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Proposed Approach to Develop the Feature of Strength Along with Speed of the Upper and Lower Limbs and its Influence on the Performance of Clean and Jerk Skills

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ABSTRACT

The technological revolution occurred in the world open the door widely in front of researchers and specialists to keep pace with this evolution. In the field of sport, technology achieved a great leap in the process of qualifying the athletes to deliver them to the highest levels. The great evolution including the sport training science like other sport sciences comes to fruition through the sport achievements we witness in our world today which of course are the result of the great efforts by the side of the researchers and specialists in this field. This research seeks to prepare a proposed training approach to develop the feature of strength marked with speed of the upper and lower limbs for the power lifters. The research uses the experimental methodology including the attempt to set forth the whole basic factors influencing the experiment except a single factor to be controlled by the researcher to change it in a specific manner to determine and measure its influence on the other factors. The study concludes the emergence of evolution with static significant on the level of the feature of strength marked with speed of the sample.

Keywords: Strength, speed, muscles of the upper limbs, muscles of the lower limbs, performance, clean and jerk skills

INTRODUCTION

The technological revolution occurred in the world open the door widely in front of researchers and specialists to keep pace with this evolution. In the field of sport, technology achieved a great leap in the process of qualifying the athletes to deliver them to the highest levels.

The great evolution including the sport training science like other sport sciences comes to fruition through the sport achievements we witness in our world today which of course are the result of the great efforts by the side of the researchers and specialists in this field.

The training process in the current time is the main concern of the specialists and the researches in the field of sport. It is considered the basic step to achieve the prospective objectives; its objectives may be achieved through the proper planning through designing the training programs to raise the sport level and then the level of the game. Powerlifting is one of the games which occupy a great space of achievements through the great lifts made by the powerlifters which reach to weights equal to three times of the weight powerlifter. The sport of powerlifting gained a wide popularity and many countries care about it due to the large number of medals that can be obtained through the competition.

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The interest in the development of physical characteristics is one of the basic tasks of the training as it provides the athlete with the basic base of integration and preparation of the remaining features including the skillful, psychological and kinetic features whereas as the physical building of the powerlifter is one of the conclusive matters in his abilities to perform clean and jerk skill to be executed during the competition. Prequalifying the powerlifter is crucial as it is very important to work on the proper physical preparation of the powerlifter through the training programs which aims at developing the physical features to serve the powerlifter. The most significant need of the powerlifter is the feature of strength marked with speed. This feature is the common denominator in all sport events which plays an important role in performing the required skills in the competitions, thus designing a training program to develop this feature in a good manner provides an important element in the integrative building of the powerlifter which also works on increasing the feature of strength marked with speed of the powerlifter to develop the kinetic course of performance and weight lifting quickly and that is what the weightlifter needs. From this perspective, the importance of the research and the needy for it becomes clear to contribute to raise level of the training process through the proposed methodology by the researcher.

The Problem of the Research

The training program consists of regular recurrences of the performance of the kinetic course to raise the physical level of the powerlifter and to reach the level which enables the powerlifter to perform the required effort to distribute the power in a proper way suitable for the level of the competitions. From the experience of the researcher, following up the game and the interviews with a number of experts and specialists in the field of game, the researcher finds that there is a great failure by the side of the players to do the clean and jerk. The researcher attributes that to the feature of strength along with speed which is responsible for this performance and that the slow speed in performing the lifts using the upper and lower limbs during the lift and drop process and standing leads of course to the failure in performance. Designing the training programs and raising the level of strength along with speed may contribute to the successful of the performance and from here the problem of the research appears in order to develop the strength marked with speed of the weightlifters to increase the speed of the performance.

Objectives of the Research

1. Preparing the proposed training program to develop the strength marked with speed of the muscles of the upper and lower limbs of the weightlifters.
2. Knowing the influence of the proposed training program on the development of the clean and jerk skills.

Methodology of the Research

The nature of the problem, objectives and assumptions of the research oblige the researcher to choose the suitable approach and then the researcher selected the experimental approach including "an attempt to design the whole basic factors influencing the experiment except a single factor to be controlled by the researcher to change it in a specific manner to determine and measure its influence on the other factors".

Sample of the Research

A sample was selected intentionally including the powerlifters of the training centers of powerlifters in the city of Shoola in Baghdad of (20) powerlifters representing the total community of the sample of the research; (4) powerlifters were excluded due to their lack of discipline and their repeated absence from the training and then the number of the sample's individuals is (16) powerlifters divided into two equal categories using poll. One of the two categories was under control while the other one was experiential; (8) powerlifters for each category. Table 1 shows the extent of harmony of the sample is certain tests where it has random significance in whole.

The Practical Foundations of Tests

After identifying the main goals of the tests and the content and quality of items and preparing special instructions for implementation, the test should be codified because it contributes to the good change of the mark the examinee gets (9:67) the researcher hereof not only did the subject matter tests because it is being globally codified and used by more than one researcher even he sets its number of speed and stability using an exploratory experiment and by simple correlation coefficient (Pearson), as shown in the Table 2.

Tests of the Research

After reviewing some scientific sources in the field of testing and measurement, the researcher used the

Table 1: Where value (T) at the level of the significance is 0.50 at liberty degree of (14)

Static methods/test	Measurement	Control		Experimental		Value T		Significance of the difference
		S	P	S	P	Calculated	Table	
Push while relying on the front for 10 seconds	Number	4.63	1.60	4.88	0.95	0521	2.145	Random
Bend knees and extend them from standing (Rear Debny) 10 seconds	Number	40.12	7.22	42.15	6.33	0.243		Random
Clean lift	Degree	18.5	2.27	19.17	3.60	0.173		Random
Jerk lift	Degree	5.5	102	5.8	1.8	0.211		Random

Table 2: The coefficient of speed and stability for tests used in the research

Tests	Stability	Speed
Push while relying on the front for 10 seconds	93.0	96.0
Bend knees and extend them from standing (Rear Debny) 10 seconds	88.0	94.0
Clean lift	81.0	90.0
Jerk lift	90.0	95.0

following codified checksum which are physical and skill tests.

Physical Tests

The test of pushing while relying on the front for 10 seconds (6: 156) to measure the speed strength of the arms muscles.

The test of bending knees and extending them from standing (Rear Debny) 10 seconds (6:84) to measure the speed strength of the legs muscles.

Skill Tests (Judged here by the Referees)

Test of clean lift skill

It is one of the competitive skills of weightlifting and is harder than the other skill, and judged by (3-5) points.

Test of jerk lift skill

It is the second skill of weightlifting and consists of two stages and is rated (3-5).

Training Curriculum (Appendix 1)

Researcher prepared a training curriculum based on scientific sources studied in the science of sports training, in addition to showing it to some specialists in the field of the weightlifting game and training science.

Training curriculum took a period of eight (8) weeks, started on 03/11/2015 and ended on 02/03/2016 and by (2) training units per week and a period of 25 minutes from the main section time, leaving the remaining time of the program for trainers excluding Fridays and official holidays from the days of training.

Rest has been calculated on the basis of the pulse as the weightlifter begins to repeat until his pulse reaches (100 p/m) (2: 128) Pulse is counted for (6 seconds) and output is multiplied by × 10 which is the best way of measuring (8:34).

The researcher used a method of controlling degrees of endurance in terms of hardness and volume as well as in rest periods depending on the principle of gradual ascent and descent to avoid overload.

The researcher supervised the implementation of the training curriculum through the experience group, leaving the control group working under the supervision of the main trainer 0.

PRESENTATION AND DISCUSSION OF THE RESULTS

Presentation and Discussion of the Results of Control Group

It is clear from Table 3 that there is a lack of a clear and important development in the level of the speed strength of upper and lower limbs in the control sample of the research in spite of the emergence of significant differences which the researcher ascribes to the state of competition that took place between the two groups especially in the physical tests despite not appearing in skill tests, not to mention that the standard of development was not good in general, so there has been no test at a higher percentage than the proportion (10%), which is a percentage that points to any real development in the desired level.

Presentation and Discussion of the Results of the Experimental Group

It's clear to us through analyzing Table 4 that the experimental group of the research sample had responded to the items of the training curriculum because (training curriculum is measured by its success in terms of the progress that is achieved by the individual sportsman in the kind of sports activity which he practices through the skill, physical and functional level, and that depends on the adaptation achieved by the individual to the training curriculum which he applies. The above table shows that the training curriculum has achieved rates of tangible development both in the physical or skill side. At the physical level, this group has achieved a good percentage which indicates the effectiveness of the training curriculum. In choosing pushing in front standing position, the proportion of development was (14.37%) which is equivalent to three times the rate achieved by the control group.

This is due to the contribution of professional training in the development of the speed strength as they rely on muscle strength and ability to respond efficiently and quickly (10:25) as well as we see this development through exercises that were given to this group within the curriculum where they stressed on the development of strength and the development of speed and tried to integrate them because (speed strength can be quickly developed through strength, speed, or both) (3:90).

Bending knees and extending them from standing position (rear Debny) has great development indicated through the development rate and by (33.5), which increased by four times than the rate in the control group, if the focus of the exercises on the development of the force on the upper and lower limbs led off as for the development of speed strength quickly had an impact on other types of strength development (as the recent occurrences that lead to fatigue in the neuromuscular system will become an exciting physiological stimulus that leads to the development of maximum strength) (12:57) as well as the training of maximum strength is to ensure the ideal speed strength and this is what achieved the first purpose of the research hypotheses.

Table 3: The significances of differences and the proportion of the development of the control group in pre-tests and post tests in skill and physical tests

Statistical media physical and skill tests	Measurement unit	Pre-test		Post test		Development ratio (%)	T scheduling	T	Denote differences
Push while relying on the front for 10 seconds	Number	144.9	6.22	152.5	13.5	523	2.20	145.z	Abstract
Bend knees and extend them from standing (Rear Debny) 10 seconds	Number	236.4	4.13	265.9	3.8	8.67	3.13		Abstract
Clean lift	Degree	4.2	3.12	4.4	1.9	.4.62	2.5		Random
Jerk lift	Degree	3.4	2.10	3.5	2.82	2.94	1.954		Random

Table 4: The signs of differences and the proportion of the development of the experimental group in the pre and post tests of the physical and skill

Statistical methods physical and skill tests	Measurement unit	Pre-test		Post test		T calculated	T schedule	Denote differences	Rate development (%)
Push while relying on the front for 10 seconds	Number	144.7	4.23	5.165	3.16	4.921	2.145	Abstract	14.37
Bend knees and extend them from standing (Rear Debny) 10 seconds	Number	237.2	3.95	6.315	4.12	4.412		Abstract	33.50
Clean lift	Degree	4.3	2.17	6.13	5.19	3.209		Abstract	42.55
Jerk lift	Degree	4.87	4.29	5.90	4.16	3.165		Abstract	21.14

in the skill side, the curriculum has done a good and clear standard of development as the development standard of speed strength reflected quickly on the performance of the skills under examination as the ratio was of the skill (clean lift) by (42.55%) and skill (jerk lift) (21.14), which are high ratios and that indicates that the group benefited from the exercises given in the training curriculum, where the relationship between the (liability speed strength to the Sports technique) (8:92), and also (strengthening the muscles of the limbs of players leads to the development of their strength and thus gives them strength, agility and technical performance to the players) (11: 198).

CONCLUSIONS

1. The emergence of the development of a statistically significance in the speed strength in a sample of the research (the experimental group).
2. The emergence of the development of a statistically significance in the technical performance of skills under examination in the favor of the experimental group in the pre and post tests.
3. The emergence of statistically significant correlation the performance of the speed strength and doing the skills under examination.

RECOMMENDATIONS

1. The Application of the suggested curriculum concerning physical (the quality of the speed strength especially among weightlifters who suffer from shortage in this aspect.
2. The application of the suggested curriculum, in the skill as well as the physical sides.
3. Exercises of (speed strength) and employing them in the technical performance of the skills under examination and the need for curriculums in terms of focused units that treat the shortage of skills and physical aspects in addition to the usual training curriculums.
3. The need to prepare a curriculum similar to this one develops the other physical qualities in accordance with performing other technical skills.

ATTACHMENT 1

Items of Training Curriculum

The items of training curriculum which is about physical and skill exercises have been applied.

1. From a standing position pulling the weight to the level of the shoulders for (10 seconds)
2. From a lying position on the bench pulling the weight to the chest for (10 seconds)
3. From a standing position bend your knees and Stretch "front Debny for "(10 seconds)
4. From a standing position bend your knees and jump to the maximum distance for (10 seconds).
5. From a standing position bend the knees and stretch them to carry the weight for (10 seconds).
6. From a standing position jump forwards to the marks on the ground for the (10 seconds)
7. Handling the medical ball over the head, with the arms outstretched forward and backwards for (10 seconds)
8. The anterior position, bend and extend the two arms for (10 seconds)
9. from a squatting position, jump high holding the medical ball.
10. From a standing position, jump high touching the chest with both knees, with maximum speed for (10 seconds)
11. From a standing position put one of the two legs on the front bench, jumping interchangeably.
12. performing the skill of clean lift (10 seconds).
13. performing the skill of jerk lift (10 seconds).
14. performing two skills (10 seconds).

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