Entrenamiento con métodos variados y su efecto en el desarrollo de algunas capacidades físicas funcionales de jugadores de baloncesto jóvenes

Varied-method training and its effect on developing some functional physical abilities of youth basketball players

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Abstract

Objective: Preparing training in a diverse style for young basketball players, and identifying the effect of training in a diverse style on some physical abilities (for young basketball players).
Research methodology: the researchers chose the experimental method to know the research problem and its objectives, as it is represented by designing two equal groups, the control and the experimental, with pre- and post-tests. The study community was determined by youth basketball players for the 2023-2024 season, as the research community is (104) players, and a sample of (20) players was drawn from the youth category from Al-A'dhamiyah Sports Club, and it was chosen intentionally because they are the clubs most committed to training, as they were divided into two groups, a control group, numbering (10) players, and (10) players, who are the experimental group, and (5) players for the exploratory experiment.
Result: The researcher the significance of the differences to the effectiveness of the training using the methods applied to the research sample, which are distinctive by diversity, change in intensity, repetition, and quick reactions in response to the appearance of the stimulus. The goal of these is to develop the characteristic of kinetic response speed for basketball players, in addition to the gradual increase in the training load in a manner that suits the youth category, as well as using appropriate repetitions with them.
Conclusions: The results showed that exercises using various methods helped develop the speed of kinetic response and the distinctive strength of speed of the legs and arms of the experimental group members.

Keywords

Varied-method training; functional physical abilities; basketball

Resumen

Objetivo: Preparar el entrenamiento en un estilo diverso para jóvenes jugadores de baloncesto e identificar el efecto del entrenamiento en un estilo diverso en algunas habilidades físicas (para jóvenes jugadores de baloncesto).
Metodología de investigación: los investigadores eligieron el método experimental para conocer el problema de investigación y sus objetivos, ya que se representa mediante el diseño de dos grupos iguales, el de control y el experimental, con pruebas previas y posteriores. La comunidad de estudio estuvo determinada por los jugadores de baloncesto juvenil para la temporada 2023-2024, ya que la comunidad de investigación son (104) jugadores, y se extrajo una muestra de (20) jugadores de la categoría juvenil del Club Deportivo Al-A'dhamiyah, y se eligió intencionalmente porque son los clubes más comprometidos con el entrenamiento, ya que se dividieron en dos grupos, un grupo de control, numerado (10) jugadores, y (10) jugadores, que son el grupo experimental, y (5) jugadores para el experimento exploratorio.
Resultado: El investigador ha determinado la importancia de las diferencias en la eficacia del entrenamiento mediante los métodos aplicados a la muestra de investigación, que se distinguen por la diversidad, el cambio de intensidad, la repetición y las reacciones rápidas en respuesta a la aparición del estímulo. El objetivo de estos es desarrollar la característica de velocidad de respuesta cinética para los jugadores de baloncesto, además del aumento gradual de la carga de entrenamiento de una manera que se adapte a la categoría juvenil, así como utilizar repeticiones adecuadas con ellos.
Conclusiones: Los resultados mostraron que los ejercicios con diversos métodos ayudaron a desarrollar la velocidad de respuesta cinética y la fuerza distintiva de velocidad de las piernas y los brazos de los miembros del grupo experimental.

Palabras clave

Entrenamiento con métodos variados; habilidades físicas funcionales; baloncesto

Introduction

Because of the development in science and knowledge in many fields, including basketball, the game has received a large share of researchers' attention, which was reflected in the development of playing methods and laws that contributed to giving beauty to the players' performance within the game.

Basketball is one of the team games that enjoy physical abilities and many and varied skills distinctive by rapid and sudden tactical performance, which is accompanied by the efficiency of the functional systems of the body's various systems (Shaalan, Aboode, & Radhi, 2022). Since basketball enjoys a great and variable effort from aerobic to anaerobic depending on the circumstances that occur in the match, it is necessary to prepare the players to confront this effort, because if any functional malfunction occurs, it will cause a disruption in the players' physical and skill performance. This means that the player must be physically and skillfully prepared using various training methods that serve the requirements of the game. Basketball is a difficult team game in which players exert great effort during training or during matches, which requires integration of physical abilities, which in turn leads to functional devices.

Hence, it was necessary to use the latest training methods and means in this game in order to raise the level of players to the best levels. This can only be achieved through good training and benefiting from other sciences. Hence, the importance of research in preparing training in a diverse style and knowing its impact on the player's physical and functional abilities due to its essential and important role in bringing players to the best level in basketball. As for the research problem, through the researchers' follow-up, it was noted that some coaches do not use training, meaning that there is a weakness in using diverse training that helps develop only the physical aspect, which in turn develops functional abilities.

In light of this, the researchers decided to embark on this experiment by preparing diverse training, the aim of which is to increase the physical and functional efficiency, especially the elements (response speed and strength distinctive by speed for the arms and legs) and the functional (maximum pulse rate and maximum oxygen consumption) for players. (Hashem, Al Edhary, Radhi, & Hmeid, 2022)

The first part of the training days is to fully exercise the upper part, which includes (back, chest, arms, abdomen), and the second training day is completely for the lower half of the body, which is the legs completely (Al-Zubaidi, 2024).

Teaching methods by basketball instructors in practical lessons from the perspective of their students?". The study aimed to adapt a questionnaireon "Kinesthetic Teaching Style (Abdullah , 2024)

The modern basketball game is one of the fast and highly physical games that require players to possess physical abilities that enable them to perform game skills and maintain the player's fast pace with high effort and resistance to fatigue (Sulaiman, Ameen, Abd-Hafedh, 2023).

Basketball is one of the sports activities that has become a distinguished position in all countries of the world because it is a good model for team games whose players are characterized by many physical, skill, functional, tactical and psychological abilities in addition to the constant readiness to act in every situation in order to achieve victory (Ashour ,2022). It also has a physical and educational return for the individual because of its comprehensive movement and skill and because it instills in the individual psychological, social, moral and other qualities, in addition to the playing methods (Abdul Karim, 2024).

The game requires the skill of executing the offensive operations and returning with the same efficiency to defend. There is no doubt that the movements inside the basketball court are continuous from all players to achieve good attack and defense. The rapid change of playing positions requires high physical ability to move, transition and respond immediately. The approach was derived from doing high repetitions to reach the stage of fatigue, in addition to the gradual increase in intensity, especially since the frequent high-intensity training led to developing the ability of the research sample players to resist fatigue by diversifying the exercises for the working muscle groups and using the appropriate intensity (Taima, Neama, Al-Momen, 2024).

Research problem

The practice of many sports exercises with a focus on the muscle groups required by the nature of the performance in the activity practiced to train the corresponding muscle groups and leads to an increase in the strength of the working muscles and thus the modern diverse training includes all physical and

skill aspects to achieve the required level through the use of modern training methods that include many diverse exercises (plyometric - fartlek - ballistic) which contributes to raising the level of physical and functional abilities of basketball players, Basketball is one of the games that require special and highly developed physical abilities due to the small field and the large number of players and a ball with a high weight and continuous movement without stopping is an absolute necessity for success in performance, especially physical and functional performance, and in the event that the players do not or do not have these abilities, we notice slowness in skill performance or weakness in physical abilities.

Research objective

Preparing training in a diverse style for young basketball players.

Identifying the effect of training in a diverse style on some physical abilities (for young basketball players).

Identifying the effect of training in a diverse style on some physical and functional abilities) for young basketball players.

Research hypotheses

There are statistically significant differences between the pre- and post-tests in some physical and functional abilities for the experimental and control research groups in favor of the post-test.

There are statistically significant differences between the post-tests in some physical and functional abilities for the experimental and control groups in favor of the experimental group.

Research fields

Human field: Al-A'dhamiya Club Youth Basketball Players

Time field:(8/1/2024) to (13/3/2024)

Spatial field: Baghdad - Al-A'dhamiya Sports Club

Method

Research methodology

Each research has a scientific method that can be used to reach the best way to solve the problem that the research consists of (Al-Khafaji, 2014) (Shaker, Tuama, & Radhi, 2022), so the researchers chose the experimental method to know the research problem and its objectives, as it is represented by designing two equal groups, the control and the experimental, with pre- and post-tests.

Community and sample research

The study community was determined by youth basketball players for the 2023-2024 season, as the research community is (104) players, and a sample of (20) players was drawn from the youth category from Al-A'dhamiyah Sports Club, and it was chosen intentionally because they are the clubs most committed to training, as they were divided into two groups, a control group, numbering (10) players, and (10) players, who are the experimental group, and (5) players for the exploratory experiment.

Table 1. shows the homogeneity of the research sample in the variables of height, mass, biological age and training.

Variables	Unit of measurement	Mean	Median	Std. Deviations	Skewness
Height	cm	168,1	168	1,41	,031
Mass	km	59,2	60	101,	,054
Age	year	17.8	17	1,56	,094

The skewness coefficient was used as its value indicated that all variables meet the normal curve because Table (1) shows the skewness coefficient in the normal curve extending between (± 1).

Table 2. show the equivalence of the research sample for functional physical abilities

Variables	Control group		Experimental group		T value calculated	Level Sig	Type Sig
	Mean	Standard deviation	Mean	Standard deviation			
Kinetic response speed	2.54	0.25	2.44	0.17	0.331	0.746	Non sig
distinctive strength of speed of the arms	11.60	1.65	11.30	2.63	0.5141	0.984	Non sig
distinctive strength of speed of the legs	5.26	0.85	5.94	0.82	4.211	0846	Non sig
Lactic Aside in blood	13.65	1.506	13.13	1.291	1.066	0.306	Non sig
NaHCO3 in blood	13.05	1.959	13.11	1.799	0.859	0.406	Non sig

Physical Tests

First: Kinetic Response Speed Test: (Ibrahim, Bariqa 1995)

- Test Name: Nelson Selective Kinetic Response (for multiple directions):
- Purpose of the test: To measure the player's response and movement quickly and accurately according to the sudden stimulus in four directions.
- Tools: A flat space area free of obstacles, an electronic stopwatch, a measuring tape.
- Procedures: The test area is marked with four lines, the distance of the midpoint and each of the four lines is (6.40 m).
- Performance Description:

- The tester stands at the midpoint and focuses his gaze on the raised hand of the referee who stands at the end of the other end of the line at point (A).
- The tester takes the ready position so that the midline is between the feet and so that his body bends forward slightly.
- The referee holds the stopwatch in one hand, raises it up, then quickly moves his arm either to the left, right, forward or backward, while at the same time starting the watch.
- The unit of measurement is the second and its parts.

Second: Test of the speed characteristic strength of the arms: (Hassanin, 1987)

- Test name: Test of flexing and extending the arms from the prone position (10) seconds.
- The aim of the test is to measure the speed characteristic strength of the arm muscles. Tools used: Stopwatch, whistle, recording form.
- Test procedure: The tester assumes the front support position on the ground so that the body is in an upright position at the start signal. The tester flexes and extends the arms completely, and continues to repeat the performance for the largest possible number of repetitions without stopping for a period of (10) seconds.
- Recording: The tester's score is the number of correct repetitions during a period of (10) seconds.

Third: Test of the distinctive strength of speed of the legs: (Nayab, 2011)

- Test name: Test (5) hops:
- Purpose of the test: Measure the distinctive strength of speed of the legs.
- Tools used: Flat ground, measuring tape.
- Performance specifications: The starting line is drawn next to the side line of the field and the player stands behind the starting line with one foot in front and the other in the back, then he begins to jump forward by pushing on the supporting leg and landing on the leg swinging forward, i.e. from the right leg to the left or vice versa, repeating these jumps so that he lands in the fifth jump with both feet together.
- Recording: The best distance achieved by the player in two attempts is calculated to the nearest centimeter so that the distance is measured to the closest mark left by the player in his fifth jump.

For basic efficiency tests (lactic acid and sodium bicarbonate):

First: Testing the level of lactic acid concentration in the blood: (Nayab, 2011)

- Test objective: Measuring the concentration of lactic acid in the blood after (5) minutes of effort.
- Devices and tools:

- Portable lactic acid measuring device (Lactic-pro).
- Stationary bike.
- Electronic stopwatch.
- Sterile methanol solution.
- Medical cotton.
- Registration forms

Second: Testing the concentration of sodium bicarbonate in the blood (Nayab, 2011):

- Test objective: Measuring the concentration of sodium bicarbonate in the blood after (5) minutes of effort.
- Devices and tools:

- Device (Cobas e 411) for biochemical analysis of blood samples.
- Blood separation device (Electronic centerfuge 80-2).
- Electronic stopwatch.
- Stationary bike.
- Compression tape.
- Medical syringe for drawing blood (5 ml).
- Tubes for storing blood samples free of heparin (Test tube).
- Medical cotton and sterile methanol solution.
- Registration forms.

Scientific foundations of physical and skill tests

1. Validity coefficient: after the arbitrators' apparent validity, which is one of the types of content validity adopted in modifying, rejecting or accepting physical and functional tests, and it is a systematic procedure agreed upon in various sources of measurement and evaluation that adopt modifying or constructing tests. This validity is determined by the test measuring what it was designed for. The researcher verified this validity in the procedures mentioned in determining the tests according to the opinions of experts and specialists, as shown in Table (2).
2. Stability coefficient: The researcher verified the stability of the physical and functional tests using the test method, as the first test was conducted on 2/10/2025 and the test was re-tested on the exploratory sample of (4) players on 2/18/2025, and then the scores of the two tests were processed using the simple Pearson correlation coefficient, as shown in Table (2). Physical and functional tests by adopting degrees
3. Objectivity coefficient: The objectivity of the second application was verified on the survey sample when finding stability by finding the simple Pearson correlation coefficient between the degrees of two judges, each of whom sits on one side.

Table 3. shows the scientific foundations and coefficients for physical and skill tests

No.	Candidate Tests	Apparent validity	Stability and retesting		Objectivity between arbitrators	
		Percentage of arbitrators	Correlation coefficient	sig	Correlation coefficient	sig
1	Kinetic response speed	%80	0.924	0.000	0.915	0.000
2	distinctive strength of speed of the arms	%90	0.933	0.000	0.927	0.000

3	distinctive strength of speed of the legs	%100	0.946	0.000	0.952	0.000
4	Lactic Aside in blood	%70	0987	0.000	09114	0.000
5	NaHCO3 in blood	%80	0941	0.000	0.9354	0.000

Exploratory experiment

In order to identify the obstacles that the researchers may face during the implementation of the main experiment and to familiarize the assistant work team with the nature of the research and its tests, the researchers conducted the exploratory experiment on Monday, corresponding to (8/1/2024) on the young players of Al-A'dhamiya Club, numbering (5) players from the research sample.

Pre-tests

The researchers conducted the pre-tests for the research sample for the experimental and control group represented by the Al-A'dhamiya Sports Club team for youth basketball on Monday, corresponding to 15/1/2024. The researchers worked to establish the spatial and temporal conditions for the tests in order to achieve the same conditions as much as possible.

Main experiment

The researchers conducted the main experiment on Wednesday 17/1/2024 and ended on Monday 11/3/2024. The training units included a set of special exercises using various methods (plyometrics and fartlek) that work to develop physical abilities and basic efficiency. They were added to the training curriculum for the experimental group.

These exercises included a set of kinetic response speed exercises and strength exercises distinctive by speed for the arms and legs for the requirements of the basketball game. The researchers took into account the gradualness and fluctuation in the training loads in terms of controlling the components of the training load, which consist of performance time, degree of difficulty of the exercise, number of groups, rest periods, and their relationship to the rest of the components of the load, taking into account individual differences.

The use of qualitative training as a new training aid depends on the scientific foundations through which we seek to develop functional physical abilities (Exercises are a group of physical positions and movements that aim to build the body and develop its various motor abilities to bring the individual to the highest level that enables the player to perform athletically and functionally in various areas of life and based on the educational and scientific foundations of the art of movement) No matter how diverse the methods of developing muscle strength and its different methods, the required improvements fall within the determinants of good planning for the application of these methods and approaches, which often focus on plyometric and ballistic training in muscle lengthening and shortening cycles for rapid, highly productive contraction in the impact of the resulting force.

Post-tests

After completing the application of various exercises, response speed and strength distinctive by speed for the arms and legs, which contribute to developing the functional capabilities for the requirements of the basketball game over eight weeks, the post-tests were conducted for the research sample on Wednesday 3/13/2024. The researchers followed the same conditions and procedures of the pre-tests in terms of place, time and tests used.

Statistical methods

The researchers used the most appropriate statistical methods with the importance of the research study and which achieve the research objectives and hypotheses, as the researcher used the statistical bag (spss), and Percentage law, arithmetic mean, standard deviation, median, t-test for related samples, t-test for unrelated samples, skewness coefficient, t-test for two related means

Findings

Presentation, the results of the pre- and post-tests for the two research groups

Table 4. shows the results of the significance of the differences between the pre- and post-tests for the experimental group

Variables	Pre-test		Post-test		T value calculated	Level Sig	Type Sig
	Mean	Standard deviation	Mean	Standard deviation			
Kinetic response speed	2.44	0.17	2.06	0.09	4.82	0.00	Sig
distinctive strength of speed of the arms	11.30	2.63	15.50	1.18	-2.50	0.03	Sig
distinctive strength of speed of the legs	5.94	0.82	6.98	0.66	-2.70	0.02	Sig
Lactic Aside in blood	13.13	1.291	11.29	0.468	3.703	0.024	Sig
NaHCO3 in blood	13.11	1.799	15.16	0.69	-4.82	0.00	Sig

Presentation the results of the pre- and post-tests of the control group for functional physical abilities

Table 5. shows the results of the pre- and post-tests of the control group for functional physical abilities

Variables	Pre-test		Post-test		T value calculated	Level Sig	Type Sig
	Mean	Standard deviation	Mean	Standard deviation			
Kinetic response speed	2.54	0.25	2.18	0.11	5.21	0.00	Sig
distinctive strength of speed of the arms	11.60	1.65	14.10	1.20	-4.29	0.00	Sig
distinctive strength of speed of the legs	5.26	0.85	6.17	0.80	-2.37	0.04	Sig
Lactic Aside in blood	13.65	1.506	10.69	1.408	3.292	0.005	Sig
NaHCO3 in blood	13.05	1.959	14.65	1.768	4.583	0.003	Sig

Table 6. shows the results of the significance of the differences between the post-tests of physical and functional abilities

Variables	Control group		Experimental group		T value calculated	Level Sig	Type Sig
	Mean	Standard deviation	Mean	Standard deviation			
Kinetic response speed	2.18	0.11	2.06	0.09	4.073	0.005	Sig
distinctive strength of speed of the arms	14.10	1.20	15.50	1.18	4.600	0.002	Sig
distinctive strength of speed of the legs	6.17	0.80	6.98	0.66	2.50	0.02	Sig
Lactic Aside in blood	10.69	1.408	11.29	0.468	2.45	0.02	Sig
NaHCO3 in blood	14.65	1.768	15.16	0.69	3.52	0.00	Sig

Significant below 0.05 significance level and 4 degrees of freedom

Discussion

It is clear from the above tables that the kinetic response speed test showed a significant difference between the pre- and post-tests of the experimental group in favor of the post-test. The researcher attributes the significance of the differences to the effectiveness of the training using the methods applied to the research sample, which are distinctive by diversity, change in intensity, repetition, and quick reactions in response to the appearance of the stimulus. The goal of these is to develop the characteristic of kinetic response speed for basketball players, in addition to the gradual increase in the training load in a manner that suits the youth category, as well as using appropriate repetitions with them. This is confirmed by (Alawi et al., 2000) "The basic principle in developing the speed of kinetic response is the repetition of performance, i.e. the repetition of the appearance of the stimulus and the response to that stimulus."

It is also evident in the presence of significant differences between the pre- and post-tests of the control group. The researchers attribute this to the training used by the coach and the use of training methods and the interconnection of the exercises and vocabulary applied, in addition to the overlap of these exercises that contain the speed of response with the playing situations and the physical abilities of the players, which helped in this development.

This is confirmed by (Khaleq, 1999,) "The development of the athlete's technical condition is by gradually increasing the load in linking the requirements of coordination and the speed of kinetic

response, such as changing the timing of movement and linking different kinetic elements and training on complex movements."

The researcher attributes the development in the speed of response in the post-tests of the experimental group to the effect of training with various methods, as (Ghazi, 1998) indicates that the more the player's stock of kinetic experiences and training similar in its conditions to the conditions of the competitions, the better the players are able to keep up with the variables that prevail in the atmosphere of the competition, as the players in this case are able to perform the movements and choose the most appropriate ones according to the situations they face. In the variable of the speed-distinctive strength of the arms and legs, it is clear that there is a significant development in favor of the post-test, which confirms the positive and effective effect of training using various methods in the exercises for the sample, especially in developing the muscle groups that contribute to the development of the speed-distinctive strength of the arms and legs muscles, which was positively reflected in the increase in the horizontal hop distance applied by the experimental sample members, which focuses on performing repetitions distinctive by fast and strong muscle contractions in order to increase muscle elasticity and obtain the greatest possible kinetic energy through strong and fast pushing against the forces of gravity. The researcher believes that one of the important procedures in training the speed-distinctive strength is that gaining strength is not only affected by the number of muscle contractions performed, but is also affected by the degree of intensity and load used in training. This was confirmed by (Saeed , Khalifa, Noaman , 2019), who stated that (muscle capacity is related to two basic factors, which are the size of the resistance and the number of repetitions).

The decrease in intensity and repetitions, which helped to develop the heart rate towards the decrease, as (Naam, et al.,2020) showed us "The development of cardiac performance is linked to the aerobic and anaerobic capacities with different percentages of impact, the more we work to develop aerobic capacity, the more anaerobic capacity is developed." As for (Almusawi, 2019) (Qassim, 2020), he confirms that "continuing training within aerobic capacities helps to reduce the heart rate (pulse) because this capacity has an effect on cardiac physiological variables." The exposure to physical efforts in the plyometric and fartlek styles with high intensity, which had a role in appropriate rest periods had a positive effect in restoring its balance, as its good standardization and application had a positive role in activating the work of carboxyl transporters with the help of enzymes to get rid of lactic acid accumulations that are formed as a result of the high intensity action, as the physiological response to the small number of breaths helped in expressing the sufficiency of pulmonary respiration to rid the body of metabolic products and re-oxidize acids, which increased the body's chance of leaning towards basalism through the good balance between sodium bicarbonate, which increased at the expense of the decrease in lactic acid and by releasing vital energy appropriate for the physical efforts made by fencers in the muscle extension exercises for the arms with high intensity, as the good standardization of the exercises appropriate for the two training styles, as "the phosphate shielding system is a mixture of phosphate ((HPO4) and phosphoric acid ((H2PO4) and works like the bicarbonate system, so if a strong acid such as sodium bicarbonate is added (Hydrochloric acid HCL)) is replaced by weak phosphoric acid and the (pH) changes towards normal, ... and when the lactic threshold (4 mmol) is exceeded, the (pH) of the blood decreases, which can become dangerous when the vital organizations are unable to balance the blood and the internal systems and organs are unable to get rid of lactic acid. (Abdul-Jabbar, 2015) Training also achieves the physiological aspects within the body represented in improving the functional efficiency within the body and the efficiency of the muscular and nervous systems. (Badawi, Almousawi, 2023) a) As "specialized training must cause special adaptations in the biochemistry of the muscles that are directly proportional to the difficulty placed on the athlete." (Saeed et. al., 2019)

The mechanism of action and application of training exercises has been developed scientifically by forming their types according to the training goal. And through the use of a group of muscles in the body, which in turn led to the development and growth of strength, because these muscles have a major role in performance (Ali, Qassim , 2022) The stages of skill preparation are important stages that play a fundamental role in preparing offensive and defensive plans, and failure to implement these duties leads to poor performance, and training conditions must be similar to the conditions of the match (sports competition) or higher than them. To obtain the highest effective level of training, the coach must subject the player to various forms of training, and this diversity in training through the training units implemented by the players is what created adaptations to perform skills with mastery (Mohammed , Saeed , 2021) Thus, modern methods for developing physical and kinetic qualities that enable them to

master training develop the physical aspect, so it has become necessary to conduct research and studies in this field that directly affect skill and tactical performance (Issa , Qassim , 2022) (Hussein,2025 Physical training produces changes as a temporary response to the performance of physical activity (Badwi et. al., 2023). High-load exercises Intensity (maximum) plays an important and fundamental role in raising the level of performance of players as individuals and as a team. The exercises prepared were appropriate for the level of the participants in the research, based on correct scientific foundations, and were implemented correctly by the coaches and players. In addition, these exercises included more than one physical characteristic at the same time during performance. The importance of exercises lies in preparing the body for skill preparation and reaching compatibility. (Al-Nedawy, 2022) The repetition and rest period given when applying the exercises of the significant differences in the compatibility and agility variable that appeared in the post-tests were used in the training curriculum for the research sample, which played a major role in the coordination of the player's movements for the proper work he performs, in addition to the time. The development of exercises and the implementation of the Idea Nomination Strategy were monitored for consistency (Al-Moussawi, Nasser, 2009) (Murad, et. al., 2024)

the exercises prepared for development, as the exercises were prepared in a coordinated and balanced manner, giving full importance and sufficient time in choosing the appropriate exercises during the units Reaching positive results indicates that the prepared exercises were appropriate to the level of the sample and its absorption, as well as that it was built on correct scientific foundations and implemented properly by the players, (Al-Nedawy, & Saeed, 2022)

The results of the pre- and post-tests proved the importance of the research on the studied variables and the existence of an effect of the various exercises. This was shown by the differences between the group of exercises that were prepared and the purpose of their use and application in the training units within the period allocated to them according to the use of intensity, volume and appropriate rest for each exercise. In addition to the diversity of these exercises to serve motor abilities, "as diverse and appropriate training leads to the development of the athlete's ability (Ashour, 2022).

The requirements of the game of basketball and difficulties, especially when playing in a narrow space, require a high potential for physical and functional abilities, which was evident from the use of various ballistic and plyometric exercises, which had a great and clear impact in developing their motor abilities, which is reflected in the development of the players' performance. On the other hand, the use of resistance when performing exercises, in a movement similar to the performance of the event, played an effective role in developing performance.

The coordination and good connection in a single training unit through the good distribution and division of exercises to develop capabilities, and the diverse high-intensity exercises in which the link between muscle strength and endurance is made, and the working muscles have developed as a result of the development of the ability to endure strength, because regular training on exercises adapts the organs and increases their ability to continue playing for a longer period with greater strength and intensity of load, as the method was derived in doing high repetitions to reach the stage of fatigue, in addition to the gradual increase in intensity, especially since the frequent high-intensity exercises that led to the development of the ability of the sample players Search (Taima , Neama , Al-Momen , 2024)

Conclusions

Based on the research results that were reached within the research community, the following conclusions were reached:

The results showed that exercises using various methods helped develop the speed of kinetic response and the distinctive strength of speed of the legs and arms of the experimental group members.

The results showed that the special exercises helped develop the functional abilities, including heart rate and maximum oxygen consumption of the experimental group members.

The development of the speed of kinetic response and the speed-distinctive strength of the legs and arms was positively and tangibly reflected on the functional abilities of the experimental group members.

Recommendations

According to the conclusions reached by the researchers, which proved the effectiveness of using special exercises, the researcher recommends several recommendations:

- Pay attention to using exercises according to various methods according to standardized scientific foundations to raise the efficiency of youth basketball players.
- Adopting exercises according to new diverse methods within the components of the training load (intensity, volume, rest) when training the speed of kinetic response and the speed-specific strength of the legs and arms to contribute to developing functional capabilities.
- The researchers recommend adopting exercises according to diverse methods and the curriculum prepared by him as basic data when training basketball players.
- Conducting similar studies on different age groups.

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