation for the post-tests. Forming the training load using a (1:2) model, which means providing a high load, followed by another higher load, and then a lower load.

Superset exercises have been applied, i.e. performing two exercises in sequence without a rest period between them and according to the determinants and controls of the specific training goal in accordance with the approved foundations, rules and theories of training. Within the proposed approach, the researchers used three types of supersets: (Anti) and superset co-aggregates.

Post tests:

The researchers conducted the post tests of the research sample on the day and Sunday corresponding to (27-/10/2019) for the variables, after the expiry of the period of the exercises used. The researchers took into account that all the tests be under the same conditions in which the tribal tests were conducted as much as possible and within the time specified for the experiment.

Statistical means: The researchers used the statistical package (SSPS) to process the results.

Results

Presentation, analysis and discussion of the results of kinematic variables, analysis and discussion:

Table (2)
It shows the values of the arithmetic mean and standard deviation in the test (pre- and post-test) for the variables of force applied to the ground and achievement

T	selbairaV	gniursaem tinu	eht tset	citemhtirA naem	dradnats noitaived
1	fo noitanilcni fo elgna ehT hcaorppa ni tcejbo eht	eergeD	labirT	25,888	2,260
			retfa em	32.222	1.481
2	fo noitanilcni fo elgna ehT tsurht htiw ydob eht	eergeD	labirT	22.111	2,619
			retfa em	28,555	1.589
3	pets tsal eht fo htgnel ehT	retem	labirT	1.447	.0616
			retfa em	1.593	.0418
4	ta yticolev tniop nilevaJ esahp hcnual	s/m	labirT	9.645	.598
			retfa	11,428	.8596

			em		
5	eht fo yticolev ralugnA mra gnimia	ht/d	labirT	514.888	32.1848
			retfa em	674.111	81.739
6	elgna gnitrats	eergeD	labirT	40.777	1.787
			retfa em	35.888	2.420
7	deeps gnisiurc	s /m	labirT	22.434	.760
			retfa em	23.612	.192
8	tnemeveihca	retem	labirT	56.900	2.112
			retfa em	57.585	1.895

Table (3)

shows the values of the mean differences and their deviations, the standard error of the means and the value of (T) and (Sig) for the test (pre- and post-test) of the variables of force on the ground and achievement

T	selbairaV	q q	p	T	katsim e necrep egat
1	fo noitanilcni fo elgna ehT hcaorppa ni tcejbo eht	-6.333	3.278	5.795	.000
2	fo noitanilcni fo elgna ehT tsurht htiw ydob eht	-6.444	2.788	-6.932	.000
3	pets tsal eht fo htgnel ehT	-.1455	.0782	5.578	.001
4	hcnual ta deeps nilevaJ esahp	-1.783	.893	5.987	.000
5	eht fo yticolev ralugnA mra gnimia	-159.22	85.35	5.597	.001
6	elgna gnitrats	4.888	2.803	5.231	.001
7	deeps gnisiurc	-1.177	.6152	5.743	.000
8	tnemeveihca	-.416	.147	-6.934	.001

The degree of freedom = 5....significant at (Sig) □ (0.05).

It is evident from Tables No. (3) of the kinematic variables for the final throwing stage during the performance of the effectiveness of javelin throwing and achievement T-values computed for the research sample individuals under a lower error level (0.05) and a degree of freedom (5) There are significant differences, which indicates the significance of the differences in favor of the post-tests. The researchers attribute the moral differences of the kinematic variables and achievement to the exercises of the super set method, depending on the scientific foundations that help to

develop the level of adaptation of the sample members, and the researchers believe that the development of the strength of the muscle groups working in performance achieved a development of the kinematic variables in each step of the final throwing steps and the associated throwing stage With the same performance, and this was evident through the development of achievement that is related to all biomechanical variables, such as achieving a high angular speed in the aiming arm and correct rotation of the trunk through the correct fixation of the foot of the pedestal foot during the stage of starting to push during the stage of individual support. The development of strength for the legs and arms and their time enhanced the Achieving the effective rotation of the right leg, which results in the pelvis advancing towards the throw quickly, which leads to an increase in pressure on the trunk during the throwing phase. This is a good preparation for the final throwing movement. This was indicated by (Abu El-Ala: 32:1998) for the superset exercises under the title of Strength plateau.. and how it can be overcome, that the Super Set method is one of the most prominent training methods to overcome the plateau of Strength and considered that this training method is one of the most training methods to increase intensity with diversity At the same time with saving the effort as well, and the implementation of this method depends on the use of several groups of two different exercises, but they focus on the same muscle group. The researchers believe that it is clear to emphasize the use of strength training according to the kinetic paths of performance, which contribute to the advancement of the training process and its delivery in the optimal way for the trainee. Essential and effective in the success of the training process and how to transfer knowledge and information to the participants in the training programs, which is supposed to be reflected in the development of biomechanical variables related to performance. Therefore, researchers believe that the continuous progress in developing and updating techniques related to training and working to rebuild them in line with modern technological development has helped improve the quality And the effectiveness of the training process (Al-Sakarna: 191: 2011), which must be included in the parts of motor skills, their minutes and details, in form and content, and the aim is to serve and learn motor skills better" (Adel Ali: 9:2000). (Paish 1998) that there are three aspects of strength in the archer that can develop the total strength and that affect the integration of the mechanical conditions, and these aspects are the total strength through consistent weight training, which the archer must maintain throughout the year, it is this quality that brings us back more quickly, but Respond more quickly to stimulation. And the special strength that is supposed to be related to the technical and mechanical conditions, which must be linked to muscle training according to the skill and working muscles through the use of auxiliary technical devices and jumping exercises, which are the most important in the stages of developing the capabilities of the archer, and the absolute strength associated with a specific muscle group (WilfPaish: 126:2000). Also, the effectiveness of javelin throwing needs to link the special strength for the purpose of developing special aspects of performance. The performance strength is one of the most important physical abilities, which means that performance is characterized by speed and strength, and as a result of the linkage of these abilities with each other, it is a complex physical ability that needs competition requirements or Training in order to continue to perform maximum physical effort throughout the exerted effort, so the ability of the performance force means the individual's ability to achieve requirements related to a specialized type of activity without dropping in the level and under the conditions of competition (Abdul Khaleq: 151: 1999). The length and nature of the effectiveness of javelin throwing And performing it at a high speed

requires strong muscles capable of controlling this performance, so the development of strength for this competition is very necessary, and it means "the ability to perform work with great muscle strength" (Abdul-Khaleq: 105:1999) Therefore, this means that the player continues to exert a quick force for as long as possible without the appearance of fatigue, and exerting this force certainly gives continuity to maintain the acquired speed.

Conclusion:

In light of the results obtained by the researchers, the researchers concluded, and through the analysis and discussion of the research results, the researchers concluded that the exercises of the super set method had an impact in improving the level of kinematic variables and achievement through the results obtained and thus obtaining a total strength on it and transferring it across parts of the body. To the javelin at the moment of launch, and this is reflected in the level of achievement, and the exercises that were used within the training applications showed effectiveness in the abilities of the javelin throwers using multiple means that positively affected the development of the level of achievement, and researchers recommend emphasizing the importance of using different exercises and resistances in the Super Set, which has a major role in The development of physical abilities and the necessity of conducting experiments and other applied forms of superset exercises to develop other physical abilities such as endurance and other physical abilities..

References

1. Abdel-Khaleq, Essam El-Din; Sports Training, Application Theories: (Dar Al Maaref, Alexandria, 1999).
2. Abu Ela Ahmed Abdel Fattah; The plateau of strength... and how to overcome it:(Cairo Sports Magazine, Egypt Issue 23,1998).
3. Adel Fadel Ali; The effect of some uses of knowledge base systems in learning programs by the symbolic model for learning offensive skills in fencing: (PhD thesis, University of Baghdad, College of Physical Education, 2000).
4. Ahmed Tawfiq Al-Janabi; to know Biomechanics in Mathematical Theories and Applications, 1st Edition, (Baghdad, Dijla House for Printing, Publishing and Distribution, 2018) pg. 69.
5. Al-Bishtawi: Muhannad Hussein, Principles of Sports Training, 2nd Edition (Wael Publishing House, 2010).
6. Bilal Khalaf Al-Sakarneh; Modern Trends in Training, 1st Edition: (Amman, Dar Al Masirah for Publishing and Distribution, 2011).
7. Copeland, Candice "super sets Training " (www.first path.) Com,12-2-2006 (,.
8. Laith Ibrahim Jassim; Athletic training (methodological basics) ; (Central Press; University of Diyala, 2010).
9. Mansour Jamil Khalaf Al-Anbaki; Training in body building, foundations and rules ; 1st floor: (Benghazi, Dar Shamou` al-Thaqafa For printing, publishing and distribution, 2002 (.
10. SafwatShalaby; The effect of a training program using the water medium on some of the special physical abilities and the digital level of the physically disabled spear runners. (PhD thesis; Kafrelsheikh University; 2009 AD).
11. Sandor Balsamo, et al ; Exercise order affects the total training volume and the ratings of perceived exertion in response to super- set resistance training session: (International Journal of General Medicine, 2012).
12. WilfPaish: The biomechanics of the discus throw: (In Techniques in Athletcs - The first international conference, Vol.1.COLOGNE. 2000) pp,126-127.

13. Yasser Najah Hussein, Ahmed Thamer Mohsen; Kinetic Mathematical Analysis, 1st Edition, (Al-Najaf Al-Ashraf, Dar Al-Diaa for Printing, 2015) p. 87.

Supplement (1)

First week training
Week/First Place: Diyala Club
Unit / First Unit Time: (35-40 min)
Today: Saturday The unit's goal: - To develop the explosive power of the two legs
Date / 31/8/2019
Notes: - Rest between exercise and the last 2 minutes

sesicrexe	intensity	**noititepeR**	**tser neewteb snoititeper**	**slatot**	**tseR neewteb spuorg**
deep jump box height 30 cm+	50%	4	d 2-1	1	-
Horizontal deep jump (going down from a platform at a height of (1 m) and then jumping on a mat placed at a distance of (1.5 m) and at a height of (75 cm))	50%	4			
Dhama jump on height-grading obstacles + (60 ,50 ,40 ,30)	60%	3	d 3-1	1	-
deep jump box height 40cm	60%	3			
Rebound Box Height 50cm+	60%	4	-	2	d 3-2
Bounce jump on two boxes 30 cm and descend on one leg alone alternately	60%	4			