European Journal of Humanities and Educational Advancements (EJHEA)
Available Online at: https://www.scholarzest.com
Vol. 3 No. 09, September 2022
ISSN: 2660-5589

THE EFFECT OF INTENSE EXERCISES TO DEVELOP SOME PHYSICAL ABILITIES AND PHYSIOLOGICAL INDICATORS, EFFECTIVE TIME OF 400M FOR JUNIORS

Asst. Lecturer. Hiba Ahmed Abdel-Jabbar
The third Karkh Education Directorate
hiba74647@gmail.com

Article history:

Received 6th July 2022
Accepted: 6th August 2022
Published: 16th September 2022

Abstract:

The importance of the research lies in laying the correct scientific foundations to bring about development as a result of the use of intensive exercises in developing some physical abilities and physiological indicators and the effective time of a sprint (400 meters) freestyle junior category. The problem of the research, when the researcher was informed of the scientific sources and the researcher's field experience, being a trainer and referee in athletics and being specialized in this field, was suffering from a lack of focus of most trainers on intensive exercises when training physical abilities and physiological indicators for young people. Focusing on this type of training will lead to (the level of achievement stops), and this is the opposite of what was observed. When looking at tournaments for the same event, many of the young players reach high levels using intense exercises and the body continues to give for the best achievement, which prompted the researcher to search and investigate through the development of intensive exercises To be an important training process accessible to coaches and young players specialized in running a (400m) freestyle sprint and to be a reference for .serving the training process in Iraq, hence the research problem

The research aims to prepare intensive exercises to develop some physical abilities and physiological indicators for the effectiveness of a (400m) freestyle sprint for juniors. Identifying the effect of intense exercises on research variables for the effectiveness of a (400m) freestyle sprint for .juniors

The researcher used the experimental method by designing the experimental and control groups, and the research sample was determined by a deliberate method, which included the players (Al-Zafaraniya, Al-Kahraba and Al-Fattah) in the governorate of Baghdad. severity) using auxiliary tools, .and after obtaining the raw results, they were processed statistically

Keywords: Intense Exercises, Physical Abilities, Physiological Indicators, 400m For Juniors.

1 -INTRODUCTION TO RESEARCH

1-1 Introduction and importance of research

What we see today in terms of breaking records and converging levels between competitors in various games, especially athletics, is only evidence of the advanced level that countries have reached, whatever their classifications, in the adoption of various training methods and methods by their coaches that suit the special requirements of practicing activities, in pursuit of achieving sports levels. The high level of various activities and sports in general and for athletics competitions in particular and with its various activities, including the event of a sprint (400 meters) as one of the exciting short-distance races in Olympic and world athletics. Physical abilities and special physical abilities affecting the achievement process and the detection of the best methods and training methods appropriate for their development in general.

As this event has become the focus of studies and research in the field of sports because it needs an integrated preparation from the physical, functional and psychological aspects, as it is affected by all the different qualities and abilities, and there are physical abilities that are effective in making a positive impact in continuing performance, such as the special endurance ability related to distances less and a little more than The distance of the race, so the importance of the research lies in laying the correct scientific foundations to bring about development as a result of

the use of intensive exercises in developing some physical abilities and the effective time of a (400 meters) freestyle sprint for the junior category.

1-2 research problem

Through the researcher's knowledge of the scientific sources and the experience of the field researcher, as they are champions at the local and international levels in the event of a (400m) freestyle sprint, and since they are specialized in this field, most of the trainers suffer from a lack of focus on intensive exercises when training anaerobic abilities for juniors on the pretext that the category at this stage is considered in A growth stage, and if this type of training is focused on, it will lead to (the level of achievement stops), and this is the opposite of what was observed when looking at tournaments for the same event. Through the development of intensive exercises to be an important training process within the reach of coaches and young players specialized in the effectiveness of a free sprint (400 meters) and to be a reference to serve the training process in Iraq, hence the research problem.

1-3 Research Objectives

1 -Preparing intensive exercises to develop some physical abilities and physiological indicators for the effectiveness of a (400m) freestyle sprint for juniors.
2 -Recognizing the effect of intensive exercises on research variables for the activity of (400m) freestyle for juniors.

1-4 research assignments

1 -There are statistically significant differences between the pre and post tests (for the experimental group) in the research variables of the sample members.
2 -There are statistically significant differences between the pre and post tests (for the control group) in the research variables of the sample members.
3 -There are statistically significant differences between the tests (post-test) for the experimental and control groups in the research variables of the sample members.

1-5 Research Areas

1-5-1 The human field: a group of young players for the (400m) freestyle running event from Baghdad clubs.
1-5-2 Time domain: for the period from 1/11/2021 to 1/4/2022.
1-5-3 Spatial domain: Baghdad - Ministry of Youth and Sports - Stadium of the National Center for Sports Talent.

2 -RESEARCH METHODOLOGY AND FIELD PROCEDURES

2.1 Research Methodology

The researcher used the experimental method (with the design of the two equal groups) to suit the nature of the problem to be solved, as the experimental method (represents the most honest approach to solving many scientific problems in a practical and theoretical manner) (6: 217).

2-2 Research community

The research community was determined by the intentional method and represented the research community in the junior category representing Baghdad clubs (Al-Kahrabaa Club, Al-Zafaraniya Training Center, Specialized School, Al-Mahaweel Club, Al-Fatta Club) affiliated to the Athletics Federation for the sports season (2020-2021) and the number of sample members is (14) athletes Specialized in the 400-meter freestyle sprint, and (4) athletes were excluded for the pilot experiment, forming a percentage of (83.33) from the original community, and through the lottery, the clubs (Al-Zafaraniya, Electricity and the Girl) were selected, which formed their percentage at the time from the original community, and by lottery and in the manner of (doubles and singles) And by dividing the sample of the research individuals into two groups (experimental and control), and the distribution was (5) players for each group.

Table(1)

Shows the homogeneity tests (length - mass - biological age - training age) and the value of the torsion coefficient of the research sample

skew modulus	Mediator	standard deviation	mean	unit of measure	Variables are the
0.327	148.5	9.492	153.10	cm	length
0.373 -	41.77	5.914	41.44	kg	mass
0.687	14.5	0.823	14.7	month	Biological age
0.473 -	1.75	0.459	1.6	Year	Training life

It appears from Table (1) that the skewness coefficient for all members of the research sample is homogeneous, with evidence that the value of the skew coefficient for all the variables under study is within (±1), which indicates their homogeneity.

2-3 Devices, Research Tools and Data Collection Means:

2-3-1 Means of data collection:

1 .Arab and foreign sources.
2 .Information Network (Internet)
3 .Test and measurement
4 .Observation and experimentation
5 .Personal interview
6 .Information collection form
7 .Data dump form

2-3-2 Devices and research tools:

The researcher used the following tools to obtain the required information and data:

1 .HP laptop
2 .Compact discs (CD)
3 .tape measure
4 .stopwatch number(10)
5 .Medical scale (1 pcs.)
6 .Weights
7 .Shawakhs

2-4 Determination of physical variables and their tests:

2-4-1 Test 60m sprint from standing (226:10).

The purpose of the test: To measure the maximum speed.
Tools and devices: stopwatch - straight, paved road (running in a straight line).
Performance specifications: The starting method is used in athletics. The tester takes the standby position behind the starting line. When he hears the word (go), the laboratory runs at full speed until it exceeds the finish line, which is 60m away from the starting line.
Recording: The laboratory records the time (in ses) in which the specified distance is located.

2-4-2 150m (314:9) jump run test.

Purpose of the test: To measure the force tolerance.
Instruments: stopwatches, small cones to indicate the starting place and the finish line, whistle to signal the start.
Performance specifications: The tester stands at the starting line, taking the starting position in the semi-long races. When he hears the start signal, he runs as fast as possible until he crosses the finish line a little.
Recording: The laboratory records the time it took to travel a distance of 150 meters from the moment of giving the start signal until the moment of crossing the finish line.
Degree Calculation:
- The time achieved is recorded by the first timekeeper at the finish line.
The laboratory has one attempt for each 150m.
-Where each laboratory of the research personnel runs the test distance according to the applicable laws.
-Recording the achieved time according to the law of the game in the competition - the race.

2-4-3 test run (350) meters (156:2)

The objective of the test: To measure the endurance of speed.
Tools used: athletics track (400) meters, stopwatch, assistants, registration form.
Description of the test: The testers stand behind the specified starting line from the high starting position. After the start signal, the testers go to travel the prescribed distance, provided that the testers run and jump, taking into account the compliance with the performance rules. When he crosses the finish line, the timekeeper stops the stopwatch.
Recording: A timer for each laboratory records the time of each laboratory in ses.

2-4-4 Heart Rate Measurement (174:13)

Objective of the test: Calculate the number of heart beats (pulse) per minute during rest and after exertion after running 400m.
Tools used: Six German-made beurer watches were used to measure heart rate, a registration form.
Performance description: The runner sits in a calm and stable state. The runner wears the heart rate watch on the wrist with the chest strap attached to the chest, and after programming the watch to enter the runner's data of age, height, weight and enter a code Gender (male or female) The sensitive tape sends signals to the watch to show the number of heartbeats (pulse) on the watch screen. As for the effort, the runner keeps wearing the watch, and immediately after the effort, the measurement is read from the screen of the watch.
Recording: records the heart rate that appears in the pulse oximeter watch screen, and writes the heart rate in beats per minute (bpm) in the recording form.

2-4-5 Test name: Run 400 metres.

The objective of the test: to measure the achievement of the 400-meter run.

Tools used: playground and field, stopwatches, registration forms.
Method of performance: All players are tested together to ensure the element of competition. The test begins when the players hear an instruction (take your place) as they take the starting position from sitting, then instruct (be prepared) and then start and start running around the track a full turn to cover a distance of 400 metres.
Registration method: The time of each contestant is recorded in the registration form in (ses and its parts).
2-5 The exploratory experience:
The researcher conducted the exploratory experiment on the experimental research sample consisting of (4) runners on Thursday 11/11/2021 at four o'clock in the afternoon, at an average training unit in the stadium of the National Center for the Care of Sports Talent for Athletics with the assistant work team, and the purpose of which is:
-To verify the validity of the tools used in terms of their positivity, and the availability of safety to work on them
Knowing the extent of the place suitable for these ages for the purpose of training.
Knowing the time taken to perform the tests.
-Validity of intensive exercise for these ages.
Ensure that the time used for exercise is sufficient.

2-6 tribal tests

The test (it is a means of evaluation, measurement, diagnosis and guidance in the various curricula, programs and plans for all levels and age stages, as it clearly indicates the extent of progress and success in achieving the objective goals) (4:267). The researcher conducted the tribal tests on Thursday, 11/18/2021 at exactly At four o'clock in the afternoon, on the stadium of the National Center for the Care of Athletic Talent for Athletics, on the experimental and control groups, after clarifying the tests for the research sample.
Table (2)
It shows the equivalence of the sample in the research variables

2-7 Main Experience (Training Curriculum)

The researcher prepared the exercises in the special preparation period based on some variables and the literature of sports training to develop the physical abilities of running (400m), and designed intensive exercises, putting stress, repetitions, and appropriate rest periods, depending on the scientific physical ability in the field of specialization, and the researcher's modest experience, and access to The opinions of some experts and specialists in the field of training science And athletics, as the curriculum prepared and used for the research group differs in terms of exercises in the curriculum used by the coach, and the difference in the use of intensive exercises during the training units and the application of special exercises in the special preparation period was as follows:
1 -Conducting the first training unit on Saturday 20/11/2021 after the tribal exams and the last training unit on Wednesday 12/1/2022.
2 -The training period is (8) weeks, with (3) training units per week, which are (Saturday, Monday, and Wednesday), and the number of units is (24 training units).
3 -The intensity of the intense exercises used was 100-85%
4 -These exercises were distributed within the weekly small training circuit.
5 -As for the intensity used by the player's maximum potential.
6 -The researcher used performing exercises with and without tools throughout the implementation of the curriculum.
7 -The method used and approved by training is high intensity interval training.
8 -The researcher relied on the number of repetitions according to the intensity levels used. As for the rest period, it was between the repetitions according to the type of exercise and the goal of it towards reaching anaerobic endurance. It was between (120n/min - 130n/d) meaning incomplete hospitalization, while between groups it was proven The researcher returned the pulse to (90 n / min), that is, obtaining full recovery for the sample members and for this age group (juniors).

2-8 Post-tests:

After the end of the training curriculum, the post-test was conducted on the research sample on Friday, 14/1/2021 at exactly four o'clock in the afternoon. The same conditions for the test in terms of time, place, the same auxiliary work team (in the pre and post tests), tools and devices in order to stabilize the variables as much as possible.

2-9 Statistical means:

The researcher used the Social Statistical Package (SPSS) and the values of:
1 -the middle for my account
2 -Standard deviation
3 -The mediator
4 - coefficient of skewness.
5 -Law (T) for correlated samples.
6 -Law (T) for independent samples.

3 -PRESENTATION, ANALYSIS AND DISCUSSION OF THE RESULTS

3-1 Presentation of the test results (pre- and post-test) for the physical abilities tests of the group (experimental)

Table 2

It shows the arithmetic means, standard deviations, the calculated (t) value and the significance of the physical tests of the experimental group, before and after

Significant when (Sig) ≥ (0.05), degree of freedom (n - 1) = 5-1 = 4, significance level 0.05

Presentation of the test results (pre and post) for the physical abilities tests of the control group

Table 3

It shows the arithmetic means, standard deviations, the calculated (t) value and the significance of the tests of physical abilities of the (control) group, before and after

Significant when (Sig) ≥ (0.05), degree of freedom (n - 1) = 5-1 = 4, significance level (0.05)

3-3Presenting the results of the (post-test) tests for the physical variables of the two groups (experimental and control).

Table (5)

It shows the arithmetic means, standard deviations, the calculated (t) value and the significance of the (dimensional) tests of the physical abilities of the two groups (experimental and control) in the research variables.

*Significant when (Sig) > (0.05), degree of freedom (n1 + n2-2) = 10-2 = 8, significance level (0.05)

Discuss the results

From Table (3) it is clear that there are significant differences between the pre and post tests of the control group in the physical variables. With something that is not new, which gave development, which is performed in one style and with a stable performance, as well as the neglect of the curriculum followed by the group, the correct distribution of the load as it did not depend on the correct scientific foundations, as well as the use of similar exercises that are free of excitement among the runners of the control group, as well as it appears from Table (2) that there is Significant differences between the two tests, the pre and post tests, and in favor of the post test for the experimental group in all the variables of physical abilities. And the post-test of the speed endurance test for the experimental group, and the difference and development were in favor of the post-test, and this came as a result of The use of codified training methods and methods that were used and the capabilities of the experimental research group. The high-intensity interval training method was used in the development of speed endurance and in different training forms commensurate with the capabilities of the sample from "the effect of the exercises used in this method with high intensity, as it reaches in running exercises to about 85-95% of the The player's maximum level and in weight training is about 85% of the player's level ability" (160:3). And (Muhammad Reda 2008) (479:8) indicates that "sports games and events of all kinds and specificities require different systems and a different amount of energy and muscular work. energy systems and the efficiency of special muscular work in the performance of these games." From the review of tables (4), it appears that the results of the (dimensional) tests of the physical variables of the experimental and control groups have improved in both groups, and from the review of Table (4) it is clear that the players of the experimental group are superior to the control group, and the researcher attributes the emergence of these results to the exercises used by the researcher Prepared by it in order for the players to get used to such exercises, which proved their suitability for the sample members, whose goal was in more than one direction, and whose frequency and intensity were proportional to this level, and which worked to develop physical variables. One of the most important things that the coach must take into account in formulating the vocabulary of the training program is the lack of stability in the loads in terms of the components of the physical load. It is accustomed to the performance of the physical effort itself, and on this basis the principle of gradual increase in the components of the training load must be taken into account and regularly to raise the athletic level" (64:5), as we find that "when developing the maximum speed in any specialized sports activity, the nature of the forms of speed required for performance must be studied, Then the training curriculum is planned to develop the required speed, and focus on achieving its basic development requirements" (195:1). (Sharkey) indicates that endurance exercises lead to a decrease in the heart rate at rest and at less than maximum loads, and to an increase in the heart beat volume (9:15), the reason for the development of physical control teams in special endurance and its different types in the success of the training program implemented by the trainer and explains in "practice that any training gives good results" and this was confirmed by (Muhammad Hassan Allawi) and stated that "sports training improves the qualities The Physicality and skill level" (17:7), the goal of training is to upgrade the physical and skill aspects of the players in the game they are playing. The sporting individual reaches the highest level of sporting achievement in the activity in which the player specializes" (23:11), the reason for the development of the experimental group is due to the training used as it was effective in developing the research variables for the types of physical abilities as well as the result of the selected exercises, scientifically legalized and applied by the researcher according to Its own method, "There is a scientific fact that must be proven that the exercises used in the training curricula lead to the development of performance if they are built on a scientific basis in the organization of training. The process and use of appropriate physical abilities and monitoring of individual differences and under good training conditions and under the supervision of specialized trainers, as the training programs are codified and organized according to scientific foundations that lead to the development of the physical and skill level of the players (12.89)

The researcher attributes this development in physiological indicators to the functional adaptation that takes place in the body's organs .

Especially the circulatory system, due to the effect of special exercises, the method used, and the variety of its intensity led to a quick recovery, as regular sports training works to adapt the circulatory system." Interval training in most, if not all, sports, as it affects aerobic and anaerobic capacity, and thus contributes a lot to the process of adaptation to its effective effect by controlling its variables in sports activities. (7:14)

1 -CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

From the above presented results, analysis and discussion of those results, the researcher reached the following conclusions:

1 -Intense exercises had a great effect in developing some physical abilities and physiological indicators, the effectiveness of the 400m sprint.

2 -Experimenting with intense exercises may give better results for the other game, as in this method, which reflected its role in the effectiveness of the 400m sprint.

4.2 Recommendations

In light of the conclusions reached by the researcher recommends the following:

1 - The necessity of emphasizing the development of intensive exercises during planning in preparing the trainers' curricula when training age groups, especially the young ones.

2 -Paying attention to the preparation stage, especially the special preparation, through the application of intensive exercises because of their great importance and in preparation for the transition to the pre-competition stage.

3 -Adopting the training curriculum prepared by the researcher, as it is suitable for a distance of 400 meters for juniors.

REFERENCES

1. Abu El-Ala Ahmed Abdel-Fattah: Physical Training, Physiological Foundations, 1st Edition, Nasr City, Dar Al-Fikr Al-Arabi, 1997.
2. Sinan Abdul-Hussein Ali: Special endurance exercises and their impact on some physical abilities and functional indicators and the achievement of men's 800m run, Journal of Physical Education Sciences, Volume 12, Issue 2, 2019.
3. Adel Abdel Baseer: Mathematical Training and Integration between Theory and Practice, Cairo, Dar Al-Kutub Publishing Center, 1999.
4. Kamal Abdel Hamid, Muhammad Sobhi Hassanein: Physical fitness and its components, theoretical foundations, physical performance, measurement methods, 1st edition, Cairo, Dar Al-Fikr Al-Arabi, 1997.
5. Majed Ali Musa: Modern Sports Training, Basra, Al-Nakhil Press, 2009.
6. Muhammad Hassan Allawi, Osama Kamel Ratib: Scientific Research in Physical Education and Sports Psychology, Cairo, Arab Thought House, 1999.
7. Muhammad Hassan Allawi: The Science of Sports Training, Dar Al Maaref, 1986.
8. Muhammad Reda Ibrahim Al-Madamagha: Field Application of Sports Training Theories and Methods, 1st Edition, Baghdad, Al-Fadhli Office, 2008.
9. Muhammad Sobhi Hassanein: Measurement and Evaluation in Sports Physical Education, Volume 1, Edition 4, Cairo, Dar al-Fikr al-Arabi, 2001.
10. Muhammad Sobhi Hassanein: Measurement and Evaluation in Physical Education and Sports, Volume 1, Cairo, Arab Thought House, 1987.
11. Marwan Abdul Majeed Ibrahim and Muhammad Jassim Al-Yasiri: Modern trends in the science of sports training, 1st edition, Amman, Al-Warraq for Publishing and Distribution, 2010.
12. Muhannad Abdul-Sattar Al-Ani. The effect of a proposed training program for some of the physical and skill characteristics of basketball for young players, a master's thesis. College of Physical Education, University of Baghdad, 2001
13. Marwan Abdul Majeed: Tests, Measurement and Evaluation in Physical Education, Amman, Dar Al-Fikr, 1999
14. Majeed Raysan Khouribet: Applications in the Physiology of Sports Training, Baghdad: Noun Office for Printing Preparation, 1995

Index

indication	Sig	valueT . calculated	Experimental		control		lonliness measurement	processors
			±	s	±	s		Variables
moral	0.000	8,704	0.111	9.92	0.152	9.18	se	maximum speed
moral	0.000	3.645	0.445	39.49	0.364	38.55	se	endurance force
moral	0.000	4.295	0.286	68.57	0.336	71.40	se	bearing speed
moral	0.001	3.498	1.50	76	1.897	80	against	Heartbeat at rest
moral	0.000	4.011	2.06	189	3.505	195	against	Heartbeat after the effort
moral	0 0.00	4.186	0.244	79.76	1.887	76.20	se	achievement

overall size	Rest between groups	totals	Rest between repetitions	Repetition	intensity	exercise type	training unit	day and date
	rest return pulse 90 n/min ---	1 1 2 ---	Return 120 pulse N/min ---	1 4 4 ---	%85	run - 500m He ran - 60m using weights with a percentage of body weight for the arms and legs, g 250 for each part 20m - Leap Forward Squat Run - 800m jog	first	Saturday 2021/11/20 _ _

indication	Sig	Values T calculated	Experimental		control		lonliness measurement	processors statistic
			±	¯ o	±	¯ o		Variables
random	0.215	1.347	0.289	10.48	0.645	10.05	se	maximum speed
random	0.06	2.208	0.382	42.72	1.925	40.72	se	endurance force
random	0.09	1.931	0.982	73.49	1,989	75.40	se	bearing speed
random	0.087	1.971	1.264	78	2.012	81	against	Heartbeat at rest
random	0.073	2.183	4.472	185	3.874	198	against	heart rate after exertion
random	0.08	2,190	0.992	85.28	4.978	80.10	se	achievementm400