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The effect of using anaerobic ability exercises with suggested intensity on some physical and functional variables among young handball players

[1]Dr. Mohammed Mahmood Kadhim; [2]Dr. RAAD KHANJAR HAMDAN

Abstract

The research community was determined and they represent deliberate players in the Karkh Sports Club handball, who are aged between (15-19 years) totaling 14 players, to represent 82% of the research community, divided into two experimental unequal. The researchers used the experimental method for its suitability and the nature of the research. The training curriculum was implemented with the suggested stresses, as the first group uses intensity between (50% - 65%) and the second group (65% - 80%) for period of (8) weeks, at two units per week. After completing the training curriculum and obtaining the data, it was processed statistically using the statistical program (SPSS). The research aimed to: Detecting the significance of the differences between the pretest and the post test of the two experimental groups in the physical and functional variables, to reveal the significance of the differences in the post test between the two experimental groups in the physical and functional variables. The following conclusions were reached: Affected anaerobic capacity training intensity proposed (50% - 65 %) in the development of maximum power and the two men and the explosive power of two distinctive power to speed and the two men. Anaerobic training at the suggested intensity (65% - 80%) affected the development of maximum strength in the arms, explosive strength of the arms and legs, and the characteristic velocity of the two legs. The training methodology of the first experimental group, which used intensity (50% - 65%), had an effect on the maximum strength of the two men better than the second group, which used intensity (65% - 80%). anaerobic exercises affected the ability of the proposed intensity on the low pulse rate for both groups.

Keywords*: Anaerobic ability - Physical variables - Functional variables - Handball.*

Introduction

The great development that sporting events and games have witnessed in recent years, and the continuous achievement of records, came as a result of harnessing other sciences and their applications in increasing the effectiveness of training and the continuous objective diversification of curricula and methods used in training. The Weightlifting exercises are appropriate one of the methods used and the basis for the training of a lot of sports which include different methods and multiple methods, the development of these are games into consideration the type of event sports and the desired target development (**Anmar, 2009**). It is known

[1,2] University of Baghdad /College of Physical Education and Sport Sciences
Mohammed.Kazem@cope.uobaghdad.edu.iq; raad.hamdan@cope.uobaghdad.edu.iq

that the fitness elements Physicality is one of the most important pillars of training that are attended by trainers and researchers to reach the highest level in a way that serves achievement, and the capacity (strength and speed) is one of the important composite physical characteristics that constitute the decisive factor in many activities and sports. (**Amrsaa, 2011**) The practice of handball activity is one of the sports that is characterized by exerting a high physical effort for a long period of time. It contains high team performance and ideal requirements in order to implement movement sentences, whether physical or short, at high speed, as well as the ability to highlight the elements and competition between players. (**Hamad, 2014**) , as it requires to make a high - voltage power and speed commensurate with the strength of competition in the games, especially when applying the basic skills and what is contained in the performance of the duties of offensive and defensive and became perhaps the difference in the levels of global difference e and the element of strength , speed and clear and became the convergence the level of performance of the run 's with efficiency and high in the implementation of plans for tactical dysfunctional FH, as well as the case of creativity, development and innovation in the methods and means of sports training using the foundations and principles of the required planning to prepare a comprehensive training curriculum, and show the importance of research in the ability anaerobic to try to reach the results reveal the impact of anaerobic exercises the ability of Baghdad proposed in some variables t a v physical and functional with the handball players which helps the trainer in the design and preparation of the training curriculum to upgrade the level of players and achieve the best results. (**Cardinale, 2012**)

Literature review

Anaerobic abilities: The term "anaerobic" is due to the muscular action that depends on the production of anaerobic energy, and since the human cannot make any movement or even stability in a certain position without relying on muscle contraction, which therefore occurs only when the necessary energy is available to him, which either is to be anaerobic, i.e. without oxygen or air energy, i.e. in the presence of oxygen. Therefore, the physiological nature of both types of energy production systems varies. An analytical view of the activities of the phosphate anaerobic system is that those activities require maximum speed performance if the muscular action is of the moving type, or by maximum constriction if the muscular action is of the fixed type. Therefore, the following physical qualities can be included in this system: (superpower, constant superpower, speed, speed and speed strength). The following physical attributes can also be included under the lactic acid system: (speed tolerance, carrying moving force and carrying hard force). By comparing both anaerobic systems (phosphate and lactic acid), the most important performance requirement in the first type is to focus on releasing maximum energy in the least. (**Abu Al-Ela, 2003**)

Physical variables: Maximum strength: He defined it (**Abdel Fattah 2003**) as "the ability of the nervous and muscular systems to produce the maximum muscle contraction." **(Abu Al-Ela, 2003**).

Explosive Force: Define It (Maud & Foster) As "the maximum force in a single contraction generated by a muscle or muscle group at a high velocity". (Maud, 2006)

Force characterized by speed: (Muhammad Reda) defined it as "the ability of the muscular nervous system to produce rapid force" (Muhammad, 2008).

Functional variables: (Pulse rate HR) :it is defined as "the number of heart beats per minute" (**Fadel, 2011**) and he adds that a normal healthy person has between (70-80 beats / minute) and many sources agree that the pulse rate is estimated during rest for people Trainers (50-60 beats / minute)

Blood pressure (BP)*:* Blood pressure expresses the efficiency of the cardiovascular system (i.e. the heart muscle, arteries and veins) when resting and when exerting effort and heart action is similar to the pump,

with each contraction of it, the blood rushes into the blood vessels under a certain pressure. " (**Povaoas, 2012**) And the pressure is "the force that transports blood through the circulatory system and, like other fluids, the blood runs from one high pressure area to another with a higher pressure."(**Clark, 2010**) Blood pressure is a transit point and an indicator of the functional state of the circulatory system, which is influenced by several factors, including age and sex, and increases pressure as a person ages, as well as the blood pressure is affected by sports training, which leads to the occurrence of responses that can be observed when measured, as "systolic pressure increases progressively during increased dynamic exercises such as jogging while diastolic pressure increases very little" **(Direx, 1988**)

Methodology

research community was determined purposively representing players of Karkh club Sports bags roller aged between (15-19 years) and the age of training (3) years of 14 players after excluding the number of three players for several reasons , representing the proportion (82%) From the research community, they were divided into two equivalent experimental groups. Equivalence was conducted between the two research groups in (height, age, and weight) as well as physical characteristics (maximum force, explosive force, and force characterized by velocity) and functional variables (pulse rate and blood pressure).

Table (1) shows the statistical parameters of parity for the two experimental groups

Statistical parameters Variables	**measuring unit**	**The first experimental group**		**The second experimental group**		**Value (v(Calculated**	**Value (v(**
		-s	**±p**	**-s**	**±p**		
Length	cm	177.28	5.4	179.71	4.99	0.783	2.18
Age	Year	17.42	0.78	17.57	1.51	0.22	
the weight	Kg	65.57	7.52	65.28	8.86	0.065	
The maximum strength of the arms	Kg	49.28	8,38	45.71	10.57	0.7	
The ultimate strength of two men	Kg	71.14	9.24	63.57	15.46	1.11	
The explosive power of the arms	meter	7.87	0.62	8.17	1.39	0.52	
The explosive power of the two men	cm	53.57	8.52	49.28	11.7	0.78	
The power of the two arms is speed	Repetition	11.14	0.89	11.71	1.7	0.78	
The power of two men's speed	Repetition	7.57	0.53	7.42	0.78	0.39	
Pulse (rest time(	N / d	79.42	5.79	80	7.37	0.16	
Systolic blood pressure	Mm / g	7.42	0.53	7.57	0.53	0.5	
Diastolic blood pressure	Mm / g	11.85	1.34	12.42	0.53	1.04	

Significant when the error ratio ≤ (0.05) versus a degree of freedom (12) = 2.18

Means, tools and devices used: Arab and foreign sources, Form to dump the information and data, Helpful staff, Peng-press device, count (2), Dubai Agency, count (2), stopwatch Number (4), Whistle, Legal handball court, Number of (10) signs, Medicine balls, count (2), Legal hand balls, count (10), Tape measure length (30 m), Tape is not glued

Reconnaissance experiment: The exploratory experiment was conducted on individuals of an independent sample consisting of three players, in order to identify: - The time taken to perform the training unit. - Potential errors to avoid while applying the main experiment.

*Basic experience***:** The tests conducted by the researchers were of two types, which are functional tests represented by testing the pulse and blood pressure of both types (systolic and diastolic (and physical tests represented by testing) maximum force, explosive force, and force characterized by velocity .(Therefore, the researchers were keen to provide the appropriate conditions as much as possible in order for the research results to be objective and scientifically accurate.

The pre-tests: The pre -tests were conducted on Thursday 12/1/2012, and they were tests (maximum strength, explosive strength tests, and strength tests characterized by speed) and (pulse rate, systolic and diastolic blood pressure.

*Training procedure***:** The application training curriculum for both groups and Weightlifting proposed, as TS serves the first experimental group Z intensity between (50% - 65%), the second experimental group uses the intensity between (65% - 80%) as started all training units General warmed in order to create all the muscles of the body of the player yen, thrown or by age special for all the muscles involved in the performance as a warm - up for the Rennes, All of the combined and obtain first and second share in the warm - up or private and the method of training and swans are given (The difference is only in the percentage used by the player). Two training units per week were given for a period of (8) weeks. Thus, the total of training units for each training curriculum was (16) training units and for two intermediate sessions, and the movement of pregnancy in each intermediate course was (3/1). The training curriculum was implemented from 01/16/2012 until 3/9/2012.

*Posteriori tests***:** were done on Sunday, 03.11.2012 has been made under the same conditions in which priori tests are conducted in a tribal itself in terms of space and time and the tools used in the measurement .

Statistical means : The statistical bag was used (SPSS) to extract the results, the following statistical methods were used (the arithmetic mean, standard deviation, and (T) test for linked and unrelated samples).

Results

Table No. (2) Shows the statistical parameters of the physical variables for the first experimental group

Statistical parameters Variables	**measuring unit**	**The pretest**		**Post test**		**Value (v) Calculated**	**Value (v)**
		-s	**±p**	**-s**	**±p**		
The maximum strength of the arms	Kg	49.28	6.07	59.28	6,72	2.79 *	2.45 0
The ultimate strength of two men	Kg	71.14	9.2	82.14	6.36	2.59 *	
The explosive power of the arms	meter	7.87	0.62	8.28	0.65	1.81	
The explosive power of the two men	cm	53.57	8.52	63.85	8.09	2.55 *	
The power of the two arms with speed	Repetition	11.14	0.89	12	0.81	2.52 *	
The power of two men's speed	Repetition	7.57	0.53	8.28	0.48	2.50 *	

Significant when the error ratio ≤ (0.05) versus a degree of freedom (6) = 2.45

Table No. (3) Shows the statistical parameters of the physical variables for the second experimental group

Statistical parameters Variables	measuring unit	The pretest		Post test		Value (v) Calculated	Value (v)
		-s	±p	-S.	±p		
The maximum strength of the arms	Kg	45.71	10.57	52.85	8.09	3.87 *	2.45 0
The ultimate strength of two men	Kg	63.57	15.46	68.57	14.35	1.87	
The explosive power of the arms	meter	8.17	1.39	8.68	1.76	2.72 *	
The explosive power of the two men	cm	49.28	11.7	54.42	9.62	5.81 *	
The power of the two arms with speed	Repetition	11.71	1.7	11.42	1.39	0.67	
The power of two men's speed	Repetition	7.57	0.53	8.14	0.37	2.82 *	

Significant when the error ratio ≤ (0.05) versus a degree of freedom (6) = 2.45

Table (4) shows the statistical parameters of the physical variables for the two groups in the post test

Statistical parameters Variables	measuring unit	The first experimental group		The second experimental group		Value (v) Calculated	Value (v)
		-s	±p	-s	±p		
The maximum strength of the arms	Kg	59.28	6.72	52.85	8.09	1.61	2.18
The ultimate strength of two men	Kg	82.14	6.36	68.57	14.35	2.28 *	
The explosive power of the arms	meter	8.28	0.65	8.68	1.76	0.56	
The explosive power of the two men	cm	63.85	8.09	54.42	9.62	1.98	
The power of the two arms with speed	Repetition	12	0.81	11.42	1.39	0.93	
The power of two men's speed	Repetition	8.28	0.48	8.14	0.37	0.61	

Significant when the error ratio ≤ (0.05) versus a degree of freedom (12) = 2.18

Table No. (5) Shows the statistical parameters of the functional variables for the first experimental group

Statistical parameters Variables	measuring unit	The pretest		Post test		Value (v) Calculated	Value (v)
		-s	±p	-s	±p		
Pulse (rest time)	N / d	79.42	5.79	68.71	1.79	4.89 *	2.45
Systolic blood pressure	Ml / g	7.42	0.35	7.14	0.37	1.54	
Diastolic blood pressure	Money / g	11.85	1.34	12.28	0.48	0.66	

Significant when the error ratio ≤ (0.05) versus a degree of freedom (6) = 2.45

Table No. (6) Shows the statistical parameters of the functional variables for the second experimental group

Statistical parameters Variables	measuring unit	The pretest		Post test		Value (v(Calculated	Value (v(
		-s	±p	-s	±p		
Pulse (rest time(	N / d	80	7.37	69.71	4.02	6.31 *	2.45
Systolic blood pressure	Ml / g	7.57	0.35	7.14	0.37	0.44	
Diastolic blood pressure	Money / g	12.42	0.53	12.28	0.75	0.54	

Significant when the error ratio ≤ (0.05) versus a degree of freedom (6) = 2.45

Table No. (7) Shows the statistical parameters of the functional variables for the two groups in the post test

Statistical parameters Variables	measuring unit	The first experimental group		The first experimental group		Value (v) Calculated	Value (v)
		-s	±p	-s	±p		
Pulse (rest time)	N / d	68.71	1.79	69.71	4.02	0.6	2.18
Systolic blood pressure	Ml / g	7.28	0.48	7.14	0.37	0.61	
Diastolic blood pressure	Money / g	12.57	0.53	12.28	0.75	0.81	

When a significant error rate ≤ (0.05) in front of the degree of freedom (12) = 2.

Discussion

Seen from the tables (2-3) and there is a significant moral difference between the two tests kisses me and posttest for both groups experiment in all the variables for the benefit of the test posttest with the exception of (the explosive force of arms) for the first group, and (the maximum strength of the two distinctive power speed for the second group. The two studies attribute the significant differences to the variables that showed a dimensional significant development for both groups to the effectiveness of the two training approaches using stresses (50% -65%) for the first group and (65% - 80%) for the second group of maximum intensity, as the scientific foundations were relied upon in The preparation of the curriculum is different in terms of intensity, comfort and frequency for each exercise. In this regard, refers (Mufti Ibrahim) that exercises anaerobic activities practiced exchange repeat exercise with the rest separating each performance exercise and another, and the severity of the difficulty of performance is usually above average or high it thus aims to raise the level of elements All fitness (Mufti, 2004.). The effect of training with intensity (30% - 100%) of the maximum intensity leads to good results in strength training. (**Clark, 2010**) With regard to the results of the differences between the two groups in post - test of the variable of T results showed that there are significant differences between the two groups in the variable (maximum power) and for the benefit of the first experimental group which strongly trained (50% - 65%) of the maximum intensity and attributed this result to That this group used to perform the aforementioned intensity with a period of (10) seconds, during which the repetition was more than the second group, which performed severely (65% - 80%) of the maximum intensity, which used to perform with less frequency despite the equal time of the group, but the intensity in the second group Greater than the first, so the frequency is less due to the increase in severity. This is consistent with what both of (brianmac) In "Exercises with muscle contractions, with greater

frequency and according to the given intensity, have a positive effect in developing and improving the maximum strength" (**Brianmac, 2001**). In this regard, *Thamer Al-Sufi* notes, "Training that is characterized by an inverse proportion between intensity and repetition with a sufficient rest period to restore healing are important factors in developing maximum strength." (**Thamer, 2005**) And it can be seen from the tables (5-6) and there is a significant moral difference between the pre and post tests for both groups in pulse variable for the benefit of post - test, and the existence of differences, but a non- moral between 2 groups n blood pressure variable (diastolic and systolic). This result is consistent with what was indicated that sports training leads to functional changes (adaptations) and these adaptations are not noticed until after several weeks of regular training, as sports training increases the size of the heart, which leads to an increase in the size of the heart. It helps increase the volume of blood paid in one stroke (SV Also, sports training leads to a decrease in the diastolic muscle tone, in connection with changing the balance of the influence of the involuntary nervous system on the heart muscle during rest. Accordingly, we note an increase relaxant heart muscle and thereby increase the capacity of the size of the ventricular diastolic including no more than (5-10%) and training increases the length of the muscle fibers of the heart as a result of a change t anatomical activity associated with the construction of the protein and thereby widening functionally occurs in heart this affects the number of heart beats per minute at rest, as the result of sports training is intended lower for heart rate to maintain the polar balance equation output cardiac, as output cardiac no different between athletes and Pollack athletes at rest (**Abu Al-Ela, 2003**). But the difference is in the size of the stroke and the number of heart beats per minute. The heart rate decreases in athletes with the increase in stroke volume for non-athletes (**Povaoas, 2012**).

Conclusions

1. Anaerobic training at the suggested intensity (50% -65%) affected the development of maximum strength in the arms and the characteristic strength of velocity in the legs.
2. Anaerobic strength training at the suggested intensity (65% - 80%) affected the development of the maximum strength of the arms, the explosive strength of the arms, the explosive strength of the two legs, and the characteristic strength of the velocity of the legs.
3. The training curriculum of the first experimental group, which used intensity (50% -65%), had an effect on the maximum strength of the two men better than the second experimental group, which used intensity (65% - 80%).
4. Anaerobic capacity exercises with the suggested intensity affected the decrease in pulse rate for both complexes.
5. The two researchers recommended: The possibility of using the two training curricula according to what the results of development have shown for each one with all intensity. Emphasis on the use of the training curriculum for the first group with intensity (50% -65%) for the largest number of repetitions within (10 seconds) to develop the maximum strength of the two men. Emphasis on handball coaches' full knowledge of the different stresses, their utility and method of working with them to diversify all training curricula, especially research stresses, in order to improve the level of sports teams.

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