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## The effect of increasing the level of some functional indicators on the skill tool of the forward hand jump on the ground movement mat for female students

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### Abstract

The purpose of this paper is to identify the effect of overload exercises on some physiological variables among female students, identify the effect of overload exercises on some physical variables among female students, and identify the effect of overload exercises on the gymnastics hand jump skill of female students. The researchers used the experimental method by designing one group with a pre- and post-test to suit the nature of the problem. The researcher defined the study population as a methodological term that refers to the statistical population on which the study is conducted (Ahmed Farhan Ali Al-Tamimi 2014), and the research population was defined by the female students of the fourth stage / Department of Physical Education and Sports Sciences / College of Education for Girls / University of Kufa for the academic year (2023-2024), who numbered (45) students. The research sample was chosen by (8) female students in a deliberate manner from among the distinguished female students with the quality of performance from that community. Thus, the percentage of the research sample from the total population of female students is (17.7%), and this percentage is appropriate to represent the research community in a real and honest representation and was subjected to All female students in the sample included the overall procedures in the tests prepared by the researcher. One of the most important results reached by the researcher is that: Positive results appeared for the functional, physical, and skill variables caused by overload exercises, as some functional variables, such as blood sugar, high and low pressure, were not affected by the exercises, as the nature of the variables changed according to the adaptation of the body's systems that return them to their normal position to maintain the general health of the body, and the development achieved in the skill and some functional variables is the result of the researcher's use of training methods as assistive tools in achieving better performance of the front hands jump skill. One of the most important recommendations recommended by the researchers is that: preparing the overload exercises prepared by the researcher because of their positive and noticeable effect in training the front hand jump skill, and use tests appropriate to the research sample for the purpose of obtaining positive results.

**Keywords:** Overload exercises, physiological variables, physical variables

### Introduction

The general physiology is concerned with studying all the functions of the body, then training physiology means ((it is the science that gives a description and interpretation of the physiological and functional indicators resulting from performing training once or repeating training several times with the aim of improving the responses of the body's organs)).

Gymnastics is one of the basic branches in the field of physical education and sports sciences, and the skill of the front hand jump is considered one of the difficult skills that requires flexibility, agility and balance in technical and motor performance, which raises the level of players' achievement in terms of using overload to raise functional and physical indicators, which requires effort in performance, as Many studies and scientific research have unanimously agreed that excessive training will be accompanied by psychological and physical problems for athletes who try to exceed the limits of their physical capabilities and health fitness to a degree by developing their strength and physical endurance.

Overtraining is exposing the athlete to training loads of a degree above the maximum in terms of volume, intensity, and number of repetitions of this training unit during a small and medium training session, during which the coach works to stimulate the athlete's functional

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systems to work at their upper limits without harming them and bringing the athlete to a state of stress, through which the coach aims to Breaking the monotony and stability of training, which leads to stability of the level and even returning it more often, and this is considered a healthy condition in sports training. As for excessive training or over-training, it means the repetition of excessive training during different training cycles and exposing the athlete to training loads above the maximum in a succession and for a long period. Relatively, which leads to the accumulation of traces of fatigue, and not giving the athlete an adequate recovery period leads to the emergence of a state of stress, which shows signs of low level, lack of stability in performance, many injuries, and a decline in the ability to compete, make sound decisions, and other functional and psychological characteristics, and thus it is considered an unhealthy condition in training. In hospitalization, they show symptoms of this, but after a while they go through a state of decreased performance and loss of the ability to train to usual levels. Excessive training is where the physical load placed on the athlete is higher than his physical capabilities and he continues to perform despite feeling pain.

### Research problem

The modern view of the processes of improving the level of sports performance has become that they are the result of the effect of training loads on the body's physiological, psychological and neurological potential. When the body is exposed to high-intensity effort, it becomes vulnerable to fatigue. Modern studies and research have not been able to prevent the occurrence of fatigue, but they have been able to delay the occurrence of fatigue after Study and determine the causes of excessive load. The skill of the front hand jump in apparatus gymnastics is considered one of the important basic movements. It is even considered the main nerve in the fields of physical education sciences because it contains consistent steps and precise technical performance. This skill has agility, flexibility, balance, and transitional speed. As a result, ability levels are affected. Functional exercises, which have a positive impact on physical variables, therefore created a need for more accurate scientific information about this study. The researcher noticed that there are many reasons that indicate the existence of a problem, which is poor technical performance using overload exercises, which may cause them to have a type of fatigue and changes in blood pressure (high - low),

blood sugar, and heart rates, and here there is an increase in the concentration of lactic acid, which is responsible for The work of the body's systems makes it difficult for female students to achieve the level of achievement, so the researcher witnessed this through her studies in college, as she is one of the students who has high skill in performance and some of the defects in the physiological indicators accompanying it, to be the problem of our research.

### Research objectives

- Identify the effect of overload exercises on some physiological variables among female students
- Identify the effect of overload exercises on some physical variables among female students
- Identify the effect of overload exercises on the gymnastics hand jump skill of female students

### Research hypotheses

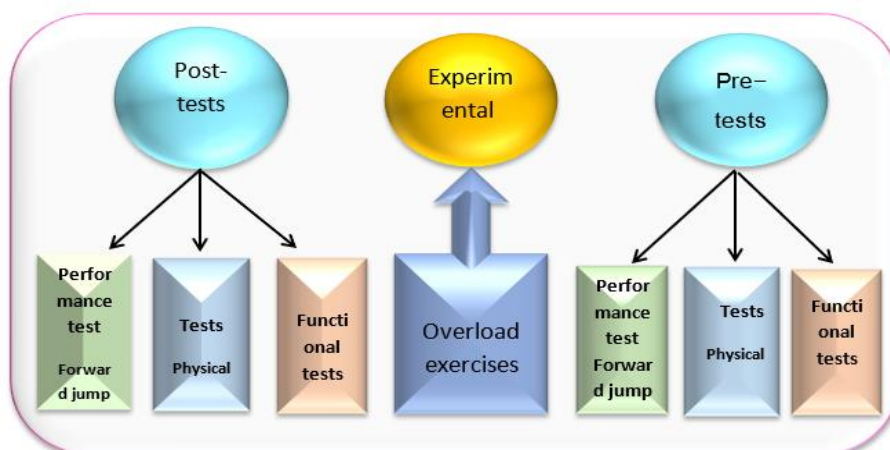
- There are statistically significant differences between the pre- and post-tests, in favor of the post-test, in physiological variables.
- There are statistically significant differences between the pre- and post-tests in favor of the post-test for physical variables
- There are statistically significant differences between the pre- and post-tests, in favor of the post-test, in the skill of hand jumping in gymnastics.

### Research fields

- **Human field:** A sample of fourth-year female students in the Department of Physical Education and Sports Sciences / University of Kufa / College of Education for Girls.
- **Time field:** 1/10/2023 - 1/5/2024.
- **Spatial field:** Gymnastics Hall / Department of Physical Education and Sports Sciences / University of Kufa.

### Research methodology

The Experimental research approach is defined as “the approach that is based on direct and realistic dealing with various phenomena and is based on two basic pillars: observation and experience of all kinds” (Abdul Muti Muhammad Assaf and others, 2009) <sup>[1]</sup>. Accordingly, the researchers used the experimental method by designing one group with a pre- and post-test to suit the nature of the problem.



**Fig 1:** Shows the experimental design of a pre- and post-test research sample for one group

### Community and sample research

The researcher defined the study population as a methodological term that refers to the statistical population on which the study is conducted (Ahmed Farhan Ali Al-Tamimi2014) [2], and the research population was defined by the female students of the fourth stage / Department of Physical Education and Sports Sciences / College of Education for Girls / University of Kufa for the academic year (2023-2024), who numbered (45) students. The research sample was chosen by (8) female students in a deliberate manner from among the distinguished female students with the quality of performance from that community. Thus, the percentage of the research sample from the total population of female students is (17.7%), and

this percentage is appropriate to represent the research community in a real and honest representation and was subjected to All female students in the sample included the overall procedures in the tests prepared by the researcher.

**Sample homogeneity:** In order to obtain homogeneity among the members of the research sample and to prevent influences that may affect the results of the experiment in terms of the individual differences existing among the female students, the researcher found the skewness coefficient for some variables, and it indicated that the measurements achieve a moderate trend, which shows that they range between ( $\pm 1$ ) and It indicates the homogeneity of the sample members, and the table below shows this.

**Table 1:** Shows the homogeneity of the sample in terms of training age

Variables	Measuring unit	Arithmetic mean	Deviation Standard	Mediator	skewness coefficient	Result
mass	Kg	59	0.10	55.2	0.312	Homogeneous
Length	Meter	156	2.30	3.31	0.904	Homogeneous
Chronological age	year	20.50	1.42	20.14	0.764	Homogeneous

Table (1) shows that the skewness coefficient values are limited to ( $\pm 1$ ), which indicates the homogeneity of the research sample individuals in these variables, that is, the normality of their normal distribution.

### Methods, devices and tools used in the research

The tools that the researcher uses in collecting data related to the topic that he is studying are among the most important steps, because the means of collecting data related to the topic and their tools are the basic and necessary focus of the study (Bou Daoud Abdel Yameen and Ata Allah Amjad, 2009) [3], as the researcher used appropriate means, tools, and devices that are compatible with the nature of the research, and among these tools and means What follows:

#### Means of collecting information

- Personal interviews of experts and specialists in the field of the game (1).
- Observation and experimentation.
- Tests and standards.
- Questionnaire form (2).
- Local, Arab and international scientific sources (books, theses, dissertations).
- Assistant work team (3).
- Performance evaluation form (4).

#### Devices and tools used in research

- HP laptop (1).
- Electronic scale for measuring weight, manufactured in the United States (YA 2008).
- A record for documenting data (100), number one (1).
- Manual calculator.
- Tape to measure length.
- Sponge rug (2m x 3m), number (10).
- Conical terrace number (1).
- (2) medicine balls weighing (5 kg).
- Whistle.
- Circular collars (11).
- Colored sticker (3).
- Prince laser discs (4), trays.
- (2) Sony video cameras with a Japanese speed (60 images/second) and its supports.
- Sterile medical cotton.

- Sterilizing alcohol.
- Print numbers.
- Sportswear.
- A device to measure blood pressure.
- A device to measure blood sugar.
- Lactate Pro2 device to measure the concentration of lactic acid in the blood.
- German-made Onrhythm 500 Bluetooth Watch to measure heart rate after exertion.
- Blood storage tubes containing EDTA, the anticoagulant (8).

### Field research procedures

#### Determine the study variables

After examining the researcher with some relevant scientific sources, interviewing those with experience, and the opinion of the supervisor, the researcher identified a set of variables specific to the study, given that the research sample is from the Department of Physical Education and Sports Sciences, and by virtue of the fact that the sports departments in the colleges of education for girls are subject to a different system from the colleges of physical education and sports sciences, for a number of The stages in which the gymnastics subject is taught. The research sample represented by the fourth stage was chosen, and according to the curriculum, the skills under study were determined, including the skill of the front hands jump on the floor movement mat device.

#### Exploratory experience

The researcher conducted an exploratory experiment on (5) female students from the fourth stage / Department of Physical Education and Sports Sciences / College of Education for Girls / University of Kufa, on...Sunday..... corresponding to (22/10/2023) on... The closed gymnasium hall, where the researcher used a camera lens.

#### First: tests for physical variables

The researcher conducted pre-tests before starting to use the experimental curriculum prepared by the researcher, and these tests were conducted on Wednesday and Thursday 1-2/11/2023 / in the closed gymnastics hall in the Department of Physical Education and Sports Sciences / University of

Kufa, where the physical and skill tests were conducted on Wednesday. (11/1) As for the functional tests on Thursday in the laboratory (Al-Sadiq Laboratory) on 11/2.

### Description of tests

#### Speed-force test

- **Test name:** Forward lean, bending and extending the arms (shnow) within (10) seconds.
- **Purpose of the test:** To measure the strength and speed of the arm.

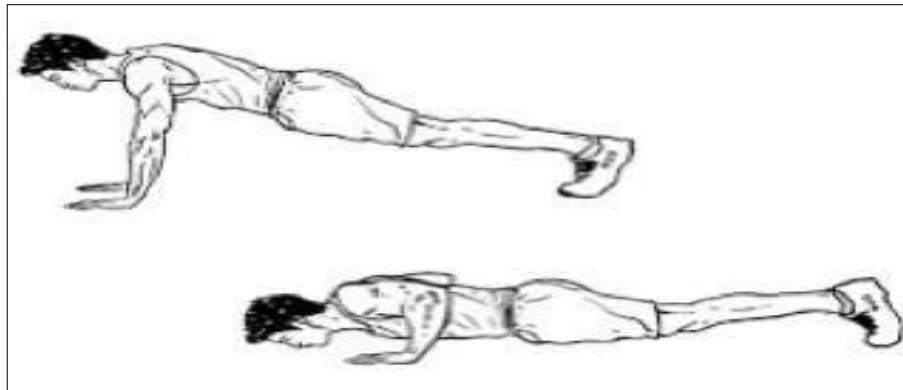


Fig 2: Shows the frontal support test to measure the force endurance of the arm muscles

#### Translational speed test

- **Test name:** Sprint test (20) m from the flying start.
- **Objective:** The test is to measure translational speed.
- **Tools:** Stopwatch, measuring tape, whistle.
- **Description of the test:** Three parallel lines are drawn on the ground. The distance between the first and second line is (10) m and between the second and third line (20) m. The athlete stands behind the first start line and from a high start. At the signal, the athlete runs at an increasing speed, reaching a maximum at the second start line. It ends at the end of the third line. Conditions: The experimenter is allowed to perform two attempts after giving her a period of time. Suitable interfacial comfort, provided that the best is recorded for it.
- **Recording:** The laboratory records the time taken from the beginning of the second line until the moment it crosses the finish line, in seconds and its parts.

- **Tools used:** Stopwatch, area of land (2) meters x 1 metre.
- **Performance specifications:** The tester takes the forward leaning position, and when the instruction begins, the tester begins to fully bend and extend the arms continuously for (10) seconds.
- **Recording method:** Count the number of times you perform until the end of the 10-second time. Provided that all repetitions are performed correctly, as shown in the figure (2).

#### Flexibility test

- **Test name:** The horizontal distance of the bridge. (1).
- **Purpose of the test:** To measure the flexibility of the spine.
- **Tools:** Measuring tape - rug.
- **Method of performance:** From the bridge position, the player brings the feet closer to the head, and the researcher measures the distance between the heels and the head, with the player remaining at the closest space he can reach for two seconds.
- **Test instructions:** The feet must be fully on the ground so that the heels touch the ground. The player must be based on the forehead.
- **Scoring:** The player has three attempts, and the best attempt is recorded. The player must remain at the last distance reached for two seconds.

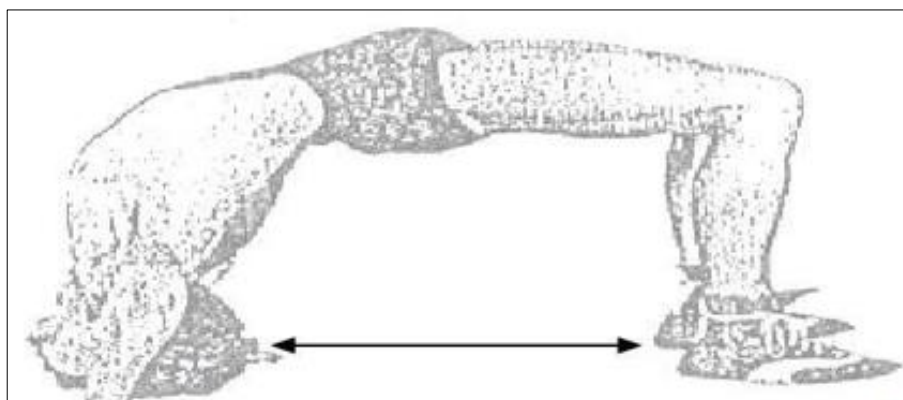


Fig 3: Shows the test shows the horizontal distance of the bridge

**Agility test: Shuttle running test with different dimensions (9 - 3 - 6 - 3 - 9) meters:** (Muhammad Sobhi Hassanein, 1997) [4].

- **Purpose of the test:** To measure agility.

- **Tools:** playground, electronic stopwatch, cones (6).
- **Test administrator:** An administrator calls the testers and a recorder records the performance time.

- **Description of the PERFORMANCE:** The tester stands behind the starting line of the stadium and when he hears the start signal, he runs in a straight direction to touch the funnel above the center line at 9m with his right hand, then turns around and runs towards the 3m line located in the middle of the field from which he started running, to touch the funnel above the line at 3m with his right hand, then turns around. Towards the 3m L line located in the second half of the field, he touches the funnel above the 6m line with his right hand. He then heads to the 3m midline to touch the funnel above the 3m line with his right hand. He turns around and runs towards the 9m finish line to cross it with both feet. Here, it must be noted that he touches the lines in Each time with the right hand, the finish line must be crossed with both feet.
- **Recording:** The time is recorded from the start until crossing the finish line.
- **Balance test:** Move over marks test: (Muhammad Sobhi Hassanein, 2003) [5].
- **Purpose of the test:** Measuring balance.
- **Tools:** stop watch, measuring tape, (11) markers.
- **Description of performance:** The tester stands on the starting line with the right foot, then stands on the mark (1) with the instep of the left foot (note that the mark is covered with the foot) and tries to remain stable in this position, then jumps to the mark (2) to stand on the instep of the right foot, and so on until To reach the final mark in the same manner every jump.

- **9-Scoring:** The laboratory scores (10) marks for each jump and stability attempt, as in Figure (4).



Fig 4: Shows the move-over test to measure balance

### Tests for skill variables

#### Two-handed forward jump test

This stage begins with the moment when the feet touch the ground and ends with stability and the arms remain raised upward. In the hope of achieving stability, the student bends the knees slightly. This is in the case of performing the front hands jump individually. However, if it is linked to another movement, the process of bending in the knee joint does not take place. It will represent the preparatory section for the movement to be linked. As in the figure (5).

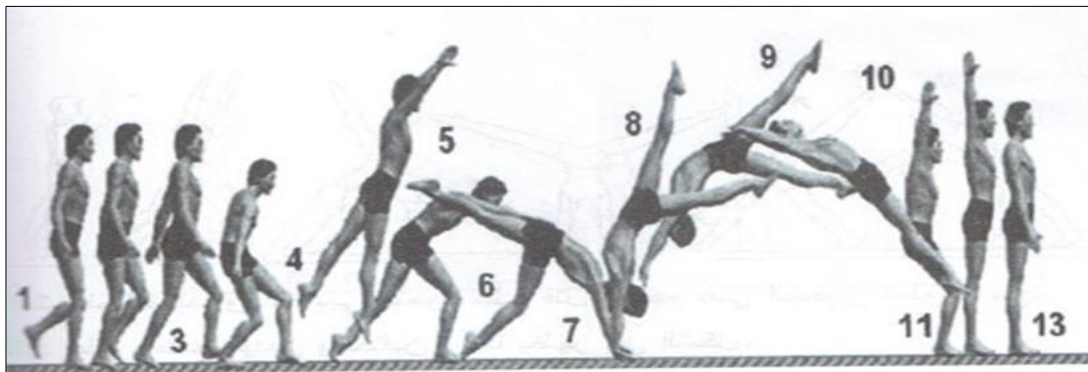


Fig 5: Shows the figure shows the front hands jump

### Skill performance evaluation

At the international level, and in accordance with the arbitration method followed within the instructions of the International Federation (F.I.G), the athlete's score in artistic gymnastics and on each apparatus is obtained by the athlete immediately after the performance through the score awarded by the Difficulty Referee, who are the arbiters of difficulty and the significance that symbolizes them is the letter (D). They are specialized in distinguishing the type of movement and giving it the appropriate degree within the agreed-upon scale of difficulties. As for the other degree, it is given by the technical performance referees (Execution Referee), and the significance that symbolizes them is the letter (E). They are specialized in observing the apparent form of the motor performance and evaluating the degree of performance by deducting a All defects and errors

In addition, the defect that occurs while the player is performing the exercise, and finally, the player obtains his final grade by summing the two aforementioned grades,

after deducting the violations (Penalty) that may occur. With regard to the ground movement mat, there are movement groups and types that belong to those groups of multiple and varied jumps, and for each some of them have their own degree that is determined according to their difficulty and the method and form of their performance.

To evaluate the skill performance of the female students, the researcher sought the help of four judges, who have experience and specialization in judging artistic gymnastics, in order to evaluate the level of artistic performance of the research sample, by showing video clips of each student's performance in the pre- and post-tests, and it was agreed with Referees, provided that the technical performance score ranges from (0 - (10), within the performance evaluation form, which was prepared for this purpose and which gained the approval and approval of the judges in the extent of its suitability to evaluate performance without difficulty, and after the grades awarded by the four referees are sorted, The highest and lowest scores are excluded, so that the final

score for each attempt performed by the player is obtained by calculating the arithmetic mean of the remaining two scores.

### Tests for functional variables

#### Sugar

Blood sugar was measured immediately after the effort. After (5) seconds of performing the (performance endurance) test, which was measured according to the following, the tester sits on a chair and the arm is tied with a compression band (turna) to facilitate the process of drawing blood from it with an amount of (2 CC) of venous blood from Before the chemical specialist (Chemist: Dr. Dhafer Taher Al-Wadis) <sup>[6-7]</sup>, the blood is placed in medical tubes (tubes) and transported directly to the specialized laboratory, and the tubes are numbered, so that each student gets a number for his own tube, and the same number is for the pre-test and post-test and for the experimental and control group in order to preserve the data. For each student for the purpose of isolating her in an organized manner until the data is emptied accurately.

#### Blood pressure

Blood pressure was measured directly after the effort by using an electronic blood pressure device (CITIZEN). The belt was fixed on the left arm in the area near the tested elbow to send signals through which the pressure was measured.

#### Pulse (heart rate after exertion)

The heart rate was measured after exertion using a watch (Onrhythm 500 Bluetooth Watch). The heart rate belt (Bluetooth) was attached to the tester's chest to receive signals from the heart and send them via Bluetooth to the wristwatch.



Fig 6: Shows the onrhythm 500 Bluetooth Watch heart rate monitor

### Measuring the concentration of lactic acid in the blood

Measurement of the level of lactic acid concentration in the blood was performed after giving a physical exertion test (Cungham's lactic endurance) in the fitness hall at the College of Physical Education and Sports Sciences / University of Kufa. This test includes running on a treadmill at maximum speed at an incline of (9) and at a speed of 8 mph (12.5 km/h) for (3) Minutes, after (5) minutes of

carrying out the test, which is the best period for the transfer of lactic acid from the muscles to the blood" 2, the measuring tape is placed in the location designated for it in the device. After placing the tape, the code number for the tape will appear, and it is then taken A blood sample from the research population, which numbered (8) female students, during the use of a shaker by the chemist (Chemist: Dr. Dhafer Taher Al-Wadis) <sup>[6-7]</sup>. Then the concentration of lactic acid in the blood is measured after (5) minutes of performing the test, which is the best period for the transfer and accumulation of lactic acid from the muscles to the blood" (Muhammad Ali Al-Qat: Physiology and Training, Cairo 1999) <sup>[8]</sup>.



Fig 7: Shows the devices for measuring lactic acid (Lactate Pro<sup>2</sup>)

### Main research experience

#### Overload exercises

After examining the researcher's scientific sources and reviewing the experts and specialists, including members of the Scientific Committee in approving the title, the researcher prepared a set of overload exercises with a modern method of performance, which she applied in the training units of the research sample in the main section of it, and the total was Training units: (12) training units for a period of (one and a half months) and at a rate of (2) per week, and they were applied on days (Monday, Wednesday) at (10:30), as the exercises were applied from (6/11/ until 20/12/2023) The duration of applying these exercises within the training unit ranged from (25-35 minutes).

From the main section, the researcher gradually gave the exercises from easy to difficult and from simple to complex so that the students could gradually adapt to them and understand them. The researcher used the appropriate means and tools for each of these exercises. These means and tools were (rugs, balance balls, tapes and a whistle). which shows the exercises used and prepared by the researcher to apply the vocabulary of the training units.

#### Posttests

The researcher conducted her functional post-tests on Sunday and Monday, where the researcher conducted the physical tests on Sunday, 12/24/2023, and on Monday, the functional tests were conducted in (Al-Sadiq Laboratory) 12/25/2023 after completing all the training doses that included the exercises suggested by the researcher. The researcher tried to conduct these tests in the same conditions and circumstances in which the pre-tests were conducted, by fixing all the conditions related to the tests in terms of time,

place, devices, tools, and method of implementation in order to work as much as possible to provide the same conditions or close to them when conducting the post-tests.

### Statistical methods

- The law of evolutionary proportions.
- Arithmetic mean.

- The mediator.
- Standard deviation.
- Skewness coefficient.
- Test law for independent samples.

### Results and discussion

**Table 2:** Shows the result for the functional variables

Variables	Arithmetic mean		Standard deviation		Calculated t value	Type of sig
	Pretest	Posttest	Pretest	Posttest		
Blood sugar	87.25	87.38	4.79	6.83	0.10	Non sig
High blood pressure	11.60	8.0	0.92	0.64	7.65	Sig
	7.38	7.88	0.71	1.38	0.92	Non sig
Low blood pressure	103.12	100.3	14.86	22.02	1.22	Non sig
Heart rate	1.43	11.76	0.32	0.69	27.91	Sig

The results showed small differences between the arithmetic means in the pre- and post-tests, which led to no significant differences in the T values as in the variables of sugar, high and low blood pressure, and pulse. The concentration of lactic acid enzyme was determined using the Colgham test, and the reason was an increase in the concentration of the acid in the muscle.

The researcher attributes the reason to the fact that these variables return to their normal state or to a state through which the human body's nervous and circulatory systems can re-work properly so that the player can continue to perform while having rest in overload exercises and even in tests and overload exercises, and this is what was confirmed by the current study that agrees with The previous study, where the results presented in Tables (2) for the concentration of lactic acid in the blood, showed that there were significant differences in favor of the results of the posttests. The researcher believes that the increase in the accumulation of lactic acid in the blood after exertion in the pretest is due to the performance of the sample members for the endurance test. Lactic and high intensity, as working with high intensity is able to increase lactic acid in the blood due to the process of anaerobic glycolysis that the body performs to return the compound (ATP) into the muscle cell with insufficient oxygen supplied to the working muscles, which leads to the inability of the mitochondria to enter the liberated hydrogen ion is transferred to the respiratory chain. Thus, the pyruvic acid combines with the hydrogen ion to form lactic acid. Brain confirms that when its glucose molecule is destroyed, pyruvic acid is released with a small amount of (ATP). Then the pyruvic acid reacts with oxygen, and when the muscle contracts strongly, in this case the level of oxygen in the blood will increase, and thus pyruvate will combine with the liberated hydrogen ions to form lactic acid (Mackenzie, Improving Your lactic acid threshold, British Athletic)<sup>[9]</sup>.

Which is that high-intensity anaerobic effort can increase the ability of the internal organs to break down a large amount of glycogen in order to return the compound (ATP) inside the muscle cell through a process Glycolysis occurs anaerobically, which leads to the accumulation of large amounts of lactic acid, which is the final product of the anaerobic glycolysis process. That is, by increasing the breakdown of glycogen, the amount of lactic acid produced increases, in addition to increasing the duration of anaerobic work, which in turn leads to an increase in oxygen debt and thus increased accumulation. Raysan Khuraibet (1999)<sup>[10]</sup>

confirms that the increase in lactic acid in the muscle and blood in many cases of fatigue is caused by glycolysis (Raysan Khuraibet, 1999)<sup>[10]</sup>.

As for (McArdle and Katch)<sup>[11]</sup>, they confirm that during low physical effort and constant effort, the percentage of lactic acid in the blood does not increase outside the biological range during rest time, and when the intensity increases During the effort, the percentage of acid rises above the normal limit (McArdle W.D, Katch F. I, 2000)<sup>[11]</sup>, and this is an indication that the sample members underwent high-intensity physical effort that led to the accumulation of quantities of lactic acid. The results reached by the researcher in this regard were consistent in principle (high lactic acid after... High-intensity effort), and from this it is clear from the results of the two tables above for the percentage of lactic acid concentration in the post-tests of the sample members about the increase in the percentage of lactic acid concentration after the effort. The researcher believes that the reason for the increase in the percentage of lactic acid concentration is due to the adaptation of the working muscles and internal organs of the body. The student quickly gets rid of the accumulation of large amounts of lactic acid in the blood during physical effort. This physiological adaptation comes as a result of the type of exercises that the researcher prepared for the sample individuals and to which the students were exposed to continuously, as they were characterized by many repetitions of the exercises that led to a state of adaptation. Functional: The reason for the increase in lactic acid concentration was due to the type of exercises prepared by the researcher in the repetitive method according to scientific and physiological foundations, as continuing training for a period of time had a major role in that increase, as well as the repetitions performed by the female students during the training unit, and diversification and change. With exercises, and the nature of the exercises in the repetitive manner prepared by the researcher, the highest percentage of them went towards lactic endurance, as it gained the muscle tissues the ability to get rid of lactic acid quickly, in addition to the ability of the regulated solutions inside and outside the muscle cells to maintain the alkaline-acid environment in a close manner. Naturally, to ensure that anaerobic enzymes work properly within an ideal pH, Muhammad Al-Qat believes that bioregulators are one of the ways in which the body can increase its tolerance to the accumulation of lactic acid, making it a weak acid to the point that the pH balance in muscle tissue does not tend

towards Decrease rapidly, and increasing the rate of anaerobic glycation is the appropriate way to continue energy release processes (Muhammad Ali Al-Qat, 2002) <sup>[12]</sup>. The current study agreed with her that lactic acid increases as a result of its accumulation after giving high physical effort, such as overload exercises. The researcher attributes this increase to the fact that the exercise period was a month and a half, and this period may not be sufficient for the purpose of achieving conditioning in the muscles and being able to withstand strong exercises, such as load exercises. Some sources have confirmed that the muscles need continuous training for long periods so that they can adapt their ability to control the accumulation of acid in them... This means that using overload exercises is preferable for longer periods. However, if we want to know the effect of overload exercises... Excessive load on the level of lactic acid in a short period, as in the research, the results showed us that the level of lactic acid increases...and the reason, as we mentioned, is that the specialized body systems need a longer period to enable the muscles to adapt to such exercises.

### Conclusion

According to the results, the researcher was able to draw the following conclusions:

- Positive results appeared for the functional, physical, and skill variables caused by overload exercises, as some functional variables, such as blood sugar, high and low pressure, were not affected by the exercises, as the nature of the variables changed according to the adaptation of the body's systems that return them to their normal position to maintain the general health of the body.
- The development achieved in the skill and some functional variables is the result of the researcher's use of training methods as assistive tools in achieving better performance of the front hands jump skill.
- The progression of overload exercises goes from easy to difficult according to the motor structure and the sample's willingness to apply them to improve skill performance.
- The training aids reduced the effort and time of the school and the students in learning the skill of the forward hand jump and had a positive impact on the students' interaction during the training units.
- There was an improvement in the selected physical and skill variables during the technical performance of the front hand jump skill after preparing and applying the overload exercises, and this was shown by the results of the post-tests.
- Taking into account the provision of a training environment helped to obtain positive results for the benefit of the research in terms of halls, sample equipment, and auxiliary staff, and led to absorbing shocks, providing safety conditions, and eliminating anxiety, which had an effective impact in achieving this achievement.

### Recommendations

According to the concluded, the researcher came up with a set of recommendations:

- Preparing the overload exercises prepared by the researcher because of their positive and noticeable effect in training the front hand jump skill.

- Use tests appropriate to the research sample for the purpose of obtaining positive results.
- It is possible to study the auxiliary and studied training methods with other samples in training and developing the skill performance of the front hands jump.
- Choosing the sample that suits the researcher's capabilities, preparing it for exercises in a correct scientific manner, and providing the sample and devices for the purpose of obtaining better results.
- Emphasizing attention to the technical aspects when teaching skills, including the handstand and the front hand jump, to save effort and time, as well as to increase the level of performance development.
- Trying to apply overload exercises to different samples and different age groups and taking ideal and appropriate physical measurements for the exercises.

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