

THE TRAINING OF THE PLYOMETRIC FORCE WITH DIFFERENT RESISTORS AND EFFICIENT ITS DEVELOPMENT SOME OF THE BIOMECHANICAL VARIABLES AND ACCURACY OF THE PERFORMANCE OF THE FAIR SHOOTING FOR YOUNG HANDBALL PLAYERS

Dr. Raid Khanjar Hamdan

University of Baghdad / College of Physical Education and Sports Sciences

ABSTRACT:

The basic skills of basketball are the cornerstone of the application and success of offensive and defensive plans as well as the upgrading of capabilities and require emphasis on the development of strength in muscle groups working during skills performance. The Researcher applied the drills Use of force Plyometric During Performance Skills recognizes resistors on all the working muscles and within the duty of each muscle. On A sample of the sports Talent Center of the Ministry of Youth handball, the researcher conducted a test of precision and the imaging video and extracted the automatic measurements of the remote correction skill by jumping, conducted 24 training modules for Eight weeks, three training units a week, and then it reached several conclusions, the most important of which Occurs Evolution of the starting variables Other Biomechanical variables of the skill and power correction by the exerted & arms.

Keywords: accuracy, muscle strength, handball

INTRODUCTION

The basic skills of handball are the cornerstone for the implementation and success of offensive and defensive plans, as well as the upgrading of physical abilities, which are the basis for success and winning the game, and need to develop strength in the working muscle groups during the performance Skills to increase its efficiency and level of skill to develop the skilled performance, so the importance of the research with added weights for all parts of the body (peripheral) and according to its relative weight in the application of

skilled performance and in accordance with the method of the influence in the increase the construction of units Kinetic and increase its effectiveness and strength and its impact on skilled performance as well as the effect of these exercises in mastering the mechanical performance and accuracy and what is reflected on the accuracy of the remote correction of the hand roller as one of the basic skills, to develop the work of these muscles according Of its motor duty and increase its kinetic units and thus increase its effectiveness and strength in influencing the performance Mastery. During training it is important to

focus on basic scrolling skills And receive And scoring and other, and in different Trends According to the abilities of each physical player and his position in the play and his duties (Samir ,1999,P.85)

This skill is mainly based on the power of the player 's jumping, its focus and its ability to confront The defender, who is a state of jumping with him. However the power and height of the player jumped The shooter depends on the Cannons . In terms of its length and height and the extent of its reaction to the shooter and after the goal(Aladdin, 1980, p. 80-81).

Accuracy is an important element for the successful performance of basic skills in handball and requires high efficiency and has an effective role in the successful scoring process, so the accuracy "means the possibility of directing voluntary movement towards a target is determined and requires high efficiency of the muscular and nervous system. It also requires that the nerve signals received to the muscles of the nervous system be the guiding body, whether they are directed to the working muscles or the corresponding muscles to lead the movement in the desired direction with the precision necessary to hit the target " (Abdul Karim, 2010, 71) .As well as, the Study variables mechanical performance contributes to Recognize the reality of the application Performance And improve it through the Going to Access to specific information "(Abdel Karim, 2010, 76)And thus became the mechanical studies in the game To Hate The Hand Great importance in the performance calendar And achieve The goal that the players are trying to Yeh And Is to register Goal In Goal Discount at high speed and accuracy .This requires harnessing Mechanical Laws To To achieve the highest level of performance With the development of the special force as "The great development in sporting achievements cannot be attributed to the development of speed and strength used in this event, but the result of the study of the movement is a thorough scientific study by Its time and place, as well as the forces that cause this movement. "(Holzman & Lewin, 2007, P11:)

The training is the strength of the ionosphere with the resistance of one of the most prevalent methods in the world with the aim of developing the special power of handball players, and these resistors are used when performing the exercises Skill Performance , such

as sequential jumping movements, partridge with one man or both men with We patting exchange or fellow handling,or jogging in the form of (retrograde)and scoring or handling. and because this The resistors are added to each limb of the body specifically , the working muscles in the development of a continuous decentralized contraction followed by a centralized contraction and the presence of these factors, and in any case the training with these resistors increases The ability of the balance, as well as the reception capacity increases The deep sense of the muscles that are associated with the movement of the legs, arms and torso. (Nunley, 1999, P54:).

So the problem of looking at the negligence of the Iraqi teams was the use of these resistors when applying the skill performance, So the objectives of the research was determined by the preparation of physical training – skills with peripheral resistors according The Training plyometric For handball players (sample search). And Know the effect of these exercises on the accuracy of performance, and some biomechanical variables For the remote scoring skill Special Search Sample.

The researcher imposed a statistically significant difference between the tribal and pre-tests of the accuracy of performance, the accuracy of the remote correction of the jump and some of the biomechanics variables of the two research groups.

MATERIALS AND METHODS:

The researcher used the experimental research methodology and The design of the two equal experimental groups .And Choose the research community from the talent Center football player The Hand Affiliated to the Ministry of Youth Basketball Youth enrolled in the Central Union and participants in the Youth League for football The Hand For the year 2018,And their number10 Players ,The researcher deliberately chooses Better(5) player Who are good at scoring with the remote jumping in doubt To Intentional And the researcher performed the homogeneity of the search sample in the age and training age variables and the length and weight.

Table (1): Sample Smoothing

Variable	M	sde	Broker	Which	M different
Length (cm)	1.85	0.15	1.85	0.00	8.24
Weight (kg)	78.2	2.14	78	0.28	2.73
Age (years)	18.3	1.4	18	0.64	7.65
Age Training (years)	5	0.5	4.5 out	0.30	10

The samples were naturally dispersed and homogeneous in morphological values, and the coefficient values were all 30%, confirming the homogeneity of the sample.

The researcher used various tools and devices including packing with different weights, special training number 20, and camera number 1, 240 image/sec. And The researcher used many scientific means to obtain the required data and facts through similar studies and researches. And International Information Network. And Personal Interviews. And Observation and experimentation. And Sources and references. And The researcher To adopt Test accuracy of over lapping. To measure accuracy (Erickson, 1999, pp 358-359) An int photo Test Corrigendum The remote By jumping And analyze the movement of the player that is doing Corrigendum At a height of 1.20 m and is 6.50 from the right of the player who stands He's scoring out of the nine-metre zone in front of the target. And The body mass was measured by a medical balance for the nearest kilogram. The trunk and arm mass was measured by multiplying the body mass in the specific trunk block ratio of 43% of the body mass and multiplying the arm ratio (0.065) in the body's stroke and calculated in kilograms according to the following equation. (Body mass x relative trunk block) and (body mass x relative arm block) (hasanin, 1995: 23).

The research requires measuring the hand speed of the arm and the speed of the shoulder during scoring performance and measuring the arm mass and trunk block according to their relative weight and total body mass as provided above. The instantaneous strength of the two men is measured by the power-measuring platform placed on the player's elevation zone. The extraction speed of the ball and the height of the starting point through the use of the Biochemical analysis program. And Measure Starting angle (player, ball). Then The researcher then performed the tribal tests for the sample members on the date 1/3/2019 In the configuration

of the test and the configuration of the platform for imaging, testing included the performance of Staleb Far from fully jumping 5 attempts the player's best attempt was chosen for the purpose of analysis, mechanical measurements under study and measurement of the accuracy of the correction. And The researcher prepared skills training and informed the sample coach about it. In the special preparation period for sample members, the training curriculum ensures the use Additive resistance to body parts according to their relative weight And to conduct the skills training in accordance with the method plyometric The curriculum (24) included a training module of (3) units per week for eight weeks from the date 2/3/2019 Up to 2/5/2019 Applied in the main part of the training module in the special preparation period. The exercises included the implementation of two-man leaps together And one man and perform different handlers with the fellow and move in different directions as when performing an offensive tactic, As well as conducting a partridge for each man and jumping reciprocal by step up, as well as conducting we patting drills and The scoring, As well as conducting composite exercises With resistors And conduct some offensive skills that end Stable The training intensity was determined by the maximum time of the physical effort to be trained, and also for the maximum time-specific repetition of the vertical jumping exercises Or horizontal or repeat hops The researcher adopted the period of recovery of powers (healing) according to the time of effort to rest, and the disparity in the training pregnancy was adopted, if the pregnancy ripple between 2:2 and 2:1, i.e. repeat the training load for every two weeks then the relative decline in the fifth week and so on. Note the workouts in Appendix 2. Keep going. Training for 24 training modules, i.e. three training modules per week. The researcher conducted the test CRTs On the date 3/5/2019.

RESULT AND DISCUSSION:

Table (2): Statistical description of the mechanical measurements of the search sample

T	Measurements	Unit of Measure	The per test		Post Test	
			m	± sed	m	± sed
1-	Height W.	Meter	1.238	0.03	1.376	0.02
2	Player's starting angle	Degree	42.8	0.83	49.2	1.30
3-	Player's starting speed	m/s	4.182	0.08	4.922	0.19
4-	The accuracy of the Bad	Degree	29.40	12.07	36,300	8,453

Table (3): Computational media differences, standard deviations, t value , level of error, and the significance of the tribal and sediment measurements of the mechanical sampling of the research

T	Measurements	Unit of Measure	Def.m	Error.se d	T	Sing. level	The indicati on
1	Height W G	Meter	0.138	0.008	14.32	0.000	Sing
2	Player's starting angle	Degree	6.40	0.67	9.55	0.001	Sing
3	Player's starting speed	M/s	0.74	0.053	13.83	0.000	Sing
4	The accuracy of the Bad	Degree	6.9	1.133	6.088	0.004	Sing

Comparison at the indication level ≤ 0.05 and the degree of Freedom 4

Table (4): Statistical description of the mechanical measurements of the ball for the sample urging

T	Measurements	Unit of Measure	The tribal test		Test CRTs	
			m	± sed	m	± sed
1-	Ball Starting Angle	Degree	12.2	3.19	2.8	0.96
2	Ball starting Speed	M/s	14.95	0.11	15.23	0.064

Table (5): Computational media differences, standard deviations, t value , error level, and the significance of the tribal and sediment measurements of the mechanical ball variants of the search sample

T	Indicators	Unit of Measure	Def.m	Error.s ed	T	Sing. level	The indicati on
1	Ball Starting Angle	Degree	9.40	0.68	13.86	0.000	D
2	Ball starting Speed	M/s	0.280	0.050	5.60	0.005	D

Comparison at the indication level ≤ 0.05 and the degree of Freedom 4

Table (6): Statistical parameters of Kintic variables and values (v) between the two sets of tribal and intertest

Variables	Group	Test	Ss	±P	Def.m	Error.sed	T	Level The error	Signifi cance level
Power of the throwing arm/net	Experime ntal1	per	458.37	38.547	217.58	38.61	5.635	0.000	Sing.
		post	675.95	61.412					
Power of the trunk/Newt on	Experime ntal2	per	2861.2	231.32	354.2	111.14	3.187	0.001	Sing.
		post	3215.4	221.52					

Degree of Freedom (4) and error level ≤ 0.05

From table (3) We notice that the height variable of the body mass Center may evolve for both sample members both with a preference in the arithmetic mean value of the sample CRTs when compared to the tribal test. The researcher argues that evolution The relative of this variable is that the remote shooting skill requires the player to repeat the necessary force to achieve a suitable height that allows a player to perform at the highest point during the play or training according to the requirements of this skill and the need to achieve high altitude, this It is a recognized fact that the trainer is supposed to develop it for the need of skill, but notes that there is a significant and visible development of the sample , due to the development of muscle strength especially in the lower limbs as a result of the exercises that Applied to them, and that these exercises proved to be effective in bringing about that development, which was associated with the adoption of the correct conditions in the working joints during the performance of the skill, which coincided with the strength against the resistors and which gave a positive return to gain the instantaneous payment required to move The body is fast and high, as well as the possibility of linking the height of the body mass Center with the start and the evolution in it. The training curriculum has contributed significantly to correcting the conditions of the body parts, which has led to the development of the appropriate mechanical conditions for performance .As well as the evolution The angle and speed of launch of the players in the test CRTs were higher values than achieved in the tribal test and clearly, this is a clear indication that there is a

development in the instantaneous forces both when they are shed on the ground with the two men or in the muscles working in the trunk, shoulders and arm at the moment of the /20 > Soeb contributed to achieving the highest speed of the center of gravity of the body at the moment of launch, this indicates the success of the main objective of the application of force drills and resistors to these aggregates in influencing the values of these variables to get the highest possible starting speed and suitable for the It is noted that the evolution of the speed of the center of the body weight was caused by the development of strength in the muscle groups themselves and which contributed directly in the final outcome to achieve a good starting speed of the body test CRTs and this is clear when you notice the velocity values of the center of gravity The body through performance, because the end of the movement is to stop the impulse of the body to control moving parts of the body as quickly as required not to divorce the body at this moment.

Here confirms (Hang , 1997, PP18-22) "The difference in the distance of the correction effect in some mechanical variables based on the requirements of the correction performance of the jump as the performance demands speed and strength to meet the requirements of transferring the ball from the player's hand to the target accurately" The researcher believes that Exercises applied in accordance with Mechanical Requirements Has developed Amounts of power Search Sample Also, this is consistent with (Scheett , 2001, p89) that "remote correction needs significant requirements or seizures and

must be performed without tension and that the correction is done through the knee joint more to obtain greater strength or muscle power than the force that the correction needs from Nearby areas "

The application of this training according to the resistors used helped to develop the efficiency of these muscles through exposure to a complete muscular training effort for all parts of the body and the motor ranges of performance and at the same time to give the natural qualities of the body as projectile during movement (ER Ickson, 1999, p494). Therefore, the principle of force change throughout the joints involved in the movement is a fundamental goal of muscular development, thus both the starting angle and the speed associated with it, as well as the height of the body's weight center, have evolved, as all these variables have a bearing Directly with all the joints and their ranges in the arms and legs and the trunk and the muscles working on them, which have been directly exposed to special training, which caused it to evolve and adapt and to achieve the correct and appropriate motor paths for performance, which also made The results of the experimental group are much better than the results of the controlled group in the studied biovariate variables.

,From table (4 and 5), it is clear that the development of the sample, as the use of exercises , has the sole purpose of developing the special physical force, which is the cause of obtaining the best The conditions and mechanical conditions of performance, especially for the starting corners and the rush, which inevitably affect the achievement of good achievement (Frank Abdel Karim, 2010, p 46-51) .

decreasing.

section The main during the performance of the skill, and thus the maintenance of the speed gained the moment of preparation for the fast instantaneous payment of the two men and this indicates the emphasis on the development of the performance of this stage in the overall motor performance of the body is one of the most important mechanical indicators to be cared for by trainers Handball , which helps to achieve the speed required for a body, which inevitably affects the achievement of a suitable starting speed of the ball and allows the area to achieve the desired angle of departure also, and that this interest should be about The way to develop muscular reactions and develop the force with

an interest in motivating them and what to do during The last stage of the events that are linked to concepts (force push, linear momentum and angular, strong strength and inertia moments) (Ariel, 1992, p164).

We note from table 6 above that the force values of the arms in the firing position and the trunk of the experimental group were at high moral levels , compared to the group . and The researcher concludes that the instantaneous forces of the sample individuals The research was developed due to the application of the training of various resistors to develop the muscular strength of each part of the body contributing to the performance of the distant scoring , and that the movement was under the control of the nervous system-muscular Controlling the movements of the player performing the performance and the good timing and compatibility between the mampalon of the force and the resulting speed required. This timing has to do with the end of the contraction of the large muscles associated with the movement of the larger part to begin to shrink the muscles of the less movement part Consistent and streamlined timing. This means that both the level of strength and the compatibility of its appearance and consistency are required at the highest levels in order to achieve the least possible time to implement this stage of performance, as the integration of the evolution of the force will inevitably lead to the desired speed of the body and its parts. (Schiffre, 2001, P56-57), to be of the highest value, which produces high occupancy and capacity, this "workpiece works to give the body part associated with the right instantaneous acceleration at all stages of performance up to the final moment of payment"(Clark & Sablok, 2009, p 85) and what happens in the final scoring of an internal force to overcome the Therefore, the position of the body when determination associated with the position of the body for the moment of the individual fulcrum to elevate Which works to slow the speed of the player if it increases a moment that means decreasing at the moment of payment of its value when placing the scoring due to this determination, so the work must be without the failure to generate a strong curb to the lead man to sustain the speed gained from The rotation, which is carried out by placing the foot of the leader man in a very little time when it is sought with the Earth and the most suitable situation allows the player to achieve the greatest pressure on the ground, which must be transferred without significant obstruction to the rear

gravity of the province On the momentum gained and transported to the high-flow disk according to the aim of the movement, this requires repeating the performance of this situation in order to adapt the signals issued by the brain to perform this correct application, (Clark & Sabick, 2009, p188-190)as they were The exercises used to develop the strength of body parts are intended to perpetuate and enhance the strength of these muscles in order to have a high efficiency in the output of the rapid force required to be accomplished during the performance of the members of the experimental group, and the making of this internal strength varies depending on the severity of these resistors and the type The movement that is associated with each part of the body during the performance of scoring skill (Jacoby & Fraley1995, p. 121), as these exercises were influential in the results of the research sample and reflected their effect on the instantaneous power exerted With both men and the instantaneous power of the stem and arm as well as the instantaneous power of the upper part of the trunk. From the foregoing, the researcher concludes the following:

- The training of Plyometric using resistors is developed in the starting variables for players when performing a remote scoring skill .
- The exercises proved to be effective in creating a development associated with the taking of the correct conditions in the working joints during the performance of the skill, which coincided with the strength against the resistors, which gave a positive return to gain the instantaneous payment required for the rapid and high speed of transmission of the body.
- The training approach has contributed significantly to correcting the conditions of the body parts, which has led to the development of mechanical conditions suitable for the performance of players when performing the skills of remote jumping.
- The use of training and resistors, the sole aim of which is to develop special physical strength and mechanical conditions of performance which affected in the development of the angle and speed of the ball starting and which inevitably affect the achievement of good accuracy.

References:

- Jamal Mohammed Alaa al-Din: Laboratory studies in biomechanics sports movements, Dar al-Aref, Cairo, 1980.
- Samiral Hashimi,: El-Mececnic,theNational Publishing and printing,2nd, Mosul, 1999
- Frank Abdulkareem: Applications of mechanical training in sports and motor performance, I 1, 2007.
- Hasanin, Mohamed Subhi: Measurement and evaluation in physical and Sports Education, Vol. 1, 3rd Floor, Arab thought House, Cairo, 1995
- Red Holzman and Leonard Lewin: winging Strategr and facts, the Macmillan company NewYork .
- Erickson E: Effect of electrical stimulation on human skeletal muscle. Int-I Sports Med 2: (1999). .
- Scheett, T.: Training for Racquetball, part II, Strength Training USARA., Racquetball Online, (2001) Vo. 12, No. 6
- Jams G. Hang: The Biomechanics of sports techniques, Prentice Hall, 1997 ,
- Scheett, T.: Training for Racquetball, part II, Strength Training USARA.,
- Candid Abd al-Karim al-Fadhli and Abdulrazaq al-Majidi: Functional anatomical analysis and sports mechanics, Dar Adnan, Baghdad , 2018,
- Candid Abd al-Karim al-Fadhli and Ihab Inside: Applied Motion Science (alekensology), Alaazimh Publishing House, Baghdad, 2019
- Jakalski, K. Parachules, tubing and towing in Sprintsand Relays 2000,
- Ariel, G; Long Jump Analysis (Carl Lewis and Bob Beamon) Track & field. Quarterly Revrew, Kansas, 1992, 4.
- Clark, D. A: Sabick, M.B, and anthers, Influnce of towing force magnitude on the kinematics of Supramaximal sprinting, 2009, 166
- Schiffre. J:Training procedures in sprinting for speed Plateau.part II. NSA.27. (1) 2011
- Jacoby, E & Fraley, B, Long jump, Human Kinetics Champaign, 1995.