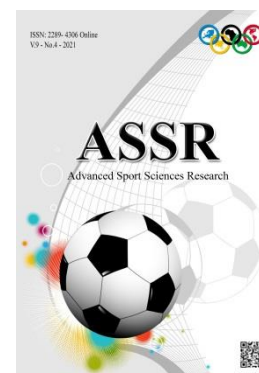


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"Effect of Tabata exercises to development the speed endurance and performance of the compound skill (feint from stability, receiving then lay-up shot) of basketball for youth"

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wamith.almilli@uobabylon.edu.iq**Abstract**

The importance of the research lies in scientifically designing exercises in the Tabata style, as the researcher believes that they have effect positive on developing the ability to endurance speed and carrying out the compound skill performance (feint from stability, receiving then lay up shot) for youth basketball players.

As the problem of research: the researcher noticed, through his field experience, a decrease in the level of skill performance, especially in the last times of matches in which the level of performance is high and which requires endurance of speed, This decrease leads to the inability to bear speed and poor technical performance of basketball skills, and the researcher believes that this problem is due to not giving priority to training biomotor abilities, including endurance of speed that contributes to resisting fatigue and speed of motor performance of basic and compound skills in general and the skill (feint from stability, receiving then lay-up shot) in particular, therefore, the researcher decided to adopt this study and design exercises in the Tabata style and to identify the effect of the ability to withstand speed and perform the compound skill (feint from stability, receiving then lay-up shot) for youth in basketball.

The research aimed at: preparing exercises in the Tabata style, and identifying the effect of exercises in developing endurance of speed and compound skill (feint from stability, receiving then lay-up shot) for youth in basketball.

The researcher used the experimental method, and community research was identified from the youth basketball players for the sports season (2020-2021) for Al-Hilla Sports Club, which numbered (12) players, and divided them randomly (the lottery method) into two groups.



The most important conclusions were: that the Tabata-style exercises designed by the researcher contributed to development the ability to endurance speed and performance of the compound (feint from stability, receiving then lay-up shot) for youth in basketball, and the training period using Tabata-style exercises was appropriate in the development of skill performance for the variables studied on the experimental group.

As for the recommendations, they are: The researcher recommends adopting Tabata-style exercises when training youth basketball players, improving biomotor abilities in general, developing speed endurance in particular, and carrying out the performance of the compound skill in basketball.

Keywords : Tabata-style exercises, speed endurance, compound skill in (feint from stability, receiving then lay-up shot).

1. Introduction

The world has witnessed make development in many fields, including the sports field, which was characterized by the development of training methods, as most countries harnessed all available capabilities and capabilities in scientific research in order to reach the highest levels. The continuous development of all event depends to the results of studies and research of sports sciences and sciences And the other related ones, which resulted in arriving at many ideas for modern training programs and translating them into a tangible reality through their practical application.

Among the games that have a great interest in recent times is the game of basketball, and the game of basketball requires the development of bio-kinetic abilities, and the main purpose of developing bio-kinetic abilities is to obtain a high level of physical and kinetic efficiency, which in turn is reflected positively on skill performance, and endurance of speed is one of the important biomotor abilities in the basketball game, for its prominent role in the player's ability to perform skill correctly in the last times of the basketball match, especially in the third and fourth quarter, because of the characteristics of this game that distinguish it from other games of abilities The prevailing bio-kinetics, being one of the very fast games, and "the game of basketball is characterized by the speed and dynamic exchange of the two teams of offensive and defensive positions". (Amin, Ahmed: 2004, pg. 8)

And the player who has the ability to endurance speed will have the ability to resist fatigue and perform offensive skills well, especially the skill of deception from stability in the attack and the ability to get rid of the defender and receive the ball safely and soundly and perform the peaceful shot at high speed with accuracy in performance, as the ability to withstand speed is "the ability to continue performing symmetric and asymmetric movements, their repetition and effectiveness for long periods and at high speeds without decreasing the level of performance efficiency". (Ibrahim, Mufti: 1998, p. 107)

The research importance lies by use of Tabata exercises to developing the ability to endurance speed and the performance of the compound skill in (feint from stability, receiving then lay-up shot), as "Training Tabata" exercises are one of the best training methods, and enjoy ease and simplicity, and you do not need any



equipment or a specific special place for training, and you do not need a lot of time for training, yet you will get good results”. (Mahmoud, Neven Hussein: 2018, pg. 26)

And the skill performance in the game of basketball requires a high level of bio-kinetic abilities, as the offensive skills are characterized by quick, difficult and sudden skillful performance, so the important that the ability of withstand speed and skillful performance serve each other to achieve the goal, and the player’s ability level can be determined from through it.

So, through the researcher’s field experience, he identified the problem research. He noticed that there is a decrease in the level of skill performance, especially in the last times of matches in which the level of performance is high and that requires endurance of speed, this decrease leads to the inability to handle speed and poor technical performance of basketball skills. This decline leads to the inability to bear speed and poor technical performance of basketball skills, and the researcher believes that this problem is due to not giving priority to training biokinetic abilities, including endurance of speed that contributes to resisting fatigue and speed of motor performance of basic and compound skills in general. Therefore, the researcher decided to adopt this study and design exercises in the Tabata style and to identify its effect on the ability to withstand speed and perform the compound (feint from stability, receiving then lay-up shot) for youth in basketball.

Thus, the researcher determined the objectives of the research: (designing exercises in the Tabata style, identifying the effect of the Tabata style on the ability to endurance speed and endurance performance of the compound skill of basketball (feint from stability, receiving then lay-up shot) for youth.

The researcher also assumed that there is an effect of Tabata-style exercises in the ability to endurance speed and perform the compound skill in basketball (feint from stability, receiving then lay up shot) . As for the research fields, it was represented by the youth basketball players of Al-Hilla Sports Club, and the experiment was from 14/2/2021 to 14/4/2021, and exercises and field experiments were conducted in the closed sports hall of the Sports Talent Care Center in Babil Governorate.

Research Methodology:

The researcher used the experimental method for its relevance and the nature of the research problem, with the experimental design of the two equal groups (experimental and control).

Research sample and community:

The research community was determined by the intentional method of youth basketball players for Al-Hilla Sports Club by (12) players, and they divided into two groups by random method (lottery), then the experiment was conducted on the experimental group by applying exercises in the Tabata style, and the control group continued with the trainer's usual training curriculum.

Devices, tools used:

Means:

- Note
- Interviews.
- Data registration forms.
- Sources.
- the exams.



Tools:

- Basketball court.
- Measuring tape (10 m).
- A special electronic device for measuring (weight, length) made in China, number (1).
- A ground ladder (8 m), two.
- Colored adhesive tape (4).
- Stopwatch (Casio) number (3).
- FOX whistle (1).

Determining the tests for the variables:

High Start Run 8×25 Test: (Hamid and Hassanein , 1980, pp. 214-216)

Test name: The 8×25 run test from the high start.

Purpose The Amie of the test: To measure the speed endurance of the muscles of the legs.

Devices: (1) tape measure, (2) stopwatches, a flat square longer than 30 m, (2) whistle.

Performance characterization: Two parallel lines are drawn, the distance between each task is (25 m) and the player stands on the starting line. When instructing to start the test, the player runs as fast as he touches the second line with his foot, then returns to the starting line, repeating the performance (8) $8 \times 25 = 200$ m.

Register: Records the total time taken to travel the distance (8×25) per second and its parts.

Figure (1) Speed Endurance Test



Compound Skill Endurance Test (feint from stability, receiving then lay-up shot): (Latif, Ahmed Karim, 2016)

Name of test: Endurance of the performance of the compound skill (feint from stability, receiving then lay-up shot).

Purpose: To measure the performance endurance of the compound skill (feint from stability, receiving then lay-up shot).

Equipment and tools: a basketball court, (6) basketball, adhesive tape, (5) poles, a whistle, a stopwatch.

Performance characterization: The player stands at (a) when he hears the start whistle, he deceives the defender standing at point (b) by leaning to a certain direction, then receives then makes a peaceful shot towards the goal as shown in the above figure. The performance is repeated for 40 seconds



Register:

- Three points are awarded for each successful attempt (ending with a successful goal).
- Two points are awarded for each failed attempt (ending with a failed attempt).
- If the time runs out before the attempt is completed, one point is awarded for the skill performed.

Figure (2) The performance endurance test of the compound skill in basketball (feint of persistence, receiving the ball, Lay-up shooting)

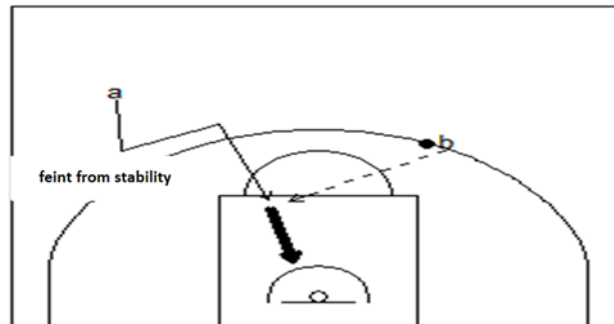


Figure (2)

Main experience:**Pre-test:**

The researcher applied the tests and conducted the tribal tests my day 10-11/2/2021.

- 1 Speed endurance test on Wednesday 10/2/2021.
- 2 A test of endurance performance of the compound skill in basketball (feint from stability, receiving then lay-up shot) on Thursday, 11/2/2021.

Preparing and applying Tabata exercises:

The researcher designed Tabata exercises and these exercises were applied by the experimental group from 14/2/2021 to 14/4/2021, and the researcher codified the exercises on a scientific basis according to the Tabata style used. The researcher was keen to change and undulate with intensity, diversify, and gradual difficulty, to develop the ability to endurance speed and compound skill (feint from stability, receiving then lay-up shot) for basketball youth, and the application of Tabata exercises was as follows:

- The number of Tabata exercises units (16), at a rate of (2) per week.
- The time of Tabata exercises in the unit (20-25) min.
- The time for one exercise is (30) seconds, which includes performing for (20) seconds and resting (10) seconds.
- The aim of Tabata exercises to developing speed endurance of youth basketball players.
- The aim of Tabata exercises is to develop the performance of the compound skill (feint from stability, receiving then lay-up shot) for youth basketball players.
- Taking into account the fluctuations in training intensity, diversification and change in exercises.

Post-test:

The researcher conducted the post tests after applying the Tabata exercises, on Sunday and Monday (18-19/4/2021).



Statistical means:

The researcher used the (spss) to analyze the research results.

3. Presentation, analysis and discussion of the results:**Presentation and discussion of the results of the pre and post-tests of the control and experimental groups for the variables under study:****Presentation of the results of the pre and post-tests of the control group for the variables investigated:**

Table (1) shows the arithmetic means, standard deviations, the (t) value calculated for the interconnected samples, the level of the test significance, and the significance of the differences for the pre and post-tests of the control group for the variables investigated.

Variables	Measuring unit	Pre-test		Post-test		T value	Sig level	Sig type
		Mean	Std. deviation	Mean	Std. deviation			
Speed endurance	Second	40.834	.4211	40.593	0.439	3.100	0.027	Non sig
perform Endurance to the compound skill (feint of persistence, receiving the ball, Lay-up shooting).	Degree	11.666	0.816	14.500	1.048	7.059	0.001	Sig

Presentation of the results of the pre and post-tests of the experimental group for the variables investigated:

Variables	Measuring unit	Pre-test		Post-test		T value	Sig level	Sig type
		Mean	Std. deviation	Mean	Std. deviation			
Speed endurance	Second	41.043	0.285	37.756	0.377	19.758	0.000	sig
perform Endurance to the compound skill (feint of persistence, receiving the ball, Lay-up shooting).	Degree	11.300	0.242	18.336	0.325	39.342	0.000	Sig

Presentation of the results of the tests (post-test) for the two experimental and control groups for the variables investigated:

Table (3) shows the value of (T) calculated for the independent samples, the level of significance of the test, and the significance of the differences between the test results (post-test) for the two experimental and control groups for the variables investigated.

Variables	Measuring unit	Pre-test		Post-test		T value	Sig level	Sig type
		Mean	Std. deviation	Mean	Std. deviation			
Speed endurance	Second	40.593	0.439	37.756	0.377	12.04	0.000	sig
perform Endurance to the compound skill (feint of persistence, receiving the ball, Lay-up shooting).	Degree	14.500	1.048	18.336	0.325	8.557	0.000	Sig



Discussing the results:

It is evident from the two tables (1,2) of the tests of the ability to endurance speed and the performance of the compound skill (feint from stability, receiving then lay-up shot), there are significant differences in favor of the post-tests of the control and experimental groups and appear more in the experimental group, which the researcher attributes as a result of its use Tabata style exercises, as the nature of performing exercises in the Tabata style is the performance of skills in different directions and speeds and varying distances and characterized by high intensity and the exercise continues for twenty seconds and then is given a positive rest for ten seconds and so on until the ability to perform and endurance speed and endurance performance of compound skills with basketball, and this is what was verified by the exercises The Tabata style, designed by the researcher, was applied with high intensity and an increase in repetitions, The introduction of strength exercises using body weight as well as increasing the repetition of skill performance in a gradual and parallel manner according to the anaerobic energy system, all of this led to an improvement in the speed endurance of the experimental group members (Al-Rabadi, Kamal Jamil, 2004, p. 238) . And it is the exercises that "help to raise the level of many skillful performances in various sports activities, and that these exercises reach the highest levels of specialization in developing skillful and physical performance in terms of quantity, quality and timing of performance". (Saad Allah and Sabaa, 2015, p. 22)

Tabata exercises were characterized by the overlap of physical and skill exercises and the continuous diversification of aids to increase suspense and motivation and banish boredom, as "the diversity of tools and their exercises all of that would excite the players and increase their motivation towards progress and upgrading the athletic level". (Fawzy, Ahmed Amin, 2007, p. 20)

The diversification of exercises fulfills many requirements for the basketball player during the exercise, which correspond to the performance of the compound skills in the actual basketball during the competition, as (Schmidt, 1991.p.68) asserts, "The diversification in the method of exercise helps to organize the motor program of the game with a high mechanism, so the learner is prepared to receive problems Play and solve it easily".

The researcher was keen to fluctuate with training intensity, and this is consistent with what was indicated by (Ibrahim, Muhammad Reda, 2008, p. 112) quoting Bomba, "The training intensity in team games is very complex because the rhythm of the course of the game is fast and the intensity is constantly changing and changing between maximum and low intensity, and in order to meet the need of this Requirements, the trainer must include in his training curriculum the use of a variety of stresses on an ongoing basis".

It is worth noting through the results and based on the foregoing that the development in the ability to endurance speed positively reflected on the development of endurance of the compound skill (feint from stability, receiving then lay-up shot), as the exercises in the style of Tabata prepared by the researcher were implemented in a manner Scientific and similar to the case of actual performance in competition, and the researcher was keen that these exercises in the Tabata style are



appropriate to the level of the players, taking account the repetition the exercise and the gradation in the level of intensity.

it is also evident in Table (3) that show the moral differences in the post-tests for the experimental group benefit, the researcher attributes the development of the biomotor ability (endurance to speed) and the compound skill of basketball due to the exercises in the Tabata style prepared by the researcher, who focused on integrating between Physical and skill exercises as speed endurance, "Some researchers called it anoxic endurance, because the body's organic systems work without the availability of oxygen, and this means by oxygen debt, which is called the amount of oxygen consumed during the recovery period, and this oxygen is more than its volume during rest, in order to restore the energy stores in the body to near its natural state and get rid of acid lactic acid during physical activity". In addition to the gradual difficulty of these exercises and the overlap between physical and skill exercises, as "research has shown that the nervous-muscular system responds best when excited in a variable manner all the time, and the neuromuscular system needs to be surprised in order to be forced to adapt, and this means performing different types of exercises for a few days and changing The number of repetitions, stresses and exercises for the other days".(Farag, Jamal Sabri, 2012, p. 541)

Conclusions and recommendations:

Conclusions:

- 1 The Tabata-style exercises designed by the researcher contributed to the development of speed endurance and the ability to perform the compound skill (feint from stability, receiving then lay-up shot) for youth in basketball.
- 2 The training period using Tabata style exercises was appropriate in developing the skill performance of the variables investigated on the experimental group.

Recommendations:

- 1 The researcher recommends adopting Tabata-style exercises when training youth basketball players, improving bio-kinetic abilities in general, developing speed endurance in particular, and performing the compound skill of basketball.
- 2 The need to legalize Tabata exercises in proportion to the level of players.
- 3 Conducting similar studies on other biomotor and skill variables, and on different age groups.



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