



Faculty Of Physical Education For males

Theories and Applications of Team

Sports and Tennis Sports

The Biomechanics Efficiency of Facing by Turn Round Smash as the Training Basics for Volleyball Player

For Fulfillment the requirements of Master Degree

In Physical Education

A Thesis Submitted By

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Research introduction:

The Scientific improvement at the nine tenth century and the present century was observable as a normal result for the strong connection between the applied and applied and human and physical sports sciences and volley ball from the games which gains a lot of benefits from other sciences in its skills and preparation of their players.

The analysis of movement from the important sciences in which presented and still present a lot for the volley ball by identify the technical information for understanding the application as regard a group of light information's which help in the preparation of essential applied movements for this action with high efficiency and with less effort.

The scientists depends on certain movements with researchers for the applied movement for players in the field of physical activities on some modern sciences e.g. biomechanical science !or the aim of the arrival to the ideal application, in the special studies in the biomechanical science can collect the kinematics changes for movement by the photo cinema or by video and by cinematographic analysis, within the application of comparative equations and fundamentals of mechanics also the arrival of the kinetics changes by the using of special machines for the measurement of power but the activities is not a specific sports because the curve of (power - time) not constant and can not controlled by known equations for this reason we use the complicated element, during the values of curves by planed way and simple, during the repetition of the procedures.

The volley ball game it consider one of the group games generally and including the general sports activities in the system of natural sports for most of the countries civilized in sports, and this game becomes with

dynamics its result, improvement, increase the level of benefits and practice, specially during practicing the principle's of the game, while must give the hand of support for the scientific support for the scientific trainers and teachers in the field of training and teaching classes for volley ball. While the chief role of the trainer will be the follow up of the technical improvement for player and this role help the analysis application method and for the physical rules or fundamental mechanics for the control of the body movement and it consider the effective teaching.

The research problem:

By observation in the last years, there were an improvement in the skillful level in volley ball, while the skills of volley ball with defense as well as player between (defensive - specialized player -striker) and cause the important of analysis for professional play as regard this specialties. The games of volley ball was characterized by speed, power and explore the connections between skills for fighting defending as well as the great improvement of unlimited defense between expertise of volleyball as regard the new improvements, if any defenses appear will face with limitation or fighting for stopping this fighting with the importance and analysis of researches as regard the skills application in all specialties.

The fighting in the volley bail depends on the skill strike and it consider a de fighting skill and gives the game a special character and depend on most of the groups, because it consider as a fighting skill and gives the game a special character and must of the groups depends on consider as a fighting skill for gaining scores and win in the sports; and it consider as a continuations of skills from several skills and accept a success fighting and it improved in strike skill at the beginning of this game in twenties not in the way of practicing only but in it connection

with its plans and way of benefits with validity in the process of fighting not only in the ways of application but also it benefits effectively in the process of fighting and cause most of European countries to take of the two school, firstly eastern school depends on the power and high height and high, great preparation and fighting without tricks and Asian school which depends on the rapid practices and low preparation and using several methods of tricks during fighting

From observation of the researcher for the games of volley ball (local national and international) while the research was a player in his country and his observation depend on the different groups with several ways for fighting to rapid skills of Facing by Turn Round Smash, was observed that must of the player practicing this game y with right way while it is very important and it is related to that there is no technical information and of player in sufficient manner for this practice

Also confirms **Mohammed Jaber Brekaa** and the finest of diabetes (2002) performance analysis and stand on the defects or features technique used by sports can help the coach to designate or identify the type of training needs with sports and commensurate with the sport to improve performance may be the shortcomings Recipe physical or performance of the technique of the player himself.

The **Hokhmuth (1999 m)** The identification of characteristic nature-oriented (tracks power, speed, distance) for optimal performance art helps to identify the substantive and technical errors as well as general and specific problems faced in the development level of sports.

It also adds **Hochmuth (1999 m)**, the most important training requirements defined by each individual athlete and trainer of the course of motor skill should not be limited to just the skill profile imaginable,

but must be done by certain devices to provide all information about the skill.

Indicates **Adel Abdul Basir (1998)** to be the substantive study of motor skill can contribute to finding the foundations and rules and conditions appropriate for the best and most appropriate and highest possible performance skill

This was confirmed by **Talha Husam al-Din (1993)** that the information Tactical any skill means understanding how performance against a range of information that help define the procedures required for the completion of motor performance, optimum efficiency and minimum effort

And therefore can not imagine that the emerging can lead skill the way the technical optimum error-free, but on the contrary, in fact natural that novice at teaching skill performance be about a lot of mistakes, and here is the duty of the coach to know that went wrong in the performance of the player and the fastest in direct fix this error so as not to be linked to performance with a mechanism for the player of skill in the future and there is a difficulty in fixing errors so it must have a coach the ability to note the substantive glance at coach viewfinder window through which it can be found on the source of errors in performance which form the cornerstone for the success of the trainers in the process of fixing errors

The skill spike in volleyball, one of the main attacking skills used by the team during the game and the most powerful, it is ranked first among the attacking skills because of their active role in the outcomes of games, also supports the attack in volleyball on the skill of spike can be considered skill Offensive which gives the game form distinct and rely on them most of the difference high-level scoring points and then winning games, it represents the end of a series of skills performed to achieve a

successful attack has evolved skill spike since its emergence in the early twenties, not in the way of performance but rather to be linked to aspects of tactical and how employed effectively in the process of the attack. The skill of beating the overwhelming major skills working on the superiority of competing teams and lead to make the point directly, and is characterized by the path of the ball with extreme force and speed of up to 160 km / hour, not allowing

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very important and it is related to that there is no technical information and of player in sufficient manner for this practice

Importance of research:

1/3/1/1 This study is concerned with application of scientific study of the most important variables in the performance of the skill of Facing by turn round smash, which may contribute to raising the level of physical Technical performance and I have to volleyball players.

1/3/1/2 may contribute to this study to guide researchers to the scientific studies dealing with other aspects that had not exposed the current study may contribute to these studies together in maintaining the lead volleyball more and more to achieve the best results in international competitions for the future.

1/3/1/3 results that can be reached in this study may be useful in planning for a good education, athletic training to prepare for volleyball players.

Research Amis:

Identify the Mechanics effectiveness of facing by turn round smash as the basis for the training of volleyball players.

This is achieved through the following objectives:

1/4/1 - to identify the Mechanics characteristics governing the technical performance of facing by turn round smash.

1/4/2- selected (duplicates - the Distance) in the performance of one group of certain types of physical performance, which is represented in: -

1/4/2/1- identify duplicates in the performance of training capacity Example (jump in place), dynamic balance exercises (jump deep) flexibility exercises - Fitness).

1/4/2/2- determine the distance at the speed and endurance training for example (the enemy short - Running long).

1/4/2/3- identify duplicates when training on the skill facing by turn round smash

1/4/2/4- determine the percentage of strength training for legs and arms from the body weight.

Research Questions:

- * What are the characteristics biomechanics governing the technical performance of the skill of Facing By Turn Round Smash.
- * What are the frequencies and distances when performing the same group of certain types of physical performance??

Search procedures :

* Research Methodology: The research used the descriptive research as regard the aim of the study for identifying the kinetic characteristics for the direction of the skills during rapid .strong strike the title of the study.

Research sample : The sample of the study was consisted of one players from the Egyptian national group for volley ball with the random sample, a photo was done (3 photos) as a way for doing the skill and it consists of trials for each player. A number of exclusions and reaches to 3 trials it in clue one trail for each player and ^v failed trials.

Data collection methods

Note form of the strike action tactical offensive :

The researcher did a survey of references and specialized scientific research in order to identify the most important variables associated with the disposition of tactical-strike facing by turn round smash to situations that occur during the game with a level suitable for every act of the players during the performance of strikes offensive that affect the outcome of volleyball games, where the researcher has an inventory of all

play different positions during the performance of offensive strikes to determine the effectiveness of the most powerful players in the points score points.

To select more centers frequent and effective in carrying out the skill smash the front U-turn has resulted in findings that the facing by turn round smash between the center (2.3) and the beating at one center were effective performance by 92% and above, the researcher identified the place of performance and in which he will analyze the performance.

The researcher form the work of a poll of experts to determine the best skill to try to facing by turn round smash.

So that the researcher collect data and information necessary to achieve the goals Use the following means:

devices and imaging tools Imaging devices and tools:

- Video camera (2 Video Camera Sony 8m).
- Number2 tripod with balance of water.
- The video processing unit.
- Officer signs indicative.
- Tape Measure Surface.
- Sony video 8mm.
- Light source fast flash.
- System calibration orthogonal dimensions 150 cm X150 X150 cm 0 cm.
- The electrical connection.
- Stopwatch.
- Balance of digital standards for measuring the weight.
- Restameter device to measure longitude.

3/4/1/3 hardware and analysis tools Elkinmatogeravy Organs and analysis tools Cenamatograific.

-A computer to the brand (IBM).

Memory1 gigabit 80gigabit Qrsalb, PIIII2.6GB.

Uses the USB for the introduction of the film

Apostles camera brand Sony + tapes VHS HI 8mm

Processing unit or imaging camera Monitor

tools and methods of measurement and training used Tools and methods of measurement and training used

- Balance of digital standards for measuring the weight
- Restameter device to measure longitude
- Stopwatch

The survey:

The researcher conducted the first survey will be held on Saturday

1.1.2010 in order to:

- Check the validity of the capture location
- Determine the most appropriate time for imaging
- Determine where to place the camera height and camera angles
- Detect problems that may arise during a basic experiment.
- Training of assistants.
- Check the validity of the analysis program.

The baseline study:

The researcher conducted the basic experiment of photographing the sample during the training of the first team for volleyball, which was held in the indoor club Zamalek in the day (9 / 1 / 2010).

Processing site of measurement:

Where the researcher has photographed the sample Search by Regulations and precautions for the program of analysis of motor is that the camera is in the direction of the middle area of performance and at (105) cm above the ground so as to be perpendicular to the center of gravity of the player "despite the presence of Wizard deviations corners of the imaging program" .

Data collection methods:

Conclusions:-

- * different amounts of quantitative distant horizontal and vertical as well as the form of dependence (development of the feet) in the strike of Facing By Turn Round Smash
- * the time performance of all skill 1.93 thus achieving a horizontal distance 3.88 m / s.
- * the time performance of pre-trial phase (approach and upgrading) 1.07 w thus achieving a horizontal distance of 2.96 m / sec.
- * the time performance of the main phase (Aviation, rotation and beatings) 40 w thus achieving a vertical distance of the center of gravity of the body .39 M
- * the time performance of the final stage (landing) .46 w thus achieving a vertical distance of the heel of the right foot .0.46 m and the left foot .0.65 m
- * the dynamic range of the left shoulder (236.11 °) and the right shoulder (241.92 °)
- * vertical distance of the center of gravity in upgrading (0.35 m) and in the phase of flight (0.39 m) any high center of gravity of the body (0.74 m)
- * trunk inclination at the horizontal level of the front (72.43 °), tilt the trunk at the horizontal level of the left (89.90 °) that any tendency of the trunk forward and backward = (162.33 °)
- * angular change during the beatings of the shoulder (127.22 °) and angular change of the facility (169.14 °) and the change of angular wrist (167.1 °).
- * The vertical distance of the labor strike (2.98 m)
- * The turnover shoulders during the beatings (98 °) and trunk (105.5 °) and feet (97.8 °).
- * The speed of the ball multiplied 90 km / hour.
- * swallow the average strength of the two men 67.4 kg of body weight of the player.
- * The force of the arms 4.5 kilogram of body weight of player.
- * The vertical distance of the left heel 0.46 pm.
- * The vertical distance of the heel of the right foot 0.65 m.

5/1/2 play the last step of approaching an important role in the player to push the body forward and convert the distance to the horizontal displacement distance while on strike, the overwhelming front-spinning. 5 / 1 / 3 are likely to play arms during both phases of the approach and raise important and essential role in increasing distance of vertical flight performance of the player during the strike, the overwhelming skill response to spin.

5 / 1 / 4 The player to amend the conditions of his body and in the air during the phase of flight and spin, beating each of the party (upper - lower) until it reaches the closest to the situation of the moment perpendicular to the strike, the overwhelming performance of the skill of confrontation spinning.

5 / 1 / 5 hit the ball when you strike the overwhelming performance of the skill of confrontation U is the center of gravity during the descent of the body and not the highest point in the center of gravity will arrive before the end of phase of flight as fast and less time as possible.

5 / 1 / 6 the pace of the body and improve vertical distance and the angle of the object takes off on the arrangement of the main pillars that help the player to the highest distance flown during the performance of an upgrading of skill smash confrontation U

5 / 1/7 more speed parts of the body linked to rapid-speed ball striking arm (shoulder Annex wrist).

5 / 1/8 increase the outcome of the wheel of the arms are likely to get help in the process of upgrading.

5 / 1 / 9 the greater the angular changes of the arm strike whenever the strike helped speed the overwhelming response to spin.

5 / 1 / 10 can determine the size and performance of the occurrences of the following physical training and prediction in the light of the time of the player and the weights:

- Ability.
- The dynamic balance.
- Flexibility of the arms and torso.
- Fitness.
- The distance (speed).
- Carrying performance of the skill (movement type of consistency, skill beating overwhelming).
- Muscle strength of the two legs, arm strike.

Anaerobic distance	the skill	Speed	Agility	Flexibility	dynamic balance	the ability	Time
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	skill	Striking stability	aerobic	Lactic	Anaerobic		trunk	Shoulder	deep Jump	Leaping barriers	
29	11	171	1057	176	58	25	43	25	42	28	1.72
30	11	170	1051	175	58	25	42	25	41	28	1.73
30	11	169	1045	174	58	24	42	24	41	28	1.74
30	11	168	1039	173	57	24	42	24	41	28	1.75
30	11	167	1033	172	57	24	42	24	41	27	1.76
30	11	166	1027	171	57	24	41	24	40	27	1.77
30	11	165	1021	170	56	24	41	24	40	27	1.78
31	11	164	1016	169	56	24	41	24	40	27	1.79
31	11	163	1010	168	56	24	41	24	40	27	1.8
31	11	162	1004	167	55	23	41	23	39	27	1.81
31	11	161	999	166	55	23	40	23	39	27	1.82
31	11	160	993	166	55	23	40	23	39	26	1.83
31	10	159	988	165	55	23	40	23	39	26	1.84
32	10	159	983	164	54	23	40	23	39	26	1.85
32	10	158	977	163	54	23	39	23	38	26	1.86
32	10	157	972	162	54	23	39	23	38	26	1.87
32	10	156	967	161	53	23	39	23	38	26	1.88
32	10	155	962	160	53	22	39	22	38	26	1.89
32	10	154	957	159	53	22	39	22	38	25	1.9
33	10	154	952	159	53	22	38	22	37	25	1.91
33	10	153	947	158	52	22	38	22	37	25	1.92
33	10	152	942	157	52	22	38	22	37	25	1.93
33	10	151	937	156	52	22	38	22	37	25	1.94
33	10	150	932	155	51	22	38	22	37	25	1.95
34	10	150	928	155	51	22	37	22	36	25	1.96
34	10	149	923	154	51	22	37	22	36	24	1.97
34	10	148	918	153	51	21	37	21	36	24	1.98
34	10	147	914	152	50	21	37	21	36	24	1.99
34	10	147	909	152	50	21	37	21	36	24	2
34	10	146	905	151	50	21	36	21	36	24	2.01
35	10	145	900	150	50	21	36	21	35	24	2.02
35	10	145	896	149	49	21	36	21	35	24	2.03
35	9	144	891	149	49	21	36	21	35	24	2.04
35	9	143	887	148	49	21	36	21	35	24	2.05
35	9	142	883	147	49	21	36	21	35	23	2.06
35	9	142	878	146	48	21	35	21	34	23	2.07

**The size of duplicates of the physical training
(Speed - Flexibility - Fitness - balance - the ability - the skill)**

**The proportion of training
Power of the legs and arms from body weight and Repetition**

Power		Repetition		weigh
arms	legs	arms	legs	
4	42	44	37	65
4	43	43	36	66
4	44	43	35	67
4	44	42	35	68
4	45	41	34	69
4	46	41	34	70
4	46	40	33	71
4	47	40	33	72
4	47	39	33	73
4	48	39	32	74
5	49	38	32	75
5	49	38	31	76
5	50	37	31	77
5	51	37	30	78
5	51	36	30	79
5	52	36	30	80
5	53	35	29	81
5	53	35	29	82
5	54	34	29	83
5	55	34	28	84
5	55	34	28	85
5	56	33	28	86
5	57	33	27	87
5	57	32	27	88
5	58	32	27	89
5	59	32	26	90
5	59	31	26	91
6	60	31	26	92
6	60	31	26	93
6	61	30	25	94
6	62	30	25	95
6	62	30	25	96
6	63	29	24	97
6	64	29	24	98
6	64	29	24	99
6	65	29	24	100

Recommendations:-

Based on that referred to the conclusions derived from the analysis Elkinmatogeravy and within the framework of research lead researcher of the following recommendations:

- Benefit from the results of this research in the number of training programs for the players.
- Focus when training on the performance of skill Facing by Turn Round Smash shaped pivot feet (closer) to impact on both speed and angle of the body starting player.
- Training on the timing of the approach and upgrading in order to achieve hitting the ball in the right place during the descent of the body center of gravity of the player during the phase of flight, rotation and beatings.
- The need to pursue the rapid development of performance skills and analysis of this development physically and anatomically to reach higher levels.
- Further studies are similar to basic psychomotor skills in volleyball to identify the mechanical properties, where such a study will help to promote the level of education and training of those skills.
- Benefit from the information Biomechanics reached by the study guide and educate and train players.
- The need to utilize to identify duplicates and spaces when performing the same group of certain types of physical performance that have been developed in this study in order to assist in improving physical performance and skills of the players.