THE EFFECT OF A TRAINING PROGRAM USING SUPPLEMENTAL TRAINING WITH WEIGHTS TO DEVELOP SPEED & EXPLOSIVE STRENGTH IN PASSING SKILL FOR YOUNG FOOTBALLERS

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Abstract

The current study aims to:

- Prepare a training program using supplemental training with weighs to develop speed and explosive strength.
- Identify the effect of supplemental training with weighs in passing skills for young footballers.

To ensure goals of the study, the researcher made the following hypotheses:

- There are statistically significant differences between results of pre and post tests for the control and empirical groups in speed, explosive strength and passing skills in football.
- There are statistically significant differences between results of post tests for the control and empirical groups in speed, explosive strength and passing skills in football.

The researcher used the empirical method for it is consistent with the nature of the study. The main trial was conducted on a sample of the junior team of the Air Force Club (32 players) with ages (16 – 19 years old) chosen purposively and divided into two groups (10 players each) after eliminating 12 players and 7 players for the exploratory trial. Equivalence was achieved between both group members in variables of the study. The researcher approved the trial design which is called: "the design of random empirical group for pre- and post- tests" and used the following statistical methods: "arithmetic mean, standard deviation, percentage, the T- test for correlated samples and T- test for independent samples).

Keywords: training program – supplemental training with weighs – passing skill – football.

1. INTRODUCTION & IMPORTANCE OF THE STUDY:

Football is one of the games with high level which was clear in teams at the latest World Cup. This could not have been made unless by using correct planning in sport training in football to reach high levels in physical, skill, planning and psychological components of the game. Despite the importance of these basic components in training footballers and the necessity of harmony among them, football depends mainly in physical preparation in training program as players will not be able to perform their skill and planning tasks in the field without this preparation. Therefore, it was necessary to set and choose trainings that are consistent with players' abilities based on scientific basis that lead to raise players' levels in their gradual development, timing and frequency. Training with weights is one of the special and important methods of developing muscle groups affecting skill preparation. Thus, the importance of the study lies in the use of supplemental (additional) training with weighs before training units with high intensity and few frequencies to help develop speed and explosive strength which, in turn, help in accelerating movement and provide players with suitable strength and its effect on football skills.

Problem of the Study:

Training with weighs is among the important means in speed and explosive strength training and can be developed using supplemental training with weighs before the training unit. From the researcher's experience as a former footballer, he noticed that most football trainers do not use training with weighs before training units during developing speed and explosive strengths. Hence, the problem of the study was represented in preparing supplemental training with weighs before training units but with high intensity

of maximum value for players and few frequencies of speed and explosive strength training for legs and trying to identify their effect on passing skill in football.

Goals of the Study:

1. Prepare supplemental training to develop speed and explosive strengths.
2. Identify the effect of supplemental training on passing skill in football.

2. METHODOLOGY:

The researcher used the empirical method for it is consistent with nature of the study.

Population & Sample of the Study:

The researcher selected the sample of the study purposively of the junior team of the Air Force Club (32 players) with ages (16 – 19 years old) chosen purposively and divided into two groups (10 players each) with a percentage of 62.5 of the original population of the study. During choosing sample members, the researcher eliminated 3 goalkeepers, 2 players for incompliance and 7 for participating in the exploratory trial.

Equivalency of Groups:

Equivalence was achieved between both group members in speed and explosive strength of legs and the passing skill as shown in table (1).

Table (1): arithmetic means, standard deviations, the T- values of speed and explosive strengths equivalency for legs and the passing skill for the control and empirical groups:

Statistics / Variables	Measuring unit	Control group		Empirical group		T counted value	Significance
		Mean -	S.D ±	Mean -	S.D ±		
Explosive strength of legs	Cm	**19,5**	**3,689**	**21,5**	**4,744**	**0,998**	Insignificant
Speed strength of legs	Second	**6,318**	**0,056**	**6,312**	**0,004**	**0,214**	Insignificant
Passing accuracy	Degree	**55**	**8,498**	**53**	**9,487**	**0,471**	Insignificant

The T schedule value at error level ≤ (0.05) and freedom degree (18) = (2.10)

Tests:

- The test of explosive strength for legs: vertical jumping of stationary position.
- Speed strength training for legs: jumping on one leg for a distance of (30 meters).
- Passing test in football: various passing accuracy (short – medium and long passes).

Supplemental training with weighs:

Six supplemental training with weighs were chosen to be proper with the sample of the study in terms of performance time, speed and training as follows:

- Training of back pressure from a standing position.
- Back leg Kiel training.
- Front pressure training from a standing position.

- Forelegs Kiel training.
- Half squat training.
- Quarter squat training with raising heels.

Pre-Tests:

Pre-tests of variables of the study were conducted in the period from 02/12/2014 to 03/12/2014 as follows:

- Day 1: on 02/12/2014 by conducting variable passing accuracy test (short, medium and long passing).
- Day 2: on 03/12/2014 by performing:

1- Explosive strength test for legs.

2- Speed strength for legs.

Implementing Supplemental Training with Weighs in the Training Program:

After applying all pre-tests of variables of the study, supplemental training with weighs were conducted before training units for the empirical group on 06/12/2014 till 28/01/2015 and the researcher considered a set of important points as follows:

- Start all training units by muscle warm-up in order to prepare al muscles participating in performance in the training unit.
- Ending training units by extension training for muscles participating in performance within the training unit.
- Supplemental training with weighs were chosen through the researcher's experience and interviews with specialized experts with participation of most muscle groups to be applied before training units prepared by trainers.
- Maximum values of all strength trainings were determined with the used weighs.
- Intensity in supplemental training with weighs was determined through analysis of contents of resources and intensity of (80 – 100%) was chosen for the empirical group.
- Supplemental training with weighs was being conducted for 8 weeks (mini sessions).
- Supplemental training with weighs was conducted through medium courses (4 mini courses in each medium course). The lifting ripple movement was (1:3) and according to maximum work intensity.
- Each mini course consists of 3 training units a week on (Saturday, Monday and Wednesday) by implementing 24 training units.
- Performance time period of each training with weighs for explosive strength shall be (1 – 2 seconds) according to intensity in the training units for once, while performance time period of each training with weighs for speed strength shall be (10 seconds) according to intensity in training units.
- The used training method in the training program is the frequency method.
- The researcher considered that in each unit the first training is for explosive strength and the second is for speed strength.
- Control loads degree is by depending on variable intensities (raising intensity during training with fixed size and rest).
- Rest periods between frequencies and groups were determined through the exploratory trial and analysis of scientific source contents as rest degree among frequencies of the explosive strength (1 minute) and for speed strength is (2 minutes) which is enough to restore recovery of players and the rest between groups shall be (3 minutes) for complete rest and pulse indicator is also important in reaching rest among frequencies and groups as shown in table (2):

Table (2): training program of the first mini course for the first week of the empirical group:

Mini-course	Training unit	Exercise No.	Intensity	Work period	Frequency	Group No.	Rest bet. frequencies	Rest bet. groups
First	First	Ex. (1)	80%	1 – 2 sec	4	2	1 min	3 min
		Ex. (2)	80%	10 sec	4	2	2 min	3 min
	Second	Ex. (3)	80%	1 – 2 sec	4	2	1 min	3 min
		Ex. (4)	80%	10 sec	4	2	2 min	3 min
	Third	Ex. (5)	80%	1 – 2 sec	4	2	1 min	3 min
		Ex. (6)	80%	10 sec	4	2	2 min	3 min

3. Main Trial of the Study:

The training program started on 06/12/2014 till 28/01/2015 prepared by the researcher. The empirical group applied supplemental training with weighs, while the control group applied trainers' program (3 training units for mini-course for 8 weeks) divided into two medium courses and 24 units to be applied. These exercises were applied before training units.

Post- Tests:

All post tests were conducted with the same procedures used in implementing pre-tests and under the same conditions and requirements from 31/01/2015 till 01/02/2015.

Analysis & Discussion of Results:

Analysis of Results of pre and post measurements for the empirical and control groups:

Table (3): Arithmetic means, standard deviations and the T value for pre and post tests for the empirical and control groups:

Statistics / Variables		Measuring unit	Pre-test		Post-test		T counted value	Significance
			Mean -	S.D ±	Mean -	S.D ±		
Empirical group	Explosive strength of legs	Cm	21,5	4,744	31	4,595	3,173	Significant
	Speed strength of legs	Sec	6,312	0,062	6,241	0,053	6,455	Significant
	Variable passing accuracy	Degree	53	9,487	77	6,749	10	Significant

Control group	Explosive strength of legs	Cm	19,5	3,689	22,5	3,535	0	Insignificant
	Speed strength of legs	Sec	6,318	0,056	6,301	0,054	6,666	Significant
	Passing accuracy	Degree	55	8,498	65	7,071	6,003	Significant

Significance at error percentage ≤ (0.05), freedom degree (9), the T- schedule value = (2.26)

Table (3) shows the following:

The researcher found that these significant differences in the first empirical group are due to positive effect of het training program and its additional supplemental training before training units including high intense trainings with weighs. The researcher designed a number of supplemental exercises with weights legalized with a scientific method based on conditions and rules of strength training that led to improve and develop both explosive strength and speed strength of legs for members of the sample which was reflected on the passing skill. This shows that the supplemental exercises adopted by the researcher to develop explosive and speed strengths contributed to develop non-aerial abilities and passing skill for the empirical group and they play a basic role in preparing passing skill.

Table (3) showed that there are significant differences for the following abilities: (speed strength and passing skill), but they do not reach development in the empirical group. There are significant differences (for explosive strength of legs) due to the training of trainers who did not use them with components of loads (intensity, size and rest) whether in the size of their absolute size or in their correlation coefficient among each other during exercises. The training load is the main means that affects functional apparatus as it leads to raise functional and organic performance level in the body and develop, in turn, components of physical, skill and kinetic fitness, tactical abilities and voluntary features.

Analysis and Discussion of Results of Differences between post measurements for the control and empirical groups:

Table (4): arithmetic means, standard deviations and the T- counted value for post-tests of the empirical and control groups:

Statistics / Variables	Measuring unit	Empirical group		Control group		T counted value	significance
Explosive strength of legs	Cm	31	4,595	22,5	3,535	4,397	Significant
Speed strength of legs	Sec	6,241	0,053	6,301	0,054	2,307	Significant
Passing accuracy	Degree	77	6,749	65	7,071	3,683	Significant

Significance at error percentage ≤ (0.05), freedom degree (18), the T- schedule value = (2.10)

Table (4) shows the following:

Significance in all variables of the study for the empirical group is due to effectiveness of training programs which includes supplemental training with weights. This was due to an accurate scientific method and energy system as well as regular frequencies during (10 seconds) for speed strength of legs and (1 – 2 seconds) for explosive strength of legs. In addition, rest between groups is between 2 and 4 minutes which was enough for recovery and suit the sample. These exercises led to adaptation to quick performance which was reflected on skill performance with its high performance muscular contraction speed. Al Besaty refers that "the nature of special training is necessary for active adaptation of practitioners which also leads to develop performance levels and the possibility of

raising training loads". The researcher thinks that supplemental training with weights before training units help stimulate slow and quick fibers to achieve the needed work. Moreover, Syd Hoare says that: "training with weights is important in sport preparation program at all levels for its importance in improving general and private physical fitness elements through improving muscular strength and keeping joint flexibility which helps players move and control body parts in a balanced way, so it is used as a basic rule for skilled and physiological preparation for players to present better effort and performance levels.

To legalize training loads (intensity, size and rest), training with weights played an effective role in developing the empirical group because legalizing training loads correctly is accompanied with development in body systems operation levels and, in turn, development in physical properties to achieve the best sport levels. High performance intensity and specific stimulus periods are related into football in particular because supplemental training with weights before training units are very important for players as they always need various playing skills along the match. The nature of these exercises is for muscle contraction and extension as a result of these exercises in a short time because quick increase in muscle's length right before contraction results in quick and strong muscle contraction.

The researcher thinks that the development resulting in the speed strength of legs is due to amoeboid bodies that are receptors within muscle itself and they are responsible for the feeling of extending and shortening muscles. Hence, these bodies also extend and contract which lead to increase the strength of legs muscles and number and effectiveness of kinetic units that also led to increase speed strength. Al Mandalawy et al referred that: "Increasing leg muscle strength leads to increase their speed and speed strength in turn". As for explosive strength of legs, the researcher noted a clear development in the value of this ability due to positive effect of highly intense supplemental training. A number of supplemental training with weights was designed by a scientific method and with rules and conditions of explosive strength training that led to develop and improve explosive strength of legs. Legalizing training loads (i.e: intensity, size and rest) played an effective role in moral development because sport trainers can adjust and control training loads through change in increase and decrease in any components of (intensity, size and rest). Change in any of these components leads to a change in its degree, so we should consider the relation between these components while controlling them as well as effectiveness of training focusing on specialized exercises to develop and improve explosive and speed strengths regularly and continuously along 24 training units which will lead to functional adaptability because training for a long period continuously and regularly, functional changes will occur in internal apparatus of the body which is called: "functional adaptability".

4. CONCLUSIONS:

1- Supplemental training with weighs before the training units led to develop explosive strength of legs and speed strength of legs as a result of high intensity with a few frequencies.
2- Supplemental training with weighs before the training units played a positive role in developing passing skill for footballers.
3- The method of choosing training types, privacy of supplemental training and its types, numbers and distribution are equal in the training program and have a clear effect on developing strength variables of strength which, in turn were reflected in the passing skill in football through significant differences between control and empirical groups resulted from results of the T test.
4- Building, organizing and conducting supplemental training before training units had a psychological effect on the sample and contributed to the effectiveness of players' effectiveness and desire.
5- The use of devices and tools contributed to improve results.

5. RECOMMENDATIONS:

1- The use of supplemental training with weighs before training units in improving muscular strength that raises skill performance level and its requirements.

2- Designing training programs using supplemental training with weighs before training units for various body parts to be consistent with type of skill and identify the effect on this skill.

3- When we use supplemental training with weighs, we should choose high intensity and few frequencies with complete rest among frequencies.

4- Conducting similar studies to determine the extent of effect of supplemental training with weighs before training units on the level of some variables that were not covered by the study.

6. REFERENCES:

- Abdelfattah, A. M. (1997): "Sport Physiology & Measurement and Assessment methods", Dar Al Fikr Al Araby, Cairo.
- Al Besaty, A. M. (1998): "Rules and Applications of Sport Training Principles", Dar Al Maaref, Alexandria.
- Alleen, D. V. (1984): "Research Methods in Education & Psychology", translated by Mohamed Nabil Noufal et al, the Anglo-Egyptian library, Cairo – Egypt.
- El Mandalawy, Q. H. et al (1990): "Training Principles of Athletics Effectiveness", Higher Education Press, Baghdad.
- Hussein, H. Q. & Kamash, Y. L. (2013): "Ways and Methods of Improving Muscular Strength in Sports", 1st Wd, Dar Zahran for Publication & Distribution, Amman – Jordan.
- El Wahsh, M. A. S. & Ibrahim, M. (1994): "Basics o Football", 1st Ed. Dar Alam Al Maarefa, Cairo.
- Al Mashhadany, M. Y. T. (2000): "The Effect of using Plyometric Training on the Non-Aerobic Ability and some Variables of Muscular Contraction Mechanism", Master Thesis, unpublished, Faculty of Physical Education, Al Mawsel University, Iraq.
- Al Beshtawy, M. H. & Al Khawaga, A. I. (2005): "Principles of Sort Training", 1st Ed. Dar Wael for Publication & Distribution, Amman – Jordan.
- Mahmoud, A. M. (2009): "Tests & Tactics in Football", 2nd Ed. Dar Degla for Publication & Distribution, Amman.
- Kamash, Y. L. (1999): "Basic Football Skills: Learning & Training", Dar Al Khaleej – Amman, Jordan.
- Syd Hoare; The A.Z. of judo(1994): published By upon BOOK .Ltd. 447 High Road ,London, N/2 oaf ,England.
- Wilmore ; j .H.(1978) : Athletic Training and physical Fitness , Boston ,s.