Dual Guided Training Program (free and with weight) in light of kinematic features of counter attack for falling on one leg and its impact on achievement level for Wrestling players

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Introduction and research problem

The rapid development, which has swept all sports activities in terms of skill components, has played a role in making the workers in training field follow-up on everything that happen in the courts, whereas the competitions have shown the significance of studying skill components with a more detailed approach than before, in order to identify its accurate features and establish research methods for the purpose of reaching performance perfection. (28)

Sports competitions are an important and necessary factor for every sport activity, as the process of sports training is acquired by its connection to preparing the individual to achieve the best level of sports competition, and in this concept, sports competition is only a test of the results of the training processes. (25:24)

Ahmed Abdel Hamid Omara (2008) reported that wrestling sport has achieved great achievements in recent years, whether at the global or Olympic level. In order to preserve these achievements, we must pay attention to skillful performance and try to upgrade the players to reach the highest levels of skill and planning. This will only come by matches' analysis to find out the strengths, weaknesses and most used skills as well as scoring technical points so that we can develop the level of performance of the players and master the most winning skills and the technical points to win the game. (6)

The World Tournaments for adults and Olympic is the most important event in wrestling for this reason, the analysis of these tournaments possesses great interest to all wrestlers and trainers,

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statistical analysis of the final games is of great importance for the current situation, and based on the analysis of periods of fighting during the matches we can predict the future global wrestling. This analysis also helps trainers prepare programs for the next competitive periods, which are based on what the latest modern wrestling has reached. (23:53)

Tournaments analysis contributes in supplying trainers with sufficient information about the most effective skills, accomplishing achievement, also the most used, and achieving points, which contributes in designing and preparing training programs in accordance with the type of used and effective skill, which had the upper hand in achieving victory.

This requires primarily the knowledge of those involved in the process of education and training of sports skills with the rules of kinetic analysis based on the basic principles of motion science, anatomy, biomechanics and other science related to the movement and technical information about any skill. This means understanding how to perform in light of a set of information that helps Determine the motor procedures required to perform this performance with the highest possible efficiency and minimum effort. (8: 197)

The International Biomechanics Association (I S B S) adds at its 26th Conference (2008) that the use of biomechanical analysis improves performance and corrects errors, minimizes injury and protects therefrom, in addition to designing and developing sports equipment and establishes a specific methodology for measurement and analysis. (37)

Paul and Duane (1999) emphasize that the use of biomechanical analysis is the scientific way to develop training and performance programs and to study the mechanical dimension of performance which is of utmost importance to all those interested in sport, as it works to improve and enhance performance and correct errors, as well as the development of modern technical performance methods and developing

training programs for the player. (27)

McCau caw (2000) Gerdhukmuth (1999) and Adel Abdul Basir (1998) agree that the first thing that required by effective training is the player and trainer's knowledge of the appropriate motion course, whereas the motion definition shall not be limited to merely imagining it. However, that shall be made through the devices of measuring motions, so a comparison can be made, in order to conclude the best course for motion. Whereas the understanding of motion and its causes was deemed a necessary matter for the trainer, as the Biomechanical analysis constitutes a basic aspect in scientific diagnostic for description of technical performance for motion skills through the application of mechanical laws and basis that govern human performance. The application of these basis properly makes the training effective in all aspects. Therefore, the trainer shall analyze and study the player motion in a biomechanical aspect, whereas that provides an environment valid for performance development through building a strategy for training through the use of analysis in diagnosing the skillful performance requirements and its distinguished features. (22) (15:23) (4:11)

Aweys al-Jabali (2000) points out that the use of analytical methods can be used to reach precisions and details of movement, to recognize the form of performance and to perfect its details in order to achieve effort saving. (10: 65)

According to **Talha Hossam El-Din (1994),** the determination of mechanical principles and principles related to skilled performance is the first step in the detection of the causes of performance errors. The principles and the mechanical bases may differ in terms of quantity or quality according to the different types of skilled performance and according to the laws governing motion within the limits and legal conditions to meet the requirements of the activity. (30: 6)

Belal Morsi Witwit (2015) mentions that the training, which are similar in their compositions in terms of

motor performance compositions with what is performed in the game deemed are a direct mean for main preparation of sports level to develop the training condition for the player throughout the training year, so the player motion would be suitable for the type of sport activity, in which he specializes in terms of motor computability and sequence of motor course and its direction. (11)

Hosny Sayed Ahmed Hussein (1992) points out that in order to develop the technical performance, attention must be given to training in which the muscular work is related to the requirements of the mechanical variables in terms of direction and motor range. The best method of training is the use of prevailing contractions in competition training for the same type of muscular work Thus allowing morphological adjustment and the need for qualitative training in the performance of many skills. [18]

Hisham Subhi Hassan (1993) emphasizes the importance of the use of trainings performed in a manner compatible with the nature of the performance of motor skill using muscle groups working in the same skill and in the same motor course, which has the best effect in improving physical qualities and thus improve the performance of the skills, where training requires specific physical features achieved through qualitative training and similar to nature of performance. (17)

Talha Hussain Hossam El-Din (1995) finds that one of the best ways to improve the skillful performance during the training process is through training in a manner that is very similar to the skill form itself and the more specific the training was, the higher the training return during the training process (31:48)

Mohammad Shehata (2003) emphasizes that in order to develop the proper skill performance of motor skills, training should be used with a pattern similar to the basic technical performance of the skill, and among the conditions of these trainings is to contain the composition of the basic part (25:24)

Essam Abdul-Khaleq (2003) emphasizes that trainings similar in performance with basic skills are the primary means of physical preparation and give the player the same sense required to be executed in motor skill (14: 87)

Abdul-Aziz Al-Nemer and Nariman Al-Khatib (1996) agrees that the performance greatly improves, if the training was specific to the practiced type of activity and included by the most important working muscles in this activity and develop them with the same method of use in the competition. (1:188)

Belal Morsi Witwit (2015) mention that to improve performance and increase efficiency, training must be designed according to the motion model used in the competition in terms of body posture, movement and contractions prevailing for the working muscle groups. (11)

Wrestling sport is one of the fighting sports, in which the wrestler solely endues the competitive situation, whereas he competes with his competitor within limited area and he is the one, who choses between the attacking skills models and competitive plans, which he has mastered during training in line with the situation happening on the ground. That also depends on the element of time from starting the attack, until being in defense position, then choosing the suitable attack to carry out the counter attack thereto.

Through the researcher practice of wrestling, eh found out that the most conflict in pro wrestling is through falling on one leg or two legs at the same time, and that was confirmed by **Wasssal Abdul Wahed Kortam (2014)(34)**, as he analyzed London Olympics (2012) and reached through the analysis that the most effective skills and achieving points from high fighting position is the skill of falling on one leg or both legs together. This skill is usually defended by using negative defense by destining the leg behind and if the leg was held by the attacker, usually the other player loose. That what has drawn the researcher attention to benefit from falling on one leg through counter attack against falling on one leg, from which the

player acquires one point on technical points, which has drawn the researcher attention to obtain the maximum benefit possible from this position. In this regard the researcher has viewed the previous Arabic and foreign references and studies in order to reach a counter attack for the skill of falling on one leg and he reached to the skill of raising the hip angle or back throw with the leg hock from the inside in a study made by **Al Sayed Mohammady Kandel (2014)(9)**, whereas he has analyzed London Olympics (2012) and reached through the analysis that the skill of raising the hip angle or back throw with the leg hock from the inside is the most used skill achieving victory as a counter attack against falling on one leg, from which the defensive player has taken advantage in scoring points on the attacking player, which almost neglect training therein and the players do not perform in a proper technical manner, which allows the payer to acquire full points due thereto. Whereas that returns to failure in used training methods and approaches, which does not pay attention to working muscles in skilled performance, also the proper model technical motion course for the scientific skill, which the scientific studies have addressed in a study carried out by **Tamer Emad El Din Said (2014)(33)** for the purpose of analyzing the kinematic variations for the performance of raising the hip angle skill and that what made the research call for designing a dual and overlapping program through practices guided with weights for working muscles in guided skill and practices on the ground in light of kinematic analysis.

***Research Objective:**

Design of two training programs using guided exercises (weights - free) in the light of the kinetic analysis of the skill (raising the angle of the hip) in order to identify:

Identifying the extent of impact of the two programs on the physical variations subject of the research for trial group individuals.

Identifying the impact of the two programs on the achievement level for trial group individuals.

***Research Assumptions:**

There were statistically significant differences between the prior and post measurement of both the trial group and the control group in the physical variables in question and the level of achievement in the direction of post-measurement.

There were statistically significant differences between the two dimensions of the trial and control groups in the physical variables in question and the level of achievement in favor of the trial group.

***Research Term:**

Guided trainings:

They are sport movements similar on its composition with the motion performance in the competition in terms of strength, speed, and motion course and also in the direction of muscle work. (11)

Kinematic Analysis:

It is a descriptive and sport analysis for motion types and not notion causes. (32:129).

Skill of raising the hip angle:

It is a technical skill can be used from the two fighting positions from up and down as a counter attack for the skill of falling on one leg though containing the attacker's head and arm with one of the arms and placing the other arm under the attacker's armpit and try and flip backwards through raising with the leg held between the attacker leg. **(procedural definition)**

***Research Procedures:**

Method:

The researcher used the experimental method because of its relevance to the nature of the research, using experimental design with prior and post-measurement on two groups (trial and control).

Research sample:

The research sample was chosen by the intentional way of the players of the Menoufia pro wrestling team (the fourth stage) in the 2017/2018 season and registered with the Egyptian Wrestling Federation. The research community reached 25 wrestlers. Seven wrestlers were selected for conducting the exploratory studies on them. Thereby, the basic study was applied on (18) wrestlers and were divided in to two equal groups, one trial and other controlling with the number of (9) wrestlers for each group. Table (1) shows the harmony of research sample in (physical growth – achievement level) variations.

Table (1)
The harmony of research sample in (physical growth – achievement level) variations (N=25)

Variables			unit	Mean	Median	St.Div	Skewness
Age			Year	22.56	3.583	21	0.268
Length			CM	174.88	4.648	176	0.577
Weight			Kilogram	80.84	7.951	80	0.438
Training age			Year	11.4	2.813	10	0.334
Strength distinguished with speed		dummy	Second	6.184	0.437	6.21	0.043
		Weights	Kilograms	11.415	0.182	11.42	0.224
Maximum motor strength			Kilogram	154.8	6.034	155	0.227
Fixed maximum strength		Right fist	Pound	120.9	5.801	121	0.025
		Left fist	Pound	123.08	5.407	122	0.447
		leg muscles	Kilogram	254.12	12.732	254	0.97
		Back muscles	Kilograms	159.28	19.031	165	0.371
Agility			Second	10.318	0.639	10.3	0.168
Motor response speed			Second	1.779	0.051	1.76	0.06
Flexibility		Horizontal	CM	42.76	11.084	42	0.469
		Vertical	CM	46.56	2.693	46	0.322
Balance			Minute	1.18	0.049	1.16	0.023
Achievement level	Game points		Points	3.92	1.777	4	0.082
	Number of repeating the skill in one game		Repetition	4.56	1.193	5	0.314
	Number of repeating the skill that acquired technical points		Repetition	1.76	0.778	2	0.112

It turns out from table (1) that the sprain factor in the growth and achievement level variables was confined between (-3 and +3), which indicate the homogeneity of the members of the research sample in these variables.

Equivalence of research groups

Table (2)
Arithmetic average, standard deviation, (T) value, and its indication in (growth, physical, and skilled performance) variation for (trial / control) group N=1=N2=9

Variables			Experimental Group (n=9)		Control Group (n=9)		T
			Mean	St.Div	Mean	St.Div	
Age			22.666	3.937	22.333	3.427	0.192
Length			175.67	3.774	174.33	5.634	0.59
Weight			81	9.096	80.66	7.314	0.086
Training age			11.555	3.166	11	2.449	0.416
Strength distinguished with speed		dummy	6.081	0.358	6.224	0.517	0.683
		Weights	11.418	0.177	11.393	0.229	0.265
Maximum motor strength			155.56	5.833	154.44	6.821	0.371
Fixed maximum strength		Right fist	123.11	6.233	119.44	5.502	1.323
		Left fist	123	6.224	123.22	5.607	0.08
		leg muscles	252.56	13.73	259.78	13.348	1.131
		Back muscles	159.44	13.191	162.56	24.254	0.338
Agility			10.178	0.544	10.506	0.74	1.07
Motor response speed			1.792	0.056	1.773	0.051	0.741
Flexibility	Horizontal		40.444	16.606	46.777	7.224	1.049
	Vertical		47	1.658	45.777	3.7	0.904
Balance			1.191	0.055	1.168	0.048	0.905
Achievement level	Game points		3.333	1.414	4.222	2.333	0.977
	Number of repeating the skill in one game		4.111	1.364	5	1	1.577
	Number of repeating the skill that acquired technical points		1.555	0.726	1.888	0.927	0.849

Table (T) vale at level (0.05) = (2.120)

It turns out of table (2) the presence of differences with non-statistical indication between (trial / control) group in the variations subject of research, which indicates equality between the two groups on these variations, whereas (T) value is calculated less than (T) table value.

Tools and devices used in collecting data.

Benchmarking scan:

The researcher has conducted scan for the studies and scientific references, which

have discussed the tournaments and games within the limits of what was available to the researcher, in order to identify the most used and effective wrestling skill and the study of **Wassal Abdul-Wahed Kortam (2014) (34)** was reached, whereas he reached the skills of (falling on one leg). Also the studies, which have discussed the game analysis were searched, in order to reach the counter attack for this most used and effective skill, then the study of **Alsaid Mohammady Kandeel (2014) (9)** was reached, whereas he reached the skill of (raising the hip angle), also the study of **Tamer Emad El Din Said (2014) (33)** was reached, which has discussed the motor analysis for the skill subject of study (raising the hip angle) **annex (8)**, also a scan was made for the references, which have dealt with training with weights and training in light of Kinetic features within the limits of what was available to the researcher and that for the purpose of identifying the methods, approaches, and physical content for the used training programs, as well as taking advantage therefrom in how to establish the program, form the loads, and take advantage from its results in discussing the current study results.

Questionnaire form– Annex (2) The researcher designed a questionnaire to survey the opinions of the experts **(Annex 1)** in the field of study variables through communication and interviews to express opinion in the exercises and determine the most effective fitness elements in the skill in question and determine the appropriate tests to measure them and the variables of the programs and that in the period from **9/7/2017 to 3/8/2017** and the addendum and deletion were taken into account, in line with the opinion of experts.

Tests used in the research – Annex (4) Strength distinct with speed (the time of 3 back throws to the person through standing in bending mode and holding the person from above – time of 8 back lifts through standing in bending position and holding the bellow from above with weights device from below).

Maximum motor force (through standing in bending

position and holding the bellow from above with weights lift devices from below and trying to lift the maximum weight).

Maximum fixed strength (right and left fist strength by using manometer – strength of back and legs muscles by using Dynamometer).

Fitness (time for performing bridge skill and side riddance 6 times).

Speed of motor response (the time of performing raising the hips angle skill or leg hock with the colleague one time).

Flexibility (horizontal-vertical).

Balance (through conditional trial game, in which fighting is made through emphasizing to both competitive players that the attack is always through falling on one leg and emphasizing to the individual of trial and control group that the counter attack shall be through raising the hip angle only and the due points shall be recorded at the end of the game, in addition to the number of counter attack skills with the skill of raising the hip during the game and number of counter attacks performed with the skill of raising the hip, which led to scoring technical points).

Devices used in the research:

Electronic balance for measuring the weight of the nearest kilogram - Resistameter measuring the lengths of the nearest centimeter - Measuring tape for measurement of distances- Stopwatch for measurement of time in seconds and for the nearest 0.01 of a second- Wrestling mat- Multi-weight wrestling and lengths Motor speed measuring device [Movie Maker for measuring time, Computer, video camera) Manometer for measuring the strength of the fist- Dynamometer for the strength of the muscles of the back and legs- Weight training room containing (weight training devices - multi-length weight shafts, shapes and weights - multi-weight dumbbells – weights lifting device form below consists of (Cable Crossover) titrated device and cylindrical pillow.

Form of registering the data. Annex (3)

***Training program – Annex (5, 6, and 7).**

Planning the training program:

The general training program consists of two interrelated subprograms:

Program (1) exercises directed towards the motion course of the skill subject of search resulting from kinetic analysis. **Annex (6).**

Program (2) muscle strength exercises directed by the researcher "weight

training" of the muscles working to raise the hip angle. **Annex (7)**

The two training programs were prepared using the following steps:

The researcher conducted a reference scan of Arabic and foreign books within the limits of the researcher's knowledge.

A scan of researches and studies related to research variables was conducted in the field of wrestling training as well as weight training.

Interview and contact with experts in wrestling.

The main objective of the program:

The program aims at:

Developing the performance of counter attack for the skill of falling on one leg through the skill of raising the hip angle.

Raising the achievement level for wrestlers.

Foundations of program development:

Building the program according to the scientific basis.

The program shall be in consistent with the established objectives.

The program and its contents' suitability to the trainings for the age groups of the chosen sample.

The program flexibility and its adaptability.

Benefit from previous studies that have designed similar and related training programs.

Continuity and regularity in the practice of the training program in order to achieve the desired benefit.

Taking into consideration the principles and basics of training when developing the training program for training units such as (warm-up - main part-closing).

Taking into account individual differences in program development.

Taking into account the basis of weights trainings and among thereof: proper warm-up before starting the weights trainings, then proper stretching and flexibility exercises, after the end of weights trainings - use of the correct method of breathing - Determination of the weight used by the required intensity through the test of the maximum weight can be lifted once. (35) (36)

Determinants of the two training programs

Period of implementation of the program

The two training programs will be implemented

in an overlapping manner in the **special preparation period and before the competitions**. The period of applying the two programs was specified with **(8 weeks)** with the amount of **(6 training units)** per week, whereas the training in program (1) shall vie carried out with weights inside the gym with the trainings established by the researcher on working muscles and motor courses, then training unit in program (2) with training on wrestling mat with the trainings established in light of biomechanical analysis interchangeably as follows:

Table (3)

Distributing the weekly training for trial and control group

Day	Trial group	Control group
Saturday	Proposed training program (1) on the mat with the trainings established in light of biomechanical analysis from (6:8) PM	Traditional training program in the mat (8:10) PM
Sunday	Proposed training program (2) inside gym with the trainings established for working muscles and motion tracks inside the gym from (6:8) PM	Traditional training program inside the gym from (8:10) PM
Monday	Proposed training program (1) on the mat with the trainings established in light of biomechanical analysis from (8:10) PM	Traditional training program in the mat (6:8) PM
Tuesday	Proposed training program (2) inside gym with the trainings established for working muscles and motion tracks inside the gym from (8:10) PM	Traditional training program inside the gym from (6:8) PM
Wednesday	Proposed training program (1) on the mat with the trainings established in light of biomechanical analysis from (6:8) PM	Traditional training program in the mat (8:10) PM
Thursday	Proposed training program (2) inside gym with the trainings established for working muscles and motion tracks inside the gym from (6:8) PM	Traditional training program inside the gym from (8:10) PM
Friday	Weekend	

That until the end of the proposed training program.

The proposed training program was divided into three stages as follows:

Foundation stage (3) weeks.

Preparation stage (3) weeks.

Pre-competition stage (2) weeks.

Number of the general program's units (48 unit).

Units number of program (1) trainings directed in light of Kinetic analysis on the mat (24 unit).

Units number of program (2) training with weights for working muscles and motion courses (24 units).

Time of the training unit with weights is 120 minutes.

Time of training unit on wrestling mat 120 minutes.

The program overall time has taken (5760 minutes), which is (96) hours.

Used training methods:

(Periodic low intensity training, periodic high intensity training, repetitive training).

Forming the training load – Annex (5)

The researcher used the method of waveform in the formation of load during the periods of the program where the researcher used:

Formation (1-3), (1-2), (1-1)

Determination of intensity of training loads:

Determining the intensity of training loads used in the program, whereas its maximum intensity has reached (95 – 100%), and the lowest intensity of the maximum reached (85 – 94%), high intensity (75 – 84%), medium intensity (65 – 74%), and law intensity (50 – 64%).

Reducing the intensity of training loads:

First: reducing the intensity of loads inside program (1) training directed on the mat in light of kinetic analysis – Annex (6).

The intensity of training load inside the training programs directed by using pulse rate was reduced by the application of the following equation: pulse targeted for training THR. (3:235)

= rest pulse + (training percentages × (maximum pulse – rest pulse)) whereas:

Sample average age = 23 years.

Rest pulse average for the sample = 64 P/M.

Maximum pulse of the sample = 220 – age = 220 -23 = 197 pulse per second

pulse reserve for the sample = maximum pulse rate – pulse rate in rest = 197 – 64 = 133 P/M.

Reducing training loads by using pulse rate:

(Maximum load)	Its percentage 95:100%	His pulse rate from 190:197 P/M
(Minimum load) from maximum	Its percentage 95:94%	His pulse rate from 177:189 P/M
(High load)	Its percentage 75:84%	His pulse rate from 164:176 P/M
(Medium load)	Its percentage 64:74%	His pulse rate from 150:163 P/M

Table (4)

Basis of load formation based on performance time according to Energy Production Systems

Energy System	Exercise period	Exercise reps	No. of Sets	No. of exercise reps in set	exercise : rest	Rest type
ATP - PC	10 sec 15 sec 20 sec 25 sec	50 45 40 32	5 5 4 4	10 9 10 8	1 : 3	active rest (walking and stretches)
ATP - PC , LA	30 sec 40-50 sec 60-70 sec 80 sec	25 20 15 10	5 4 3 2	5 5 5 5	1 : 3	light to moderate exercises and Jogging
LA , O_2	1.3-2 min 2.1-2.4 min 2.5-3 min	8 6 4	2 1 1	4 6 4	1 : 2 1 : 1	light to moderate exercises

Second: reducing the intensity of training load inside program (2) training with weights for working muscles and motor courses – annex (7).

The intensity of training loads inside the training program with weights was reduced through testing the maximum weight that can be lifted for once for each working muscle in accordance with the form of chosen exercises chosen (1 RM) in repetition maximum (2:193)

Table (5)
Determination of repetitions according to one repetition maximum

Load Degree	Intensity	Repetition	Sets	Rest between sets
Maximum	100٪	1	1	1.5 : 3 min
	95٪	2	1-3	
Lower than Maximum	93٪	3	1-3	3 : 4 min
	90٪	4	1-3	
	87٪	5	3-4	
	85٪	6	3-4	
High	83٪	7	3-4	3 : 5 min
	80٪	8	3-4	
	77٪	9	3-5	
	75٪	10	3-5	
Moderate	67٪	12	3-5	1.5 : 3 min
	65٪	15	3-5	
Low	60٪	18	3-4	1 : 4 min
	55٪	20	3-4	
	50٪	52	3-4	

(7:121)

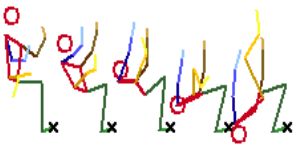
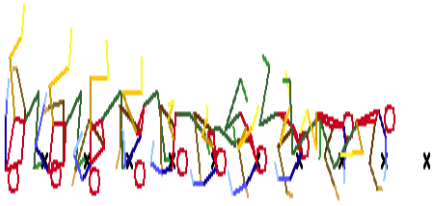
Exercises used in the program. Annex (6, 7)

First: - Exercises used in the program within the program (1) exercises on the mat. Annex (6)

The study of **Tamer Imad El-Said (2014) (33)** was relied upon, which has analyzed the Kinetic variations for performance of raising the hip skill for an international player and that to identify the technical stages, which express the skill and reaching the biomechanical features expressing each of the skill stages.

Annex (8).

Table (6)
The distinct Kinetic features in each stage of skill of raising the hip annex (8)

Technical stages			Kinetic features of the stage	Motion sequence for the stage individually
	Pics	Target		
Preparatory	(١ - ٧)	Stage of grabbing the player leg and control	Performance time has reached (0.6) second with 0.60%. Performance time has reached (0.3) second with 0.13%. Performance time has reached (0.5) second with 0.21%. Performance time has reached (0.5) second with 0.42%. Vertical distance for the body weight center, which the play makes during performing sarma skill has reached (0.87) meter, while the horizontal distance was (0.78) meter. The course starts from standing position and pass the clear decline, until the game ends with submission. The space in which the player's center of gravity moves to end the movement is just over a meter He must maintain the stability of the position of the body in place so as not to depart from the balance base	
Basic	(٧ - ١٠)	The stage of the player's changing anchorage		
	(١٠ - ١٥)	Curvature stage and carry and threw the opponent player		
Closure	(١٦ - ٢٥)	Stage of rotation and control and putting the player into submission		

			which the opponent tries to increase or decrease to try to break. The movement space obtained to the right and left leg has reached (2.26) and (1.69) meter on the row during the skill performance. The least value for (left / right) knee angle has reached (39.18) and (54.97) degree, while the biggest value has reached (161.77) and (154.75) degree on the row. As for the (right / left) thy, the least value was (86.35) and (75.48) degree, while the biggest value was (155.63) and (176.56) degree on the row.	

Second: exercises used in the program inside program (2) exercises directed with weights inside the gym with weights. Annex (7)

They are exercises similar in their compositions in terms of motor performance composition with those, performed in the game in terms of motor computability and sequence of motor performance sequence and its direction and the muscle work therein converge with the requirements of mechanical variation in terms of direction, motor range, and use of prevailing contractions for working muscle groups for the same muscle work and agree with the performance nature if the motor skill in terms of body position and motor range. Whereas it has been presented to Messrs. Experts.

Survey Studies

The researcher selected a random sample of the research community consisting of (7) players from outside the basic research sample, and the tests were conducted on them with the help of assistants, from 12/8/2017: 29/8/2017.

Objective of this Study

Ensure the proper implementation and application of measurements, tests, the validity of devices and tools and what is related to the procedures in accordance with the conditions laid down and the extent of place suitability.

Determine the time required for the measurement process and the time taken by each player for each test when measuring.

Identify the errors that can occur during the implementation of tests, measurements, the order of their progress, and their relevance to the age stage.

Measuring of the maximum weight can be lifted once by the members of the research sample for each of the exercises used in the program from 24/8/2017: 29/8/2017. (Annex 9)

Explaining how to perform the exercises used in practice and how to breathe properly during performance as well as how to read and implement the content of the exercises card used, which is distributed on each player during the exercises unit – (Annex 10), and how to move between exercises.

The suitability of tests for the research sample was confirmed as well as the tools and places of carrying out the measurements, in addition to confirming the assistant awareness with how to carry out the tests to avoid measurement errors.

Scientific transactions of the used tests:

Test Credibility:

The researcher has calculated to distinction credibility between two groups, one of them indistinct from outside the original research group and the other distinct (survey) from 12:14/8/2017 and the number of each group has reached (7) wrestlers.

Table (7)
Difference indication between the two groups (distinct and indistinct) in variations subject of research
N1=N2= (7)

Variables			Distinctive group (n=7)		In distinctive group (n=7)		T
			Mean	St.Div	Mean	St.Div	
Strength distinguished with speed		dummy	6.265	0.458	7.258	0.571	3.585*
		Weights	11.44	0.141	12.047	0.399	3.788*
Maximum motor strength			154.29	6.074	145.71	5.345	2.803*
Fixed maximum strength		Right fist	120	5.567	114	2.449	2.61*
		Left fist	123	4.83	112.29	2.69	5.127*
		leg muscles	248.86	8.687	234.2	4.498	3.941*
		Back muscles	154.86	19.836	125.71	5.345	3.753*
Agility			10.255	0.648	11.112	0.663	2.445*
Motor response speed			1.771	0.05	2.235	0.106	10.428*
Flexibility		Horizontal	40.571	4.035	48.285	1.799	4.619*
		Vertical	47	2.38	43	2.16	3.292*
Balance			1.182	0.045	0.854	0.038	14.585*
Achievement level	Game points		4.285	1.38	2	0	4.382*
	Number of repeating the skill in one game		4.571	1.133	3	0.577	3.267*
	Number of repeating the skill that acquired technical points		1.857	0.69	1	0	3.286*

(T) table value (2.179) upon moral level (0.05)

It turns out from table (7) the presence of statistical difference for the favor of distinct group, which indicates the tests credibility.

Tests stability

The researcher has calculated the stability of tests by using retests on survey sample, which consists of (7) wrestlers and that on the days of 21 and 22/8/2017, after an interval time period amounts to a week between the two applications.

Table (8)
Arithmetic average, standard deviation, and correlation coefficient between the first and application and second application for the variations subject of research for the survey sample N = (7)

Variables			1st application		2nd application		R
			Mean	St.Div	Mean	St.Div	
Strength distinguished with speed		dummy	6.265	0.458	6.244	0.467	0.983
		Weights	11.44	0.141	11.47	0.142	0.999
Maximum motor strength			154.29	6.074	155.71	6.725	0.932
Fixed maximum strength		Right fist	120	5.567	120.43	5.318	0.996
		Left fist	123	4.83	123.71	4.785	0.988
		leg muscles	248.86	8.687	249.86	7.776	0.994
		Back muscles	154.86	19.836	155.71	19.422	0.998
Agility			10.255	0.648	10.234	0.627	0.999
Motor response speed			1.771	0.05	1.774	0.05	0.995
Flexibility		Horizontal	40.571	4.035	40.285	3.638	0.997
		Vertical	47	2.38	47.285	1.976	0.992
Balance			1.182	0.045	1.192	0.05	0.955
Achievement level	Game points		4.285	1.38	4.571	1.511	0.867
	Number of repeating the skill in one game		4.571	1.133	4.428	0.975	0.947
	Number of repeating the skill that acquired technical points		1.857	0.69	2	0.816	0.887

"R" table value (0.754) upon moral level of (0.05)

It turns out from table (8) that the calculated (R) value is bigger than (R) table value, which indicates the stability of tests subject of research.

Basic study

Measuring the maximum weight that can be lifted for once for the sample members for each of the exercises used in the program and that from the day of 24/8/2017: 29/8/2017. **Annex (9)**

Prior measures: the period measures for the research sample members was carried out from the day of 31/8/2017 to 1/9/2017.

Program implementation: the proposed program will be

implemented in the period from 2/9/2017 to 26/10/2017.

Post-measures: the post-measures were carried out on the date of 27 and 28/10/2017 with the same terms and specifications of prior measures and in the same place.

Statistical treatments:

The researcher has utilized - in treating the data of this study– the following statistical processes:

Arithmetic average — Standard deviation — Mediator — Sprain factor

correlation coefficient — Coefficient of ETA² — Test differences significance (T) — Improvement percentage

Results presentation and discussion

First: Results Presentation

Table (9)

Difference significance between (prior / post) measurement for the trial group in physical variation and achievement level N = (9)

Variables		Premeasure		Post-measure		T
		Mean	St.Div	Mean	St.Div	
Strength distinguished with speed	dummy	6.081	0.358	5.144	0.519	11.551*
	Weights	11.418	0.177	10.411	0.226	10.568*
Maximum motor strength		155.56	5.833	185	7.071	29.399*
Fixed maximum strength	Right fist	123.11	6.233	138.22	6.2	43.007*
	Left fist	123	6.224	137	5.59	48.497*
	leg muscles	252.56	13.73	284.44	13.096	15.757*
	Back muscles	159.44	13.191	188.89	13.411	44.014*
Agility		10.178	0.544	8.914	0.711	15.355*
Motor response speed		1.792	0.056	1.297	0.038	20.765*
Flexibility	Horizontal	40.444	16.606	27.777	12.316	7.881*
	Vertical	47	1.658	51.444	1.509	18.353*
Balance		1.191	0.055	1.938	0.023	44.917*
Achievement level	Game points	3.333	1.414	11.777	1.201	10.539*
	Number of repeating the skill in one game	4.111	1.364	9.222	1.563	12.08*
	Number of repeating the skill that acquired technical points	1.555	0.726	4.666	0.5	11.939*

(T) table value (1.86) at moral level of (0.05)

It turns out from table (9) the presence of statistical difference between the prior and post measurement for the trial group for the favor of post-measurement in physical variations and achievement level, whereas the (T) test value is calculated higher than (T) table value for all variations

Table (10)

Difference significance between (prior / post) measurement for the control group in physical variation and achievement level N = (9)

Variables		Premeasure		Post-measure		T
		Mean	St.Div	Mean	St.Div	
Strength distinguished with speed	dummy	6.224	0.517	5.685	0.478	10.228*
	Weights	11.393	0.229	0.033	11.032	5.042*
Maximum motor strength		154.44	6.821	165.56	6.346	15.119*
Fixed maximum strength	Right fist	119.44	5.502	124	4.949	4.212*
	Left fist	123.22	5.607	128.44	5.811	23.5*
	leg muscles	259.78	13.348	273.33	11.18	11.977*
	Back muscles	162.56	24.254	172.78	23.731	15.955*
Agility		10.506	0.74	10.226	0.871	3.26*
Motor response speed		1.773	0.051	1.533	0.707	27.213*
Flexibility	Horizontal	46.777	7.224	42.666	6.819	13.291*
	Vertical	45.777	3.7	47.444	3.468	10*
Balance		1.168	0.048	1.381	0.355	19.245*
Achievement level	Game points	4.222	2.333	7.777	2.108	12.095*
	Number of repeating the skill in one game	5	1	6.888	1.166	9.43*
	Number of repeating the skill that acquired technical points	1.888	0.927	3.888	1.054	12*

(T) table value (1.86) at moral level of (0.05)

It turns out from table (10) the presence of statistical difference between the prior and post measurement for the control group for the favor of post-measurement in physical variations and skilled performance level, whereas the (T) test value is calculated higher than (T) table value for all variations.

Table (11)
Difference significance between the two dimensions for both trial and control groups in physical variations and achievement level
N1= N2 = (9)

Variables			Experimental		Control		T
			Mean	St.Div	Mean	St.Div	
Strength distinguished with speed		dummy	5.144	0.519	5.685	0.478	2.296*
		Weights	10.411	0.226	0.033	11.032	8.155*
Maximum motor strength			185	7.071	165.56	6.346	6.139*
Fixed maximum strength		Right fist	138.22	6.2	124	4.949	5.378*
		Left fist	137	5.59	128.44	5.811	3.183*
		leg muscles	284.44	13.096	273.33	11.18	1.936*
		Back muscles	188.89	13.411	172.78	23.731	1.773*
Agility			8.914	0.711	10.226	0.871	3.499*
Motor response speed			1.297	0.038	1.533	0.707	8.786*
Flexibility		Horizontal	27.777	12.316	42.666	6.819	3.173*
		Vertical	51.444	1.509	47.444	3.468	3.173*
Balance			1.938	0.023	1.381	0.355	39.2*
Achievement level	Game points		11.777	1.201	7.777	2.108	4.945*
	Number of repeating the skill in one game		9.222	1.563	6.888	1.166	3.588*
	Number of repeating the skill that acquired technical points		4.666	0.5	3.888	1.054	2*

(T) Table value (1.746) at moral level of (0.05)

It turns out from table (11) the presence of statistical indication differences between the dimension measurement for both trial and control group for the favor of trial group in in physical variations and skilled performance level, whereas the (T) test value is calculated higher than (T) table value.

Table (12)
The program effect value "ETA 2" and improvement percentage between (prior / post) measurement for trial group in physical variations and achievement level N = (9)

Variables			Premeasure		Post-measure		ETA² coefficient	percentage of improvement
			Mean	St.Div	Mean	St.Div		
Strength distinguished with speed		dummy	6.081	0.358	5.144	0.519	0.94	%15.41
		Weights	11.418	0.177	10.411	0.226	0.92	%8.82
Maximum motor strength			155.56	5.833	185	7.071	0.99	%18.93
Fixed maximum strength		Right fist	123.11	6.233	138.22	6.2	0.99	%12.27
		Left fist	123	6.224	137	5.59	0.99	%11.38
		leg muscles	252.56	13.73	284.44	13.096	0.97	%12.62
		Back muscles	159.44	13.191	188.89	13.411	0.99	%18.47
Agility			10.178	0.544	8.914	0.711	0.97	%12.42
Motor response speed			1.792	0.056	1.297	0.038	0.98	%27.62
Flexibility		Horizontal	40.444	16.606	27.777	12.316	0.89	%31.32
		Vertical	47	1.658	51.444	1.509	0.98	%9.46
Balance			1.191	0.055	1.938	0.023	0.99	%62.72
Achievement level	Game points		3.333	1.414	11.777	1.201	0.93	%253.35
	Number of repeating the skill in one game		4.111	1.364	9.222	1.563	0.95	%124.32
	Number of repeating the skill that acquired technical points		1.555	0.726	4.666	0.5	0.95	%200.06

The results of table (12) indicates that (ETA 2) value ranged between (0.8 and 0.9), which indicates the strength of the proposed program impact on physical variations and achievement level for the trial group and the improvement percentage ranged between (8.819% and 253.35%) between (prior / post) measurement for the trial group in physical variations and achievement level in the direction of post-measurement.

Estimation for ETA 2 coefficient
(From zero to less than 0.3 = weak impact) (from 0.3 to less than 0.5 = medium impact) (from 0.5 to 1 = strong impact).

Table (13)
The improvement percentage between (prior / post) measurement for control group in physical variations and achievement level
N = (9)

Variables		Premeasure		Post-measure		percentage of improvement
		Mean	St.Div	Mean	St.Div	
Strength distinguished with speed	dummy	6.224	0.517	5.685	0.478	%8.66
	Weights	11.393	0.229	0.033	11.032	%3.17
Maximum motor strength		154.44	6.821	165.56	6.346	%7.2
Fixed maximum strength	Right fist	119.44	5.502	124	4.949	%3.82
	Left fist	123.22	5.607	128.44	5.811	%4.24
	leg muscles	259.78	13.348	273.33	11.18	%5.22
	Back muscles	162.56	24.254	172.78	23.731	%.29
Agility		10.506	0.74	10.226	0.871	%2.67
Motor response speed		1.773	0.051	1.533	0.707	%13.54
Flexibility	Horizontal	46.777	7.224	42.666	6.819	%19.23
	Vertical	45.777	3.7	47.444	3.468	%3.64
Balance		1.168	0.048	1.381	0.355	%18.24
Achievement level	Game points	4.222	2.333	7.777	2.108	%84.2
	Number of repeating the skill in one game	5	1	6.888	1.166	%37.76
	Number of repeating the skill that acquired technical points	1.888	0.927	3.888	1.054	%105.9

The results of table (13) indicate that the improvement percentage has ranged between (2.665% and 105.9%) between (prior / post) measurement for control group in physical variations and achievement level in the direction of post-measurement.

Second: discussing the results:

In light of the previous presentation of the results, which the researcher has reached and in line of the research objectives and assumptions and guided by the results of previous studies, in addition to what is mentioned in the scientific references, the researcher starts to discuss these results in the following:

It turns out from table (9) the presence of differences with statistical indication between (prior / post) measurement for the trial group in the tests subject of research, whereas the (T) value calculated for strength tests distinguished with speed in indicator has ranged (11.551), strength distinguished with speed in weight (10.568), maximum motor strength (29.399), maximum fixed strength for right fist (43.007), maximum fixed strength for left fist (48.497), maximum fixed strength for leg muscles (20.765), maximum fixed strength for back muscles (44.014), fitness (153.355), speed of motor response (20.765), horizontal flexibility (7.881), vertical flexibility (18.353), balance (44.917), achievement level in (game points, number of repeating skill during the fame, number of skill repetition, which acquired points (10.539) (12.08) (11.939), which are values bigger than "T" table value, which was (1.86) at freedom degree (8), which indicates that the proposed dual training program has impacted the physical variations under the research and the achievement level, whereas **Mohamed Hassan Allawy (1994)** has mentioned that sport competitions is deemed as a significant and necessary element for every sport activity, as the process of sport training earn its meaning from its association with the individual's preparation, in order to achieve the best level possible in sport competition. In this concept the sport competition is nothing but a test for results of training processes.(24:30)

These results agree with **Ahmed Abdul-Hamid Omarah (2008) (6),** whereas the attention must be directed to skilled performance and trying to raise the players' level and make them reach the highest skill and planning level. That will only come with the analysis of games to stand on strength and weaknesses points and most used skills. As well as the scored technical points, so we would be able to develop the level of players' performance and their mastery of the most winning skills and winning technical points to win the game.

It also turns out from table (12) that the value of (ETA 2) coefficient, the strength of program impact ranged between (0.8 and 0.9) and was bigger than (0.5), which indicates that the dual training program proposed by using guided training on the mat in light of Kinetic analysis and guided weights training for working muscles, which have great impact strength and the training developed by the researcher was effective on the development and growth of physical abilities subject of research, as well as the achievement level, which the researcher has taken into account - when developing it – the scientific basis, which contains special individual and dual trainings, in which the muscular work in similar to the requirements of skilled performance and in the same muscular and motor course, which had a great impact on these variations and that is confirmed by **Belal Morsi Witwit (11)** that the trainings similar in its composition in terms of motor performance composition with those, performed in the game are deemed are a direct mean for basic preparation for sport level to develop the player's training status during the training year, so the player movement would be suitable for the type of sport activity, in which he specialized in terms of motor compatibility and progression of motor performance course and its direction.

These results are supported by improvement percentage, whereas the results of table (12) indicate improvement percentage between (prior / post) measurement for trial group in variations subject of research for the favor of post-measurement, whereas the improvement percentage in strength distinguished with speed in indicator has reached (15.408%), strength distinguished with speed in weights (8.819%), maximum motor strength (18.925%), maximum fixed strength for right fist (12.273%), maximum fixed strength for left fist (11.382%), maximum fixed strength for leg muscles (12.662%), maximum fixed strength for back muscles (18.47%), fitness (12.418%), speed of motor response

(27.622%), horizontal flexibility (31.319%), vertical flexibility (9.455%), balance (62.72%), achievement level in (game points, number of repeating skill during the fame, number of skill repetition, which acquired points (253.35٪) (124.32٪) (200.06٪), which indicates that the proposed training program has led developing the physical variations subject of research, as well as achievement level, which indicates that the physical variations subject of research, which have been developed through the proposed training program are the most effective in the achievement level for the skill of raising the hip angle and that agrees with both **Mc Caw (2000) (22), Gerdhukhmuth (1999) (15) and Adel Abdul Basir (1998) (4)** that the first thing require by effective training is the awareness of both the player and the trainer with the proper motor course, whereas the motion definition shall not be limited to merely imagining it. However, that shall be made through the devices of measuring motions, so a comparison can be made, in order to conclude the best course for motion. Whereas the understanding of motion and its causes was deemed a necessary matter for the trainer, as the Biomechanical analysis constitutes a basic aspect in scientific diagnostic for description of technical performance for motion skills through the application of mechanical laws and basis that govern human performance. The application of these basis properly makes the training effective in all aspects. Therefore, the trainer shall analyze and study the player motion in a biomechanical aspect, whereas that provides an environment valid for performance development through building a strategy for training through the use of analysis in diagnosing the skillful performance requirements and its distinguished features.(1)(9: 23)(33 :11)

These results are consistent with the study by **Al Sayed Mohamed Kandil (2014)(9), Wasssal Abdul-Wahed Kortam (2014)(34), David Eduardo López,et,al (2012)(12), and Harold Tünnemann (2011)(16).**

It turns out from table (10) the presence of statistical indication between (prior / post) measurement for the control group in tests subjects of research, whereas the (T) value was ranged, which is calculated for strength tests distinguished with speed in indicator (10.228.551), strength distinguished with speed in weight (5.042), maximum motor strength (15.119), maximum fixed strength for right fist (4.212), maximum fixed strength for left fist (23.5), maximum fixed strength for leg muscles (11.977), maximum fixed strength for back muscles (15.955), fitness (3.26), speed of motor response (27.213), horizontal flexibility (13.291), vertical flexibility (10), balance (19.245), achievement level in (game points, number of repeating skill during the fame, number of skill repetition, which acquired points) (12.095) (9.43) (12), which are values bigger than "T" table value, which was (1.86) at freedom degree (8), which indicates that traditional training program has affected the physical variations under research and skilled performance level.

These results are supported by the improvement percentage, whereas the results of table (13) indicates the improvement percentage in (prior / post) measurement for the control group in the variation subject of research for the favor of post-measurement, as the improvement percentage in strength distinguished with speed in indicator (8.66%), strength distinguished with speed in weight (3.168%), maximum motor strength (7.2%), maximum fixed strength for right fist (3.817%), maximum fixed strength for left fist (4.236%), maximum fixed strength for leg muscles (5.215%), maximum fixed strength for back muscles (6.286%), fitness (2.665%), speed of motor response (13.536%), horizontal flexibility (19.23%), vertical flexibility (3.641%), balance (18.236%), achievement level in (game points, number of repeating skill during the fame, number of skill repetition, which acquired points) (84.201٪) (37.76٪) (105.9٪), which indicates that traditional

training program has led to the growth of the physical variations under research and skilled performance level.

The researcher attributed these differences and this progress to the fact that the traditional training program has led to improvement in the variables subject of research for the control group for the regularity of players and their commitment to training and repeat skill performance, which in turn led to the improvement of the variables subject of research.

It turns out from table (11) the presence of differences with statistical indication between (trial / control) group in the post-measurement in the variables of strength distinguished with speed in indicator (2.296), strength distinguished with speed in weight (8.155), maximum motor strength (6.139), maximum fixed strength for right fist (5.378), maximum fixed strength for left fist (3.183), maximum fixed strength for leg muscles (1.936), maximum fixed strength for back muscles (1.773), fitness (3.499), speed of motor response (8.786), horizontal flexibility (3.173), vertical flexibility (3.173), balance (39.2), achievement level in (game points, number of repeating skill during the fame, number of skill repetition, which acquired points) (4.945) (3.588) (2), whereas these differences were in the favor of the trial group, whereas the calculated (T) value is bigger from (T) table value at moral level of (0.05), which are values bigger than (T) table value, which was (1.746) at (16) freedom degree, which indicates that the proposed training program has affected the physical variations subject of research and performance level as well, whereas **Belal Morsi Witwit (2015)(11)** mentioned that in order to raise performance level and increase the achievement efficiency, it is necessary to design the trainings in accordance with motor model used in the competition in terms of body position, motor extent and the prevailing contractions for the working muscle groups.

These results are supported with improvement percentage, whereas the results of tables (12) and (13)

indicates the difference between the improvement percentage, which has occurred in the level between the proposed program and traditional program.

The researcher sees that these differences and improvement percentages for the trial group returns to the proposed training program, which consists of two branches (with weights – on mat), which has been applied on the trial group in the physical variations subject of research, which contains special solo and dual trainings to develop these elements, in which the muscles' work is similar to the working muscle, requirements of skilled performance, and same motor course, which was referred in previous studies in terms of significance of games analysis and Kinetic analysis and these results agree with **Ahmed Abdel Hamid Ali Amara, Mohamed Nabawi Ashram (2006)(5), Ehab Mohamed Fawzy Al-Badawi (2004)(13) Nabil Hosni Al-Shorbagi (2004)(26) Ibrahim Ahmed Jazer (2001)(20), Ibrahim Fawzi Mustafa (1999)(21), Ibrahim Ahmed Jazer (1998)(19)**, which agree with the privacy principle in training and also taking into account the individual differences for each player, whereas **Abdul Aziz Al-Nimr and Nariman Al-Khatib (2005)(2)** indicates that the performance improves better, if the training was similar to activity type and includes the most important working muscles in this activity and to be made with the same way, with which it was used in the competition.

Conclusions:

In light of the objectives and nature of this study and within the sample of the research and the methodology used, and from the data collected by the researcher and the results of statistical analysis, the researcher reached the following conclusions:

The proposed dual training program (trainings directed by weights and training directed on the mat) has positive impact on developing the physical variations affecting the skill of raising the hip angle for the trial group.

The proposed dual training program (trainings directed by weights and training directed on the mat) has positive impact

on raising the achievement level at the trial group.

Recommendations:

Within the limits of what the study has included of procedures and what it has concluded of results, the researcher recommends the following:

Paying attention to kinetic analysis of skills to identify the motor course to facilitate and direct the training process.

Paying attention to analyzing tournaments, which contributes in supplying the trainers with sufficient information about the most effective achievable skill, also the most used and scoring points, which contributes in designing and preparing the training programs in accordance with the type of used and effective skill, which had the upper hand in achieving victory.

Paying attention to training directed in motor courses direction for the skill subject of research and different wrestling skills.

Paying attention to training with weights during the program of preparing the wrestlers, in order to raise the strength levels in accordance with scientific principles and increasing the capability on fighting efficiently during games.

Paying attention to refining trainers through holding training courses for them and introducing the trainers to modern training techniques.

The necessity of designing similar programs for different age groups.

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