International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 02, 2020
ISSN: 1475-7192

The effect of rebound jumps exercises on the development of some physiological variables and the skill of correcting handball among young players

[1]AZHAR MOHAMMED JASMAL.EZZI

Abstract

The research included four chapters. The first chapter contained the introduction to the research and its importance. It was touched upon that the foundations that must be met for the success of the training process in general and handball in particular, are focused on developing training exercises based on scientific foundations that work on developing the physiological indicators. Back jumps exercises are one of the most important elements. The special physical numbers of the players, they contribute effectively and decisively with the rest of the other elements to the success and improvement of the level of the handball player in terms of physiological variables. As for the research problem, I noticed there was a fluctuation in the level of correction performance and its various types. Between positive and negative , and the back of humiliation as evident through the failed attempts to straighten , making attention to resolving this problem and aim of the research to Identify the extent of the impact of exercises Olathe P leaps backlash for the skill of shooting in handball dually sample (14) player has conducted tribal posteriori tests and proposed exercises for the sample to get the results and concluded researcher that the adoption of the exercises jumps regressive in working on the development of pulse rate and (Vo2max) And the players' shooting skills in handball . The researcher recommended the adoption of back jumps exercises for young players.

Keywords: *The effect of rebound jumps exercises on the development of some physiological variables and the skill of correcting handball among young players*

Introduction

Handball is one of the sports that is practiced on a large scale and occupies a distinctive place among the sports, and today it has become the goal of integrated technical performance through watching international tournaments that made those who practice it have the desire to reach an integrated and creative performance, as it is a combination of special physical abilities. And the various and different skills, whether these skills are offensive or defensive, the foundations that must be met for the success of the training process in general and handball in particular are concentrated in developing training exercises based on scientific foundations that work to develop the physiological indicators of the athlete, as the successful numbers, whether through The use of physical exercises or skills or plans shows its effective effect through physiological and skill indicators, and the basis for improving the mathematical level in sports is the physical numbers that are formed in the general and special numbers process, which is concentrated using a correct scientific exercise consistent with the element to be developed, whether physical or skillful. The trainer must be successful in choosing the

[1] Ministry of Education/ Directorate of Education/ Baghdad
azhar_iraqsport@yahoo.com

appropriate method for the form of exercise in which he is working, which can be used from all other methods for the sake of Developing and improving any component of success to achieve what should be achieved. The rebound jumps exercises are one of the most important elements of the players 'physical numbers, as they contribute effectively and decisively with the rest of the other elements to the success and improvement of the handball player's level in terms of physiological variables such as pulse rate and the level of lactic acid concentration (Vo2max) And performance skills, and thus take these exercises the first round and the foundation in the development of performance art with the handball player, and improve the level, especially the skills of defense and attack, especially the skill of correction are of offensive skills , but is the basis of skills offensive in the game, where all skills must end correction on the goal of the opponent, and is the final outcome of the outcome of the game, and it can be said that the exercises of hops regressive represent strands Bdnitan two power and speed will be directed the new trend in the future of handball player , because of the use of these qualities in the implementation of sports movements inside the stadium is a most important skills And it requires special physical abilities aimed at achieving the best levels during matches, hence the importance of this type of exercises as the key to offensive and defensive skills . And the integration of its performance depends on the adaptations that are achieved through the field application of various exercises and in a scientific way for different types of prepared exercises such as front, back and side jumping exercises . Therefore, the importance of research in preparing rebound jumps exercises in developing some physiological variables and the skill of correcting the handball of the young players are data hops pummel one of the methods the task through which the coach can develop the capacity physiological in athletes, which can be considered as basic physical qualities that play an important role in improving the performance of the movement and thus skill its correction offensive hand reel

***Research problem*:** Through the exercise researcher handball game played, training and ongoing follow - up of various tournaments, especially young players and teams hand reel. I noticed there was a fluctuation in the level of shooting performance and its various types. Between positive and negative , and the back of humiliation as evident through the failed correction attempts , in some types of correction and especially the correction of the jump and some of the players and here it emerged as the research problem and tried researcher identified and studied as it believes that there is weakness in the training side physically or skillfully, despite The coaches focus on shooting in the training units, which made it necessary for the researcher to study this problem and work to find a solution to it by preparing rebound jumps exercises in order to raise the physical and physiological ability of the players and thus through the application of the skill of correction by jumping

***Research scorers*:** 1- Preparing rebound jumping exercises for young handball players .2- Identifying the effect of backlash exercises on some physiological variables and the skill of correction from jumping among young handball players.

Research hypotheses: The presence of statistically significant differences between the results of the pre and post tests for the experimental and control groups, and in favor of the post-test group. The presence of significant statistical differences between the results of the post-tests between the experimental and control groups in some offensive skills and in favor of one of the groups

Research limits

- The human sphere: A group of (14) young handball players from Al- Karkh Club
- field Temporal: the period from 26 / 1 / 2020 until 28 / 3 / 2020
- Spatial domain: Baghdad - Interior Hall - Mansour

Research Methodology

The method, in scientific research, is a method of collecting information and data, in order to reach a conclusion to solve a problem, and it is "the scientific path that the researcher takes in solving his research problem, because the nature of the problem imposes a specific approach to reach the truth" (Al- Shouk, 2004). So I found the researcher that the nature of the problem addressed by the adoption of a specific type of research approaches and the most appropriate

approach can be used to solve the problem of current research and access to achieve its objectives and to obtain reliable scientific results is an experimental approach in addressing the problem of the research, the use of experimental design style of the two groups experimental and control with two tests Tribal and post.

*Research community and appointed***:** The selection of the sample is related to the community from which it is taken, as the sample is "that part of the community on which the tests are conducted, and under scientific rules and methods as it represents the community properly" (Kamil, 1999). As the research community was deliberately defined and they are young handball players. It was the selection of the sample random way they are players club reel hand and split the sample into two groups the way random by lottery and the number 14 players were divided into two groups for by lottery (experimental group and a control group) of those engaged in daily workouts

1. **The homogeneity of the research sample**

Table (1) the homogeneity of the research sample is indicated in some anthropometric measurements

Variables	measuring unit	N	Arithmetic mean	Mediator	For standard deviation	Coefficient of torsion
Length	cm	14	179.85	180.5	3.655	0.175
the weight	Kg	14	72.500	72.5	5.019	0.748
Age	Year	14	16.942	17	0.441	0.748

2. **Normal distribution of the sample**
(Vo2max and thePWC1 70)

Table (2) the normal distribution of the sample in some research variables

Variables	measuring unit	N	Arithmetic mean	Mediator	For standard deviation	Coefficient of torsion
Pulse rate	**Number**	14	64.857	65	1.406	0.099
Vo2max	**Milliliter/Kg/Accurate**	14	63.928	64	1.439	0.398
Lactic acid concentration level	Mmol / liter	14	12.285	12	0.726	0.516
Shoot by jumping	**Degree**	14	3.785	4	0.578	0.028

It is noticed from Table (1 and 2) that the values of the torsion coefficient were confined between (+ 1) all and this indicates the homogeneity of the research sample in the variables referred to in the table which are within the normal curve

parity between the two groups : One of the requirements for the experimental design of this study is to identify the initiation line between the two research groups in the tribal tests, so parity of the sample (the experimental and control groups) was performed in the pre-tests of the research variables and by extracting a value (T; It turns out that all the results are not significant, and this indicates that the sample is equivalent and in one starting line to start the main experiment, and as shown in Table (3):

Table (3) shows the parity between the two research groups, experimental and control

Variables	measuring unit	The experimental course		Control Authority		Values t Calculated		Indication of differences
		s	P	s	P			

Pulse rate	**Number**	64.571	1.511	65.142	1.345	0.747	0.469	random
Vo2max	**Milliliter/Kg/Accurate**	64.142	1.345	63.714	1.603	0.542	0.598	
Lactic acid concentration level	Mmol / liter	12.142	0.690	12.428	0.786	0.722	0.484	random
Shoot by jumping	**Degree**	3.857	0.487	3. 714	0.690	0.447	0.663	random

Degree of freedom (n -2) = 12 and the level of significance (0.05)

The (T) test values calculated for the search variables between the two experimental and control groups in the pretest were all randomized for differences in the research variables in the pretest, which indicates the parity between the experimental and control groups .

3. **The means of gathering information, tools and devices used in the search:**

❖ means the collection of means of information:
- Arab and foreign sources.
- World Wide Web of Internet Information.
- Personal interviews.

❖ tools used in the search :
- Casio electronic stopwatch count (2).
- baffles
- Jumping boxes
- Lactation
- Balls hand legal (6)
- Medical scale.
- Computer type (Dell).
- a measure of acid for lactic
- Organ system (Fitmate pro).
- Device traffic moving (Treadmills).

Steps of conducting the research:

Tests used in the search:

1- Heart rate test RH: (Sabati, 1988)

The aim of the test: - To measure the heart rate before exertion (at rest) and after (1D) from the test (PWC170 (And after) 3 D) from the test (PWC170).

Tools used: - Chord device, stopwatch.

Description of the performance method: - The laboratory shall lie on the ground in a linear fashion and after a complete rest for a period of (10 (Minutes) the pulse rate is measured by placing the index finger on the carotid artery passing through the neck and under the chin. Then we measure the heart rate (1) minute and (3) minutes after the test PWC170 and also by placing the index finger on the carotid artery at the top of the neck and under the chin.

Registration: Registration is through E. calculating the number of heart rate during (10 sec) and then beating (number × 6) to be obtained through the heart rate per minute.

Maximum oxygen consumption measurement test Vo2max: (Ali, 2004)

Test objective: to measure the maximum oxygen consumption (vo2max).

Procedures and performance specifications: Before starting the test, the test performer cleans the gauge respirator (vo2max) With the disinfectant solution, connect the parts of the device system (Fitmate pro) Together, attach the pulse belt to the tester's chest, and attach the pulse signal receiver (Bluetooth) In a device (Fitmate pro) After entering the laboratory information into the device, which includes name, date of birth, gender, height, weight, and choosing the type of test to be performed, which is (vo2mx)And then fixing the breathing mask tightly with its belts and making sure that breathing air does not leak from the mask, then the tester climbs onto the treadmill (Treadmills) The ran gradually increasing speed , which starts based on the test control to increase the speed of running on the device gradation speed of the button 's so

in the BIOS device mobile (Treadmills) Starting from (4.5) to (13-14) km / hour , and it contains a device (Fitmate pro) On a small screen , it has a square graph showing your pulse and maximum oxygen consumption (vo2max) With the ratios of both of them, where monitoring is done by the rectifier.

Conditions:

1- The tester must be in a normal condition before the test begins.

2- Attention should be paid to increasing the load gradient on the treadmill (Treadmills) and monitoring the laboratory when the voltage is running out or based on the tester's request of the inability to continue.

3- Stopping the treadmill (Treadmills) It is controlled to reduce the speed gradually.

4- The device readings are accepted when the tester reaches 84% or more of the maximum pulse.

Recording **:**The device provides a comprehensive reading tape for measurements of maximum oxygen consumption (vo2max), Shown

Measuring unit **:** milliliter / kg / minute

3- Measuring the concentration of lactic acid in the blood (Hazaa, 1992)

***The goal of the test*:** to know the level of concentration of lactic acid in the blood after the passage (5) minutes from the end of the effort

Used equipment:

Two devices were used (Lactate Pro LT - 1710(Manufactured by a company (Arakray) Japanese, 2 needle drill, test strip)Check Strip(Number (2), graduated tape) Calibration Strip(2) measuring tape Test Strip), Medical cotton, sterile materials, a small hand towel, count (2), registration form.

Performance description: After the laboratory finishes running a distance test (800m), the level of lactic acid concentration in the blood is measured after the effort, that is, after performing the test with a time of (5) minutes, and this period is considered appropriate to ensure the transfer of lactic acid from the muscles to the blood ([1]), and the researcher took the following steps to conduct the test:

1- Preparing the device to work by:

A- Placement of the test strip. Check Strip), Then take it out.

B- Laying the inserted tape (Calibration Strip), then take it out.

C- Putting the tape measure (Test Strip), and install it in the device.

2- Sterilization of the finger from which the blood is to be drawn with sterilized materials, preferably the index finger

3- Pricking the tip of the finger with the needle drill provided with the device.

4- After the blood comes out from the finger, a drop of blood is placed on the measuring tape attached to the device.

5. The device will show the voice of (certain) then the machine will start the countdown from (60 seconds) until (the second one) to show the measurement result on the screen of the device measuring unit is (mMmol / L).

Recording: The reading shown by the device after measurement is recorded for each laboratory runner in the registration form.

4- Jumping Aiming Test:

First: - Test the accuracy of the correction from jumping high (Al-Khayyat, 2001)

The purpose of the test: the accuracy of the aim from high jump.

Tools: (12) handball, a 150 cm high jumping device, and the distance between the two posts is (2 m), with (4) holes each of them (40). x 40 cm) represent the four corners of the goal .

Performance method:

- The player stands behind the starting line according to the aiming hand and directly in front of the jumping device, holding the ball.
- The player begins to take 2-3 steps, and then leads the correction with jumping high to square (1), then to (2), then to (3), then to (4).
- The performance is repeated 3 times, meaning 12 balls of three of them are shot into each of the four squares.

Rules: Don't take more than three steps.

A recording:
- A score is calculated from entering the ball into the square for a shot.
- It is counted zero for a shot outside the square.
- The result of a shot that moves the player with more than three steps is not counted.
- standardized and got the stability coefficient (0.84), and objective factor (0.96).

Field research procedures:

*Excremental reconnaissance***:** The reconnaissance experience "training in practice for the researcher to identify themselves on the negatives and positives that are offset in during the test in the future" (Mandalawi, 1989). Therefore it has conducted an exploratory researcher on the experience of (26 - 1 - 2020) on a three sample players outside the main sample and the purpose of which to identify, on the obstacles that will face the researcher in the tests and measurements to avoid them.

*Tests Tribal***:** The researcher with the assistant team, which has been certified by the researcher to carry out the tests and they are of higher degree holders in physical education and sport sciences and the owners of practical experience to conduct tribal tests on a sample search on (28/1/2020) using the approved tests in the search, as follows:

The main experiment (rebound jumping exercises):

The researcher conducted a major experiment on Sunday on (29/1/2020) and completed on Monday on (25/3/2020) for a period of 8 weeks has been applied exercises jumping backpressure and using a method opposite jumping and side by using boxes, barriers and balls Medical and according to the training curriculum for the research sample, as follows:

The duration of the training curriculum is (8) weeks.
- The number of training units is (16) training units, two units per week.

The time for the training unit is (30-45) minutes from the main unit.
- The use of medicine balls and boxes of different heights and balls of different weights were used in the training units.
- Use of rapid performance for a short time in the development of jumping

The specificity of training with muscle work is that the performance time is for several seconds (between 1-15 seconds)
- The level of performance velocity is from 80% -95% of the maximum potential of the muscle at speed of performance
- Use Barriers and funds. And the stairs as rebound jumping resistors

Diversification and change in exercise performance between one training unit and another
- Exercise is continued for periods that do not lead to muscle fatigue

-*The control group* : This group will use the training system used by the coach of the team

Dimensional tests: The researcher of assistant with the team to conduct tests on a sample Meta - search on Sunday on (28/3/2020) with regard to the circumstances the same Ha - related tests tribal

Statistical methods: The researcher used statistical methods through the statistical bag (SPSS The statistical packages for social systems and using the relevant statistical laws:

Arithmetic mean
Mediator
Coefficient of torsion
Standard deviation

(T) Test for the significance of the differences between the averages of the unrelated samples

(T) Test for the significance of the differences between the averages of the correlated samples

- **Display and analyze the results of tests of the group control**

Table (5) shows the arithmetic mean, standard deviations, differences and value t for the control group in the search for pre and posttests.

Variables	measuring unit	The pretest		Post test		Then	P. P	Values t Calculated	Error lev	indication
		s	P	s	P					

									el	
Pulse rate	**Number**	6 5 142	1.345	64.0	1.290	1.142	0.3779	8,000	0.000	moral
Vo2max	**Milliliter/Kg/ Accurate**	63.714	1.603	65,571	0.975	1.857	1.069	4.596	0.0 0 4	moral
Lactic acid concentration level	Mmol / liter	12.428	0.786	13.285	0.487	0.857	0.690	3.286	0.017	moral
Shoot by jumping	**Degree**	3.714	0.690	4.857	0.690	1.142	0.3779	8,000	0.000	

At a degree of freedom (6) and a fault level (0.05)

- **Presentation and analysis of test results for the experimental group.**

Table (6) shows the arithmetic mean, standard deviations, variances, and value tThe calculated group for the experimental group in the search for pre and post tests

Variables	**measuring unit**	**The pretest**		**Post test**		**Then**	**P. P**	Values t Calculated	Error level	**indication**
		s	**P**	**s**	**P**					
Pulse rate	**Number**	64.571	1.511	61.571	1.272	3.00	0.577	13.784	0.000	**moral**
Vo2max	**Milliliter/Kg/ Accurate**	64.142	1.345	68.258	0.755	4.142	1.2149	9.021	0.000	**moral**
Lactic acid concentration level	Mmol / liter	12.142	0.690	13.00	0.577	0.857	0.3779	6.00	0.001	**moral**
Shoot by jumping	**Degree**	3.857	0.487	6.285	0.487	2.428	0.7868	8.167	0.00 0	**moral**

At a degree of freedom (6) and a fault level (0.05)

- **Presentation and analysis of the results of the differences in post-tests between the experimental and control groups:**

Table (7) Differences shows between the experimental groups of and control

variable	**Experimental group**		**Control group**		**t**	**Error level**	**indication**
	s	P	s	P			
Pulse rate	61.571	1.272	64.0	1.290	3.545	0.0 0 4	moral
Vo2max	68.258	0.755	65,571	0.975	5.818	0.000	moral
Lactic acid concentration level	13.00	0.577	13.285	0.487	1.00	0. 337	random
Shoot by jumping	6.285	0.487	4.857	0.690	4.472	0.0 01	moral

At a degree of freedom (12) and a level of significance (0.05)

Discussion of the results of the differences between the experimental and control groups with offensive skills

The results of the tests (pulse rate, and Vo2maxAnd correction from jumping) There are significant differences between the experimental group and the control group tests, and in favor of the experimental group. The differences are randomly measured by testing the level of lactic acid concentration. The researcher attributes this to the effectiveness of the exercises prepared in the method of bouncing front, back and side jumps, which worked to develop the strength and speed of players, which in turn affected the physical ability of the players and the paths of skill performance by increasing the jumping strength of the player and thus events adaptations in the periodic respiratory system as it refers (conciliator Lord) " that the training works on the adaptation of the heart and circulatory system and become a player with the ability of the high rate of heart , the better the level of sports " (Sire , 1999) the rate of heart is an indication of the physiology of the knowledge of the impact of the training data And here (Fox) indicates that "a slow pulse (a decrease in the number of strokes) at the time of rest is one of the phenomena associated with good training. " (Fox, 1984(As both confirmed) Fox & Mathews, 1976) That " training has a clear effect on the rate of heart rate at rest , as this rate decreases for the trained individual with the association with his training condition ") Fox & Mathews , 1976) . As the muscle strength is the basis for the development of the ability of players to jump and take advantage of that both at the skill of the correction performance of stability or jump as continuity on this exercise led to the development of the rapid strength of the muscles of the legs and hands , which led to the development of the anaerobic energy system and increase the load in the performance of The successive jumps to the highest possible height in order to reach the distinctive goal , and this is consistent with the study (Mona Muhammad Jawad) to "the existence of a significant correlation between the skill level of correction in handball and the ability of the arms and legs" (Jawad , 1990)

Strength is one of the factors affecting athletic achievement and mastery of skillful performance. Therefore, rebound jumps exercises had a direct effect on the development of physiological variables and the skill of correction from jumping, and the results were logical.

Conclusions and recommendations

Conclusions

1- Backgammon training develops some physiological variants in young handball players

2- The rebound jumping exercises improve the pulse rate of young handball players

3. The exercises jumps regressive work development level Vo2max I have young handball players

4- Rapid strength training develops jumping shots in young handball players

Recommendations and proposals

1- The necessity of adopting rebound jumps training for young handball players

2- Disseminating research results among young handball coaches

3- Building training curricula according to the scientific foundations during training for handball players and for all age groups.

4- Conducting similar scientific studies on other groups.

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