

Training of Skilled Force with The Different Medical Ball and Their Effect on Developing Some Special Physical Abilities and the Accuracy of Long Shooting Performance in Handball

Nawras Ahmed Abdel Zaid *, Nahla Sobeih Obeid ,Yasser Ahmed Mohammed

Faculty of Al-Esraa University - Department of Physical Education and Sports Sciences

*Corresponding author: Nawras Ahmed Abdel Zaid, Email: nawras-sport@esraa.edu.iq mobile: +9647805667354

ABSTRACT

Background: The basic skills of handball are the cornerstone of the application and success of offensive and defensive plans as well as upgrading the world's capabilities and this requires emphasizing the development of strength in the muscle groups operating during the performance of skills.

Methods: The researchers applied MAHA training by using rubber balls for weights and various sizes to eliminate the use of the legal ball during the skill test to entertain the resistances on all the muscles working and within the duty of each muscle.

Result: on a group of players of the Center for Sports Talent for Handball under the Ministry of Youth and Sports in Baghdad, and the researchers conducted a precision test for the skill of shooting Remote jumping and special physical tests, and carried out (24) special training units for eight weeks by three training units per week.

Conclusion: the researchers reached several conclusions the most important of which was the development of the capabilities of instant and rapid force, speed of performance and arm speed, which is a special physical capability for shooting skill and improve the accuracy of the performance of the remote shooting of the search sample.

Keywords: Accuracy. Muscle strength. Special physical abilities. Rubber balls.

INTRODUCTION

The basic skills of handball are the cornerstone of the application and success of offensive and defensive plans besides upgrading physical abilities, which are the basis for success and winning the game. And the need requires the development of strength in the muscle groups working during the performance of skills in order to increase their efficiency and level of mobilization to develop skilled performance. So the importance of research using rubber special size of handball with different weights when applying skilled performance in order to increase the build-up of motor units (muscle fibers) and increase their effectiveness, strength and impact on skilled performance. As well as the use of training with a regular handball, to show the impact of these exercises in mastering performance and accuracy of one of the basic skills, which is remote shooting by handball⁽¹⁾.

The development of the work of these muscles must be in accordance with their motor duty and with the resistances of the semi-instrument (handball) used during the skill performance to increase their self-cutting for difficult the movement for the purpose of increasing the strengthening of the muscle fiber and increasing the mobility of the performance and increasing its effectiveness and strength in influencing the mastery of performance and accuracy, especially for the skill of long-range shooting. It is important during training to focus on basic skills passing, receiving, scoring, etc., and in different directions and according to each player's physical abilities, position in play and duties⁽²⁾.

This skill depends mainly on the strength of the muscles of the arms in particular as well as the muscles of the legs to perform a vertical jump for the player who is injured and how focused and capable he is in the face

of the defender, who is back in a state of jumping with him. However, the strength and height of the player's jump depends on the defender in terms of his height, height of jump and how he reacts towards him and after the goal as well as his privilege with the strength of good muscles of the cast arm in order to achieve its highest speed during the performance of the shot and at the highest accuracy⁽³⁾. Accuracy is an important element of the success of the performance of basic skills in handball and requires high efficiency, as it has an effective role in successful shooting, and accuracy means "the possibility of directing the will full movement towards a target that is determined, and requires high efficiency of the muscular and nervous organs. Nerve signals to muscles from the nervous system are also required to be well-directed, whether directed at working muscles or corresponding muscles, so that the movement in the desired direction leads to the accuracy necessary to injure the target"⁽⁴⁾.

In addition, the study of special physical abilities and the identification of their levels when applying performance contributes to the identification and improvement of the reality of the application of performance by accessing specific information"⁽⁵⁾. This requires harnessing appropriate training methods related to the development of muscular work such as training using multiple resistances, to achieve the best level of performance while improving the physical abilities of especially as "the great development in sports achievements cannot be attributed to the development of speed and strength used in this or that event, but the result of the study of the movement is a thorough scientific study according to its time and place as well as the forces causing the occurrence of this movement"⁽⁶⁾.

Training is one of the most widespread training methods in the world with the aim of developing the special strength and speed of handball players specifically and these resistances are used when performing skilled exercises whether offensive or defensive that one, such as making consecutive jumping moves, partridge with one man or both men with the exchange of plump or handling of the colleague, or running in the form and stability (rebound) and scoring or handling. A variety of weights can be easily used because of the similarity of their size. The size of a legal handball for the purpose of specifically affecting the working muscles that will do a duty not to constrict the decentralized as a preparatory duty, followed by central constriction and the presence of these resistances as a major motor duty. And in any case the training with these special medical balls increases the ability of instant and rapid force and motor balance required to control performance and achieve the required accuracy, as well as increase the ability of reception of the deep sense of muscles associated with the movement of men, arms and torso.

The problem of research in the neglect of some handball coaches in Iraq was the use of these balls when applying skilled performance, so the researchers identified the objectives of the research by preparing physical training - skill using special rubber balls for young handball players (research sample).

Researcher imposed statistically significant differences between tribal and remote tests of performance accuracy, accuracy of long-range shooting from jumping and some of the special physical abilities of the two research groups.

METHODOLOGY

Researcher used the experimental research method, and the design of one experimental group. chose the research community of the players of the Talent Center for Handball under the Ministry of Youth Basketball young people registered in the Central Federation and participants in the youth handball league for 2020/2021, and the researcher conducted homogeneity to the sample of research in the variables of age, training age, length and weight.

Table (1) Sample homogeneity

Variable	AlloSI	Standard deviation	The broker	Plants of the T.T.A.	no difference
Length (cm)	1.85	0.15	1.85	0.00	8.24
Weight (kg)	78.2	2.14	78	0.28	2.73
Age (1 year)	18.3	1.4	18	0.64	13.07
Training age (age)	5	0.5	4.5	0.30	10
BODY MASS INDEX	22.85	1.41	21.45	2.97	16.20

The sample members appeared to be naturally distributed and homogeneous in morphological values, and the values of the variation factor were all higher than 30%, which confirms the homogeneity of the sample members.

Researcher Wen used multiple tools and devices, including rubber balls the size of a handball with different weights, especially the number of 20 (notes supplement), and cameras at a speed of 60 images/s. Researcher Wen used many scientific means to obtain the required data and facts through similar researches. And the International Information Network. And personal interviews. Observation and experimentation. And sources and references. The researcher adopted the resolution of the resolution test on overlapping models to measure accuracy ⁽⁷⁾. The researcher filmed the remote shooting test by jumping and analyzing the course of movement the player who shoots and at a height of 1.20 m and is 6.50 distance from the right of the player who stands scoring from outside the area of nine meters in front of the target. And the body mass was measured by a medical balance of the nearest kilogram ⁽⁸⁾.

Study of the physical abilities that are the most contributing to the implementation of the defense against rapid attack with biomechanical indicators ⁽⁹⁾.

- The momentary (explosive) force of the two men and arms (the use of the foot surveyor to measure strength) and the use of mass, time and distance variables to measure force with the strike arm through analysis.
- Continuous instantaneous strength of the two men (fast): partridge 3 times per man of stability (through variables of mass, distance and time through analysis)
- Handball player's special speed: Measured by meters on the second by travelling at least 20 meters with or without a tool.
- Special endurance, through the fatigue indicator test which includes running 35 meters six times in a 10-second inter-iteration comfort, the player's mass is measured and then the next equation is used:

Special endurance (anaerobic) = maximum capacity - less capacity ÷ total time

If the result is less than 10, the anaerobic capacity is good for the player and vice versa.

- Variables of the starting ball for the skill of scoring remote:
- Videography and kinetic analysis were used to extract the variables that followed:
- The speed of the ball's launch.
- The angle of the ball's launch.

Test:

Test name: Test the accuracy of the shot from the remote scoring by jumping from behind the line (9) m.

Divides the goal into nine rectangles to measure the accuracy of the shot and draws a line on the ground 9 m away from the goal.

The rectangles (1,3,7,9), which represent the corners of the goal (60×100cm), must be hit four degrees per correct injury, and the rectangles (2,8) representing the area above the goalkeeper's head and between his feet (60×100cm) get three degrees. The injury to the rectangles (4,6) which represents the area where the goalkeeper's arms (80×100cm) started to get two degrees. The injury to the rectangle (5) represents the area of the chest and torso of the goalkeeper, which is 80×100 cm) and gets one degree. And if the ball comes out of that, the lab gets zero, each lab has 10 tries.

Researcher then conducted tribal tests of the sample members on 1/12/2020, preparing for the test and preparing the platform for photography and the test included the performance of the remote correcting of jumping fully 5 attempts selected the best attempt for the player for the purpose of analysis and physical measurements under study and measurement of accuracy of correction. Researcher Wen prepared skilled training and informed the sample trainer in the

special preparation period for the members of the sample, as the training method included the use of various rubber balls weights and conducting skilled exercises and the use of the smart ball in training.3) Units per week and for eight weeks from 2/12/2020 to 2/2/2021 applied in the main part of the training unit in the special preparation period. And perform different maneuvers with the colleague and move in various directions as when performing an offensive tactic, as well as conducting a hues for each man and jumping mutual step up, as well as conducting plump training and scoring with rubber balls, as well as conducting complex exercises with regular balls and conducting some attacking skills.

The training intensity was determined according to the maximum time of the physical effort to be trained, and also to the maximum time-limiting repetition for vertical or horizontal jumping training or repeat jumps. Rest, the variation in the movement of the training pregnancy has been adopted, if the pregnancy ripples between 2:2 and then 2:1, i.e. by repeating the training pregnancy every two weeks and then the relative decrease in the fifth week and so on. Note the workouts in supplement (2). The training continued for (24) training units, i.e. three training units per week and the researcher and conducted the remote test on 3/2/2021.

RESULTS AND DISCUSSION

Table (2) Statistical description of the low-lying measurements of the research sample

to	Measurements	Unit of measurement	Tribal testing		Remote test	
			Mean	Standard deviation	Mean	Standard deviation
1-	Momentary force of two men (explosive force)	Newton	975.25	75.35	1012	69.45
2-	Fast power man (man)	Newton	1105.8	125.83	1324.2	98.30
3-	Speed (20m)	M/s	4.182	0.08	4.922	0.19
4-	Arm strength	Newton	458.37	38.547	675.95	61.412
5-	RAST	Jules/W	20.15	3.54	12.39	2.75
6-	Accuracy of theAD	Degree	29.40	12.07	36,300	8,453

Table (3) Results for the physical measurements of the research sample.

to	Measurements	Unit of measurement					
1	Momentary force of two men (explosive force)	Newton	36.75	5.815	6.32	0.000	Singh.
2	Fast power man (man)	Newton	218.4	33.345	6.55	0.001	Singh.
3	Speed 20 m	M/s	0.74	0.053	13.83	0.000	Singh
4	Arm strength	Newton	217.58	42.08	5.17	0.000	Singh.
5	RAST	Jules/W	7.76	2.18	3.56	0.003	Singh.
6	Accuracy of theAD	Degree	6.9	1.133	6.088	0.004	Singh

Comparison at the ≤ indication level 0.05 and freedom score 4

Table (4) Statistical description of measurements of the starting variables of the ball for the sample of the urge

to	Measurements	Unit of measurement	Tribal testing		Remote test	
			Mean	Standard deviation	Mean	Standard deviation
1	Starting angle	degree	12.2	3.19	2.8	0.96
2	Speed of kick-off	M/S	14.95	0.11	15.23	0.064

Table (5) Results for ball starting variables for the search sample.

to	Indicators	Unit of measurement	Mean the differ.	standard deviation	Value t	mistake percentage	Indication
1	Starting angle	degree	9.40	0.68	13.86	0.000	Singh.
2	Speed of kick-off	M/s	0.280	0.050	5.60	0.005	Singh

Comparison at the \leq indication level 0.05 and freedom score 4

From Table3, we noted that the momentary strength of the two men may develop for both sample members with an advantage in the value of the computational medium of the sample members by remote test when compared to the tribal test. Researcher Wen believed that the relative development of this variable was that the skill of remote shooting requires the player to repeat the necessary force to achieve an appropriate height allowing the player to perform the highest point during the play or training in accordance with the requirements of this skill and the need to achieve a high altitude, and that training with rubber balls vary weights has worked to develop the strength exerted by the arms and in accordance with the motor duty, and also appears The development also reflected on the development of the muscle strength of the two men as a result of the exercises applied to them, and that these exercises proved effective in the events of that development, which was associated with the taking of the right conditions in the joints working during the performance of skill, which coincided with the shed of strength against the resistance, which gave a positive return to gain the real-time payment required for the movement of the body quickly and high, as well as the possibility of linking the development of strength This is by achieving an improvement in the speed of the sample members and what has happened in it as well, as the improvement of the payment during the steps of running due to the development of the rapid strength of the two men has gained the ability of the members of the sample to repeat the steps and push effectively. As well as the special endurance associated with the development of rats results, this is a clear indication that there is a development in the momentary forces both when they are shed on the ground by the legs or in the muscle ingress of the muscles operating in the torso, shoulders and arm aimed at the moment of susilling as well as the improvement of special endurance, which reflects the improvement of the continued exertion of force for a relatively long time without a decrease in

level, this indicates the success of the main goal of applying strength training And resistance to these groups in influencing the values of these variables to get the highest possible starting speed and suitable for and the starting point of the ball, and it is noted that the development of the speed of the center of gravity of the body during the test (20 m) was due to the development of strength in the muscle groups themselves, which directly contributed in the end result to achieve good speed of the body by remote test and this is clear when observing the values of the speed of the center of gravity of the body through performance.

In addition, that's where Hang confirms ⁽¹⁰⁾. "The difference in the shooting distance affected some mechanical variables based on the requirements of shooting performance from jumping as the performance required speed and strength to meet the requirements of moving the ball from the player's hand to the target accurately" and researcher Wen believes that the exercises applied in accordance with the requirements of feeling strength according to the resistances of rubber balls have developed amounts of strength for the search sample as well, and this is consistent with Scheett 2001 "Long shooting requires significant requirements or control and must be performed without tension and the correction is done through the knee joint more to obtain more muscle strength or ability than the force needed to shoot from nearby areas" ⁽¹¹⁾.

The application of this training in accordance with the resistances used helped to develop the efficiency of these muscles through exposure to a full muscle training effort for all parts of the body and with the motor functions of performance while giving the body natural qualities as an extruded during movement ⁽⁷⁾. Therefore, the principle of changing strength during the range of joints involved in movement represents an essential goal of muscle development, thus evolving both vertical propulsion and the rapid force associated with it as well as the speed of the center of gravity of the body when running special, as all these variables have a

direct relationship to all joints and their ranges in the arms, legs, torso and muscles working on them. This affected it to develop and adapt and achieve the right and appropriate motor pathways for performance, and this also made the results of the sample good and moral in the physical variables studied. The use of skilled exercises and rubber ball contrasting weights, its only goal was to develop special physical strength, which was one of the reasons for obtaining the best technical and mechanical conditions for performance, especially the momentary and rapid forces, special speed and strike arm strength, which will inevitably affect the speed and corner of the ball and which inevitably affect the achievement of good achievement. On the other hand, the effective and rapid action of the two men leads to a decrease in the period of anchoring or contact with the ground, which helps to give the body sufficient acceleration (best and most meaningful) this means that their feet are in contact with the ground during the anchoring when rotating at very little at a lower speed.

Therefore, the position of the body when based on the preparation of the performance of the casting jump, which has already been focused on during the use of resistances in particular, is a special and continuous mechanical situation for the rest of the conditions that follow in the body parts when applying the main section during the performance of skill, and thus maintaining the speed gained at the moment of preparation for the process of rapid real-time payment of the two men, 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 physical indicators based on mechanical indicators that should Handball coaches are interested in it, which helps to achieve the speed required to launch a body, which inevitably affects the achievement of the appropriate starting speed of the ball and allow the field to achieve the angle required to start as well, and that this attention must be through the development of muscle reactions and the development of strength with attention to stimulation and what to do during the recent phase of sounding that is related to concepts (pushing strength, linear and angular momentum, and the basis of force moments of anchoring and self-insufficiency) ⁽¹²⁾

We noted that the values of force exerted by the arms in the shooting position of the search sample were at high moral levels. Researcher concludes from the foregoing that the momentary forces of the research sample members were developed by applying the exercises for different resistances to develop the muscle strength of each part of the body contributing to the performance of the distant scoring, and that the movement was carried out by the control of the neuromuscular system that controls the movements of the player when performing and at a good time and great compatibility between the required 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 bulk to begin to shrink the muscles of the less moving part and in a consistent and streamlined time. This meant that both the level of strength and compatibility of its appearance and consistency were required at the highest level in order to achieve the lowest possible time to implement this stage of performance, as the integration of the development of the force will inevitably lead to the achievement of the required speed of the body and its parts ⁽¹³⁾. And to be of the highest value that produces occupancy and high capacity, this "work works to give the associated body part the appropriate instantaneous acceleration at all stages of performance down to the final payment moment"⁽¹⁴⁾. What happens in the final scoring is an internal force to overcome the external strength of gravity associated with the position of the body at the moment of individual anchoring of the rise, which slows the speed of the player if it increases the speed of the moment, which means a decrease in the speed of the moment of payment of its value when setting the scoring because of this determination. So the work must be without generating a curb on the man who is largely leading to sustain the speed gained from rotation, which is done by putting a foot. The man in command in a very little time when in touch with the ground and in the best position allows the player to achieve the greatest pressure force on the ground, which must be able to move a trunk without a major obstruction of the torque of the rear gravity to maintain the gained momentum and transfer it to the strike arm in high flow according to the goal of movement, and this requires a repetition of the performance of this situation in order to adapt the signals issued by the brain to perform this correct application ⁽¹⁴⁾. The exercises used to develop strength for parts of the body were aimed at sustaining and strengthening the strength of these muscles in order to have high efficiency in the product of the rapid strength required to be accomplished during the performance of the members of the sample, and the exertion of this internal force varies depending on these resistances used for sample members in terms of intensity and type of movement that are associated with each part of the body during the performance of scoring skill⁽¹⁵⁾. These exercises were influential in the results of the research sample and their effect was reflected in the momentary strength of the two men and the momentary strength of the arm as well as the momentary strength of the upper part of the torso.

CONCLUSIONS

1. Skill training using various rubber balls has improved the starting variables of players when performing remote scoring skill.
2. The exercises proved effective in developing a development associated with taking the right conditions in the working joints during the performance of skill, which coincided with the

highlighting of strength against resistances, which gave a positive return to gain the real-time payment required for the movement of the body quickly and high.

3. The training curriculum has contributed significantly to correcting the conditions suitable for the parts of the body, which has led to the development of the appropriate mechanical conditions for the performance of players when performing the skill of remote jumping.
4. The use of rubber ball training and resistance, his only goal was to develop special physical strength and mechanical conditions of performance, which affected the development of the angle and speed of the ball starting which inevitably affects the achievement of good accuracy of the sound.

REFERENCES

1. **Susanto A, Yusof YB, Sunandar H et al. (2020):** Vocabulary Learning Strategies and Vocabulary Size among Tertiary Students. *Vocab.*, 07(06):559-570. <http://repository.universitaskarimun.ac.id/id/eprint/12/2/JOURNAL>
2. **King M, Eisenberg R, Newman J et al. (2011):** Constrictive Bronchiolitis in Soldiers Returning from Iraq and Afghanistan. *N. Engl. J. Med.*, 365(3):222-230. doi:10.1056/nejmoa1101388
3. **Verheul J, Nedergaard N, Vanrenterghem J (2020):** Measuring biomechanical loads in team sports—from lab to field. *Sci. Med. Footb.*, 4(3):246-252. doi:10.1080/24733938.2019.1709654
4. **Schaefer S, Haaland K et al. (2009):** Hemispheric specialization and functional impact of ipsilesional deficits in movement coordination and accuracy. *Neuropsychologia*, 47(13): 2953-2966..
5. **Kramarae C, Spender D (2004):** *Routledge International Encyclopedia of Women*. doi:10.4324/9780203800942
6. **Pawlowski CS, Winge L, Carroll S et al. (2017):** Move the Neighbourhood: Study design of a community-based participatory public open space intervention in a Danish deprived neighbourhood to promote active living. *BMC Public Health*, 17(1):1-10. doi:10.1186/s12889-017-4423-4
7. **Zaltman G, Reinhartz S (2020):** *On Becoming a Social Scientist: From Survey Research and Participant Observation to Experiential Analysis*, 18: . doi:10.2307/3151324
8. **Charlton K, Batterham M, Langford K et al. (2015):** Lean body mass associated with upper body strength in healthy older adults while higher body fat limits lower extremity performance and endurance. *Nutrients*, 7(9):7126-7142. doi:10.3390/nu7095327
9. **Michalsik L, Aagaard P, Madsen K (2015):** Technical activity profile and influence of body anthropometry on playing performance in female elite team handball. *J. Strength Cond. Res.*, 29(4):1126-1138. doi:10.1519/JSC.0000000000000735
10. **Xiong G, Lauder G (2014):** Center of mass motion in swimming fish: Effects of speed and locomotor mode during undulatory propulsion. *Zoology*, 117(4):269-281. doi:10.1016/j.zool.2014.03.002
11. **Hernandez-Sarabia J (2016):** Influence of a Racquetball Rule Modification on Energy Expenditure and Heart Rate in Amateur Players. *ProQuest Diss Theses*. Published online:74. https://manchester.idm.oclc.org/login?url=https://search.proquest.com/docview/2066753427?accountid=12253%0Ahttp://manfe.hosted.exlibrisgroup.com/openurl/44MAN/44MAN_services_page?genre=dissertations+%26+theses&atitle=&author=Hernandez-Sarabia%2C+Jesus+A.&v
12. **Stamm C (2017):** Dependency as two-way traffic: community-based organisations and non-governmental organisations in the namibian CBNRM Programme. <https://search.proquest.com/docview/2001156707?accountid=17242>
13. **Sangiovanni-Vincentelli A, Damm W, Passerone R (2012):** Frankenstein: Contract-based design for cyber-physical systems. *Eur J Control.*, 18(3):217-238.
14. **Dileep G (2020):** A survey on smart grid technologies and applications. *Renew Energy* 146:2589-2625. doi:10.1016/j.renene.2019.08.092
15. **Hibbs A, Thompson K, French D (2008):** Optimizing performance by improving core stability and core strength. *Sport Med.*, 38(12):995-1008. doi:10.2165/00007256-200838120-00004

APPENDIX

Various rubber medical balls weights and stones.

