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The effect of using the hypoxic training mask in developing some physiological variables and physical abilities of Kirkuk Cycle sport team –youth

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Abstract:
According to the researcher's experience, he noticed that there are weaknesses in Kirkuk clubs and teams in some physical abilities, especially such as speed and strength endurance , and because the game needs these two elements, so we, as researchers, had to enter into this research problem and our use of this type of aid device due to the lack of studies that dealt with the use of modern aids that are not familiar to our trainers and to develop and improve the training process and physical abilities of riders. A training mask in a training curriculum to develop some physical and physiological indicators for the reach of accurate scientific results that can be used in future, and then raise the level of Kirkuk players in particular and Iraq in general to the highest levels and competition at the international level. The researcher used the experimental approach to its relevance to the nature and problem of the research and the researcher conducted the exploratory experiment and the pre and post tests and applied the training method and the researcher used the statistical bag to extract the results and the researcher concluded through his research to the training mask had an effective role in reducing the parts of oxygen atoms the air for the respiratory process during the exercises and led The player to the hypoxia.

Keywords*: hypoxic, and physical abilities, Kirkuk*

1-introduction

Sport has witnessed great progress at various levels based on the basic science and scientific research provided enrichment of the sports movement and progress in science of all kinds has become a powerful incentive for everyone who wants to develop everything that is new for the sake of advancement in various fields, and the advancement of advanced centers and achieving high results for all types . sports requires constant search for means that increase the level of performance of players more than their physical abilities as the training load alone is not sufficient to reach the highest levels, whether they are individual or team, but experts and coaches have to resort to devices, means and modern techniques and use it in their training curriculum and to know the changes .The developments in modern training science are not limited to external observation only, but they have used the physiological aspect to diagnose the most important changes of the functional devices resulting from training using modern methods and techniques. "The sports field includes a large number of training methods that aim to raise the level of performance in it and these methods varying according to the training aim (Othman, 2018, p. 401) . In the previous eras (sixties and seventies) there was intense competition between world bike schools in terms of choosing training methods German and Russians resorted to high-voltage training with long distances, while the Italians and the French differed from the use of these training methods, but relied on various training loads in their training weekly and this type of training methods made their players a longer training life than the first type, "but after the new technologies emersion and developed countries gained a share of interest in cycling such as

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Australia, Britain and the United States, which pulled the rug in many specialties where dependence became on the technological and physiological capabilities and therefore evolution has become evident by excellence in terms of results and one of the most important methods is training with heartbeats associated with the size of lactate (lactic acid) (Suwaidan, 2010, p. 109) . And methods of training cycling sport differ from the track whether its results depend on points or time and weaknesses of the player is determined by the coach and puts scientific solutions using modern technical means, hence the importance of research in the use of hypoxia training with a training mask for the curriculum set within the game privacy and in line with the sample level, so that cycling players have a higher adaptation during competitions and a high-intensity effort. These exercises show its reflection on the level of physical abilities and achievement and lead to improving abilities. **The research problem**, lies by the researcher's experience. Noticing that there are weaknesses in Kirkuk clubs and teams in some of the physical capabilities, especially such as speed and enduring strength, and because the game needs these two elements, so we, as researchers, have had to solve this problem and our use of this type of aids device due to lack of studies that dealt with the use of modern methods that are not familiar to our trainers and to develop and improve the training process and physical capabilities with the functional indicators for riders and we conducted a study of this phenomenon that occurs level disruption and the disclosure of scientific facts and put them within the trainers hands to develop and achieve the desired results with minimal effort and cost optimally, as the researcher intended the experimental procedure to include a training mask in a training curriculum to develop some physical and physiological indicators for the appearance of accurate scientific results that can be used in the future and then raise the level of Kirkuk players in particular and Iraq in general to the highest levels and competition at the international level **The research aims** to prepare exercises (hypoxia) using a mask training adapted to the research sample, and the effect of (hypoxia) exercises used on some abilities Physicality of the sample, and the effect of (hypoxia) exercises used on some physiological changes in the sample. As for **the research hypotheses**, there are statistically significant differences between the results of the pre and posttest for the experimental and control groups in the development of physical variables, there are statistically significant differences between the results of the posttests of the experimental and control groups in the development of Physiological variables, there are statistically significant differences between the pre and post outcome of the experimental group.

2- Research methodology and procedures:

2-1 Research method

There is no doubt that the nature of the problem determines the research methodology. For this reason, the problem necessitated the use of the experimental approach based on the design of two groups with pre and posttests.

2-2 Research community and its sample

The research was conducted on a sample of (10) players from Kirkuk Cycle sport team –youth (2019-2020). Their age (15-16 years) and they are the origin of the sample community and were chosen intentionally. Table (1) shows homogeneity between them and that the values of the coefficients were all confined to (± 3) and this indicates the homogeneity of the research sample individuals and it is within the natural trend and the sample was divided into two groups, each group consists of (4) players and two players are excluded from the origin society Because of their participation in the exploratory experiment.

Table (1)
Shows research\s sample homogeneity

No.	Variables & measurement Units	The Median	arithmetic mean	Standard deviation	Skewness
1	**Body mass (kg)**	56.43	52.95	8.70	0.536
2	**Length (cm)**	170.30	164.50	5.20	0.733
3	**Age (year)**	15.50	15.50	0.52	0.000
4	**Training age (month)**	14.70	15.00	0.67	0.434

2-3 data collection methods.

• Arabic and foreign sources.

• Personal interviews.
•Opinions of experts and specialists.
• Data collection and dump forms.
•Notes and experimentation.
• The assistant team.
• Tests and scale.
•Internet

2-4 Devices and tools used:

2-4-1 Devices used in the research:

• Laptop (American-made HP Pro Book 4510s).
• (2) Stopwatch (Japanese-made) (CASIO) measures time up to (1/100) number.
• (2) OXIMETER (German-made).
• SPIROMETER SP10BT.
•(2) Electronic counter to measure the speed of the bike and heartbeat (type GARMIN EDGE 820), US-made.
• (8) TCM PULS-MESSUHR.
•TACX Stationary Training Roll
•(4)Training Mask Type (PHANTOM TRAINING MASK)

2-4-2 Tools used in the research

• Bike for each rider.
•Bicycle Repair tools (ICE TOOLZ).
• Front and back spare type (SHIMANO).
• A scale to measure weight.
• A tape measure to measure length.
• A wet handkerchief.
•Paper and pen.
• Laboratory

2-5 Field search procedures

2-5-1 Determining physical and physiological variables used in the research

The researcher conducted interviews with experts and took their opinions in the field of sports training, physiology of sports training, sports tests, and cycling. Physiological and physical variables were identified.

2-5-2 physical tests :

2-5-2-1 strength endurance test (Hussein Murad and Samir Raji: 136,2017)

-**Test name**: strength endurance with a gear ratio of 52 x 13
-**Test goal:** To measure the strength endurance of cyclists
-Devices and tools used in the test
*An electronic stopwatch (CASIO)
*A racing bike for each rider, according to legal specifications
*Electronic distance meter (GARMIN EDGE 820)
*TACX fixed training roll, as shown in Figure No. (8)

Performance description: Explain the test procedure for the players , clarify how to register and give each player a warm-up for (10) minutes, then take the test on a fixed roll where the bike chain (ginger) is held through the transmission gears (52 x 13), and the bikers takes the starting position over the roll .The constant as shown in Figure (1), and when the starting signal is given, the bikers tries to continue for the longest possible period, and the way the biker's score is recorded "appendix form (3)". The time that the biker can continue with this work is calculated until his average speed is shown on the speed meter. One attempt is given for each player**.**

Figure (1)
Biker's Strength endurance

2-5-2-2 Speed endurance test (Ali Hamid Abdel Karim: 198, 2013)

-**Test name:** 2 minute gear test (52 x 19)

- Test goal: To measure biker's speed endurance

-**Devices and tools used**

*An electronic stopwatch (CASIO)

*A racing bike for each biker, according to legal specifications

* Electronic distance meter (GARMIN EDGE 820)

*Fixed training roll

Performance description: Explain the test procedure for the players, explain how to register and give each player a warm-up (10) minutes, then take the test on a fixed roll where the bike chain (ginger) is held through the transmission and gear mode (52 x 19), and when giving a signal the bikers start reaching the longest distance possible within (3) minutes, and relaxing after the test and not stopping directly to avoid injury and the method of registration, the biker's score is recorded. The distance the competitor travels is calculated within (3) minutes and gives one attempt for each.

2-5-3 Physiological tests

2-5-3-1 Measuring the vital capacity of the lungs (Abdel Rahman Abdel Hamid 330,2011):

- **Test name:** FORCED VITAL CAPACITY
- **Test Aim:** To measure the vital capacity of the lungs.
- **Devices and tools used in the test**

* SPIROMETER SP10BT

* pen, paper, A wet wipe to clean the spirometer tube

- Procedures and performance specifications: explain how to perform the test, then the player sits sticking to the spirometer in his hands, then he performs inspiration and exhalation preliminary 1-2 times quickly, then he takes to the chest the largest amount he can take from the inhaled air and exhale in the tube of the device as It is shown in Figure No. (2) Regularly and continuously to the extent that he exited the largest possible amount of exhalation through the mouth, as the nose is blocked by a clip. And the error rate in this device ranges (0.05) liters equivalent to (± 3%), this experiment performs three times and the best attempt is record " Abul-Ela" considered the rapid vital capacity test (FVC) is a test similar to the normal test of vital capacity and if it exhale leads to it with full speed and power after taking maximum inhale.

Figure (2)
Shows "SPIROMETER"

2-5-3-2 Measuring oxygen saturation in blood (Kawa Mahmoud Ahmed: 70,2017)
- Test name and purpose: Measuring the percentage of oxygen saturation in blood (Spo2).
-Devices and tools used in the test:
* OXIMETER device (German-made)
* wet wipe to clean the finger
* pen form as shown

- Procedures and performance specifications: - This device is sensitive and accurate, it measures the concentration of (O2) in blood and heartbeat at the same time, so researchers used this device for ease of use and the accuracy of its results. Before the start of the test, the person who performs the test cleans the tip to which the device is attached in order to read the results well, and the person sits in a state of complete relaxation and connects the device to the index finger at the end of one hand, the finger must be inserted in a way that the device can read the two variables well and clearly. After a few seconds, the device gives the result of the concentration of (O2) in the blood at a percentage (%) and the number of heartbeat, per minute on a mini screen of the device as shown in figure (3).

Test conditions: -
- Ensure that the person is in the normal state before starting the test.
- The tip of the finger must be well placed inside the device for the reading to be.
- Wait a few seconds until the device gives a stable result, then record the result.

- How to record the test:
The device gives the results directly on the screen (percentage concentration (O2)%) , and the examiner transmits the results and writes them on the form.

Figure (3)
Shows **oxygen saturation in blood**

2-5-3-3 Measuring the heart beats (HR) (Kawa Mahmoud: 2017,71)

Test name and goal: Heart rate count (HR)

Devices and tools used:

- OXIMETER device (German-made).
- A wet wipe to clean the finger.
- Pen and form

- Procedures and performance specifications: - This device is sensitive and accurate, it measures the concentration of (O2) in blood and heartbeat at the same time, so researchers used this device for ease of use and the accuracy of its results. Before the start of the test, the person who performs the test cleans the tip to which the device is attached in order to read the results well, and the person sits in a state of complete relaxation and connects the device to the index finger at the end of one hand, the finger must be inserted in a way that the device can read the two variables well and clearly. After a few seconds, the device gives the result of the concentration of (O2) in the blood at a percentage (%) and the number of heartbeat, per minute on a mini screen of the device as shown in figure (3) .

Test conditions: -

- Ensure that the person is in the normal state before starting the test.
- The tip of the finger must be well placed inside the device for the reading to be.
- Wait a few seconds until the device gives a stable result, then record the result.

- How to record the test:

The device gives the results directly on the screen (heart beats (HR) in a minute), and the examiner writes results on the form.

2-5-3-4 Measuring Red Blood Cell RBC

- Test name and aim: Measuring Red Blood Cell RBC

- Tools used: Laboratory

- Procedures and performance specifications: - To perform the analyzes to the sample, the players were taken to Azadi Teaching Hospital laboratory in Kirkuk and (2) CC of blood were took for each sample to conduct the analyzes to measure the percentage of **RBC** and extract the results and write them in the form.

2-6 Field procedures

2-6-1 Exploratory experience

The exploratory experiment was conducted on a sample of the community to which the tests will be applied to ensure the safety of the organization. The tests are for the purpose of identifying the problems and difficulties facing researchers and testers. They know the efficiency of the organization, know the extent of the efficiency of the devices and tools used, and the most important point is to know the time it takes for the tests." The researcher conducted the exploratory experiment on Friday (10/1/2020) at 2 pm, and the aim of this test was to identify the points and problems and difficulties and to determine the strengths and weaknesses to avoid the day of tests and the distribution of work between researchers and the work team, as well as knowing the time taken during the test for each player to set the time during the tests and ensure the safety of devices and tools.

2-6-2 Pre-test

The researcher conducted the pre- tests in Saturday and Sunday (11-12 / 1/2020) , on the control and experimental groups. The researchers set all appropriate conditions for conducting the tests and recording the data in the form.:

The first day at 10 am.

- Measure **RBC**.
- Measurement of vital capacity.
- Speed endurance test.

The second day at 3 pm.

- Measure heart rate.
- Measuring oxygen saturation.
- Strength endurance test.

2-6-3 Training curriculum

The researcher designed appropriate training curriculum with the level and age of the sample depending on the scientific foundations and its sources. The curriculum was applied for two months starting from the date of (12/1/2020) for three

days per week, and the curriculum included exercises of hypoxia using a training mask to develop the characteristics of strength and speed enduring and it was finished on (12/3/2020).

2-6-4 posttests

On 15/3/2020 Posttests were conducted in the same conditions, methods, procedures, and number of days that the pre-test were conducted.

2-2 Statistical means

The researcher used the appropriate statistical means to process the data using SPSS statistical bag to extract the research results.

3- The Results: Presenting, analyzing and discussing

3-1 Present the results of physiological tests for the research sample and analyze it.

3-1-1 Present the results of physiological tests for the pre and posttests of the experimental group

Table (3)

Shows the results of physiological tests for the pre and posttests of the experimental group

No.	Test & measure unit	test	Arithmetic mean	Standard deviation	Calculated T value	Significant	Static significant
1	Vital capacity (Milliliter)	pre	3.880	0.485	¯ 4.187	0.025	Sig.
		post	4.852	0.100			
2	Red blood cells (Mm)	pre	4.295	0.104	¯ 17.610	0.000	Sig.
		post	4.890	0.071			
3	heartbeat (beats / min)	pre	75.00	0.816	4.392	0.022	Sig.
		post	71.25	0.957			
4	Heart beat during fatigue (beat / min)	pre	163.00	4.163	4.307	0.023	Sig.
		post	152.25	1.708			
5	Oxygen saturation in the blood rate. (% spo2)	pre	98.25	0.500	¯ 1.732	0.182	Sig.
		post	98.75	0.500			

3-1-2 Presenting the results of physiological pre and posttests of the control group:

Table (4)

Shows the results of physiological pre and posttests of the control group

No.	Test & measure unit	test	Arithmetic mean	Standard deviation	Calculated T value	Significant	Static significant
1	Vital capacity (Milliliter)	pre	4.117	0.499	¯ 3.656	0.035	Sig.
		post	4.135	0.506			
2	Red blood cells (Mm)	pre	4.372	0.315	¯ 1.349	0.270	Not sig.

		post	4.420	0.364			
3	heartbeat (beats / min)	pre	75.75	1.258	7.000	0.006	Sig.
		post	74.00	0.816			
4	Heart beat during fatigue (beat / min)	pre	165.75	5.909	3.667	0.035	Sig.
		post	163.00	6.055			
5	Oxygen saturation in the blood rate. (% spo2)	pre	98.50	0.577	¯ 1.000	0.391	Not Sig.
		post					

3-1-3 Presenting posttests results of the physiological variables between the experimental and control group.

Table (5)

The results of the posttest tests show the physiological variables between experimental and control group

No.	Test & measure unit	Group	Arithmetic mean	Standard deviation	Calculated T value	Significant	Static significant
1	Vital capacity (Milliliter)	experimental	4.852	0.100	8.780	0.032	Sig.
		control	4.135	0.506			
2	Red blood cells (Mm)	experimental	4.890	0.071	2.529	0.045	sig.
		control	4.420	0.364			
3	heartbeat (beats / min)	experimental	71.25	0.957	¯4.371	0.005	Sig.
		control	74.00	0.816			
4	Heart beat during fatigue (beat / min)	experimental	152.25	1.708	¯ 3.417	0.014	Sig.
		control	163.00	6.055			
5	Oxygen saturation in the blood rate. (% spo2)	experimental	98.75	0.500	0.000	1.000	Not Sig.
		control	98.75	0.500			

3-2 Presenting the results of research sample physical tests.

3-2-1 Present the results of the physical tests for the pre and posttests of the experimental group:

Table (6)

Shows the Results of physical tests (the pre and posttests) of the experimental groups

No.	Test & measure unit	Test	Arithmetic mean	andard deviation	Calculated T value	Significant	atic significant

	Speed endurance (km)	Pre	2.017	0.076	¯ 15.173	0.001	Sig.
		Post	2.287	0.047			
	Strength endurance (sec.)	Pre	44.180	2.535	¯ 15.984	0.001	sig.
		Post	59.320	3.617			

3-2-2 Present the results of the physical tests for the pre and posttests of the control group:

Table (7)

Shows the results of the physical tests for the pre and posttests of the control group

	Test & measure unit	Test	ithmetic mean	ndard deviation	alculated T value	Significant	ic significant
	Speed endurance (km)	Pre	1.940	0.018	¯ 0.965	0.406	not Sig.
		Post	1.955	0.033			
	Strength endurance (sec.)	Pre	41.827	2.820	¯ 4.631	0.019	sig.
		Post	46.555	3.112			

3-2-3 Presenting the results of the posttest tests for the physical variables between the experimental and control groups:

Table (8)

Shows the results of the posttest tests for the physical variables between the two experimental and control groups

No.	Test & measure unit	Test	Arithmetic mean	Standard deviation	Calculated T value	Significant	Static significant
1	**Speed endurance (km)**	experimental	2.287	0.049	11.069	0.000	**Sig.**
		control	1.955	0.033			
2	**Strength endurance (sec.)**	experimental	59.320	3.617	5.350	0.002	**sig.**
		control	46.555	3.112			

3-3 The physiological and physical tests results of the experimental and control groups discussion:

3-3-1 The results of physiological tests of the experimental and control groups discussion: The presentation and analysis of the results in the previous tables shows that there were statistically significant differences for both groups for all physiological variables except for the variable oxygen saturation ratio in the blood spo2 was not significant but it appeared in its results developed for the favor of the post tests of the experimental and control groups, and shows the effect of the training curriculum in the development of the control group as well as the development of the experimental group using hypoxia in their training curriculum, and the researcher attributes that the development of the two groups is due to the training curriculum and the training of hypoxia, and through gradual training and taking into account the training of hypoxia for the players led to the showing of these developments and this is confirmed by the sources, so the dynamic capacity variable "leads to regularity in practicing sports training, especially aerobic training loads that depend on the use of oxygen and are characterized by endurance sports; to a load of physiological changes that express the efficiency of breathing system of athletes and their adaptation to athletic training compared to non-athletic individuals. One of the most important of these adaptations reduces the number of breathing times and increases the player's efficiency the exploitation and consumption of oxygen increases the amount of the vital capacity of the lungs and the increase in the size of the lung in general for the athlete and the improvement of the strength and efficiency of the breathing muscles " (Ahmed Nasr El-Din: 211,2003)., Raisan Kharbit clarified that, the efficiency of the lungs during mountain acclimatization changes very slowly, as studies indicate that over 22 days of stay in the highlands of 4300 meters high and equal oxygen consumption during work performance ranged from 2.6 to 2.7 liters / minute, and experiments followed after a day of breathing with air

and respiratory oxygen, when returning to the low areas, it should take a few weeks for the pulmonary respiration to reach its normal level. For this reason, it was shown in Table (5) the results are for the favor of the experimental group with a more comparative development of the control group. This development is due to the introduction of hypo-training exercises using the training mask in their training approaches. The increase in the blood cells of the experimental group is due to a decrease in oxygen particles during the effort and consequently an oxygen debt has occurred and led To EPO erythropoietin, which in turn led to increased red blood cells, One of the effects of the slow physiological adaptation that occurs as a result of living in high places (from one week or more) is represented by changes that occur in the size of blood plasma and red cells, and therefore we note that the volume of blood plasma decreases in the highs, which makes the concentration of red blood cells becomes high compared to the level of the sea surface ". Risan Kharbit book of sports training, mentioned that "in the first days of reaching mountains that activate the process of forming pellets that leads to a real increase in the number of red blood cells of blood, and this number becomes noticeable after (3-4 days) of staying in the heights that higher than (3000) meters. The researcher considers the most prominent developments that appeared in Table (5) is the effect of hypoxia training using the training mask curriculum in training units. As for the adaptation of the athletic heart, the researcher believes that regular, planned and progressive training has a positive effect on the functional and physiological performance of the heart, and the effect of training on the heartbeat regular physical training leads to a number of positive functional changes for many different body systems, including the heart and blood vessels. As a result of physical training means that heart is able to pump the same amount of blood to the muscles with fewer beats . Not severe after training compared to before training, heart beats is an important indication by which the intensity of the burden on the body can be inferred during Physical effort. Heart beats increase steadily with increasing physical exertion, until they reach their maximum rate during maximum physical exertion. For a healthy young person, the maximum heart rate is around 200 beats per minute.

After the twenties years old, the maximum heart rate decreases gradually, at a rate of about 10 beats per decade (Hazza Bin Muhammad Hazza: 117,2010). Abu-Ela confirms on how the beats rise during training, as he mentioned "that the heart rate starts to increase quickly once the training begins, and depending on the level of training intensity, there is a relationship between the heart beats and oxygen consumption, especially when it is possible to control the intensity and physical load such as an ergonomic bike, and oxygen consumption can be estimated." In this case, in terms of the heart rate, field tests are used to measure the limit so that oxygen consumption is limited to this relationship, and the increase in heart drive depends on the increase in the heart beats, especially after the size of the beat reaches the maximum in the stresses less than the maximum and the heart rate is affected by the training, we find less has the athletes Endurance trainees, sometimes less than 40 beats / min. On the contrary, it can exceed 90 beats / minute in people. The average heart rate for untrained individuals average age ranges between 60 - 80 beats / minute and can be reached to 100 beats / minute while athletes scored during high levels of endurance activities, the heart rate ranged between 28 - 40 beats / minute. The heart beats in comfort is affected by age, gender, and grade Heat temperatures and altitude".

3-2 -3 The results of physical tests of the experimental and control groups discuss

the results of (6 - 7 - 8) tables shows that there are statistically significant differences for the experimental and control groups for both the pre and posttests of the physical variables and those results are for the favor of the posttests of the two groups and was the largest share of the experimental group due to these developments to the use of hypoxic training , and all the regular and planned exercises according to a scientific basis that leads to an adaptation of the functional devices and the agonist muscles according to the type of exercise, and this adaptation occurs through a set of physiological chemical changes, Abu Al-Ela explains that these changes appear in the form of the muscle's ability to produce muscle strength in its various types of fixed, mobile and strength Distinguished by speed and carrying strength.

If we compare the inhabitants of the high mountainous areas with those who live at sea level, we notice that there is a difference in the results of games for long distances, since this difference in the population of the highlands or residence there with the performance of the camps in a scientific and planned way serves a lot of elements that bear speed and strength, and the fact that cycling is long distances even in the shortest races, for example, the antibody clock is the distance from 5 - 41 km, so the elements of speed and strength are important to obtain advanced positions. "The lengthy speed of cycling often works on an oxygen religion that sometimes reaches 20 liters.

For the endurance, kuraibit mentioned that the main advantages of developing the practice of strength are concerned with the mechanical integration of completion energy during kinetic activity. The integration of complex mechanical processes is strongly close to, or higher than the race, and it is considered one of the similar traits in hypoxia training. Or similar, due to a lack of oxygen molecules in air, and thus increases the endurance of speed and strength.

Hara, Confirmed that training for strength training is primarily done through competition exercises or special exercises, and the scientists (Shad and Brol) add that recent information in global levels in competitions for long-term endurance have owners with oxygen consumption rates of up to 80 liters per kilogram of body weight, which means that reaching a high level in this type of racing requires talent and innate readiness in addition to the training process, as the results of practical experiments indicate that the development of the maximum capacity for oxygen consumption

4- **Conclusion**:

Hypoxia training using the training mask had a positive effect on the development of the two elements speed and strength endurance, and that the hypoxia training using the training mask contributed to the development of specific functional devices as physiological variables in research, the mask had an effective role in reducing the parts of oxygen atoms in the air for the respiratory process during exercises and led Until the player arrives in a state of hypoxia, the **researcher recommends** the inclusion of hypoxia exercises in the annual plan, especially in general preparation and special preparation, and avoiding hypoxia exercises during the competition period or during competitions itself because it multiplies the effort on the player, emphasizing healthy nutrition and rich in carbohydrates and salts and taking players for meals similar to them post-workouts when performing hypoxia exercises, and conducting similar research to observe other physical and physiological variables in order to develop it.

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