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Special Strength Exercises and their Effect on Some Anabolic Hormones and Physical Abilities among Junior Handball Players

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Abstract

The research aimed to prepare special exercises to develop strength, as well as to identify the effect of special strength exercises on some structural hormones and physical abilities. For both research groups, the researchers used the experimental method to suit the nature of the research problem. The research community was represented by Al-Nasr Club players, young players in Dhi Qar Governorate for the 2022-2023 season, and adults. They numbered 20 players, divided into two groups, control and experimental. For each group of players, the researchers conducted homogeneity and parity in the research variables, and the training units are applied by the team coach for the control and experimental groups. The training period was (12) weeks for the period from Monday, corresponding to 6/17/2023, until Sunday, corresponding to September 17, 2023. The curriculum included (36) training units, three training units per week. The researchers concluded that the experimental group that relied on the exercises Prepared by the researchers, it showed a clear superiority in the post-test of some structural hormones and physical abilities over the control group. All field procedures were carried out, including tests and measurements, through which the necessary data was collected, and then the appropriate statistics were conducted and classified in the form of tables, analyzed and discussed, and the appropriate conclusions and recommendations were drawn up from the results achieved.

Keywords: *special strength exercises - anabolic hormones - physical abilities.*

1-1 Introduction

Using the optimal scientific method to plan and direct the training process has led to tremendous growth in the sporting level. This requires the coach to have objective indications about the players' abilities and capabilities as well as the duties and characteristics of the sporting activity being practiced. He engages in a wide range of motor and physical activities. The athlete continuously concentrates on one of the energy generation processes. In addition to changing biochemical variables, these exercises have an impact on the body and its functional systems. They also result in morphological and physiological changes, which together improve the body's ability to produce anaerobic energy more often and aerobic energy less frequently. As is well known, different sports events and games have different amounts of energy production systems; however, there are benefits to the type of system that is used in games, and testing for anabolic hormones is at the forefront of what needs to be understood about how much an athlete's body responds to exertion, as recent findings in sports physiology research have raised the bar for Sports achievement has

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improved dramatically, particularly in digital activities like swimming, running, and organized handball. Additionally, new ideas about how to use and enhance physical abilities and unique strength in the human body have been developed. Additionally, a significant part of this growth to accomplish functional adaptation that reflects at the level is played by the functional variables that go along with them. The research deals with physiological and morphological tests and measurements as well as physical abilities to reflect the degree of adaptation of vital organs through the devices' response to physical load. Physiological and morphological tests and measurements are the unmistakable evidence for this. The degree of adaptability brought about by the training programs that the players of the clubs that are the subject of the study endured, allowing the coaches to determine the degree to which the training program's intended objectives have been met. Because handball has so many requirements, the player needs to build both their anaerobic and lactational systems. The development of the aerobic energy system provides a solid foundation for promoting the anaerobic energy production that determines how quickly a handball game is played. Here, the significance of research is emphasized by demonstrating how high-intensity special strength exercises, which are a component of the special preparation in units, can help to develop performance and achievement. Organized training is crucial, as is determining the most significant alterations on anatomical, hormonal, and physical level that arise from these training exercises and impact players' performance and accomplishments. Additionally, the researchers observed and followed up with the coaches in the clubs and specialized handball centers to determine the extent of differences between them before and after performing the physical load. Hormone measurements using the Cobas e 411 device provide numerous significant indicators about the impact that the training curricula had on the players. Since there is a relationship and harmony of strength related to functional variables and morphology, which have a significant and vital impact in achieving advanced positions and levels among players, it is necessary to understand the structural hormones and physical abilities that correspond with the performance of the fundamental skills of handball players. The research hypotheses state that, for tests and measures in the two research groups, there are statistically significant variations in some structural hormones and physical abilities among junior handball players at Al-Nasr club.

1-2 The problem of the Study

The researchers believe in the effectiveness of special strength exercises among the players and determine the research problem in studying the changes occurring in physical abilities and structural hormones due to regular practice of handball. Through observation and follow-up with the coaches in the specialized handball clubs and centers, they noticed the necessity of knowing the hormonal variables and physical capabilities of the body parts, which coincide with the performance of the basic skills of the handball players. There is a connection and harmony between the strength of the functional and morphological variables because they have an important and vital impact in achieving advanced positions and levels. In addition to some trainers' ignorance of the changes in the body's systems during exercise, particularly at 80–100% intensity, the research will look at changes in the body's systems both before and after an attempt to determine the effects on the aforementioned measurements. It will also confirm the efficacy of training regimens and physical loads. on the blood, circulatory system, and other bodily systems by being aware of the unique distinctions among the players in Dhi Qar Governorate's clubs.

1-3 Aims of the Study

The research aims at:

1. prepare unique strength training routines for the youth handball players of Al-Nasr Club.

2. Determining how specific strength training affects a few anabolic hormones in junior handball players at Al-Nasr club as well as in the two study groups.
3. Determining how specific strength training affects certain physical skills for the two research groups and young handball players at Al-Nasr club.

1-4 limits of the Research

1-4-1 Human Limits: Al-Nasr Club junior handball players aged (15-17) years.

1-4-2 Time Limits: For the period from 12/20/2022 until 10/1/2023.

1-4-3 The Spatial Limits: Nasiriyah Heart Center - Bin Al-Bitar Medical Laboratory - and the sports hall of Al-Nasr Sports Club for Handball.

2- Fieldwork Techniques and Research Methodology

2-1 Research Methodology: Due to the nature of the research problem, the researchers employed the experimental approach with equal groups (control and experimental).

2-2 The Instance: The Al-Nasr Handball Club junior group, which consisted of 25 players and accounted for 33.3% of the initial population, was included in the research population. After testing the research sample and eliminating the goalkeepers, which amounted to twenty players, the sample was distributed and homogenized. It was purposefully split into two groups, control and experimental, each with ten players. The process of achieving sample homogeneity is displayed in Table (1).

Table 1: Displays the Overall Homogeneity of the Sample Participants.

Variables	Unit of Measurement	Sample	Arithmetic Mean	Standard Deviation	Coefficient of Variation	Statistical Significance
height	cm	20	172.4	7.634	4.428	homogeneous
Bloc	kg	20	65.142	5.813	8.923	homogeneous
Chronological age	month	20	18.2	0.741	4.071	homogeneous
Training age	month	20	4.6	0.924	20.086	homogeneous

The homogeneity of the sample within a group is indicated by the coefficient of variance values falling below thirty percent, as Table (1) illustrates. "High homogeneity is defined as the coefficient of variation being closer to 1%; if it exceeds 30%, the sample is not homogeneous." (7: 161)

2-3 Research Techniques, Instruments, and Gadgets Used

2-3-1 Data collecting techniques: observation - International and Arab sources - a questionnaire form with expert names - in-person interviews with specialists and experts - assessments and gauges - network of information -

2-3-2 Research-Related Instruments, Equipment, and Techniques

An HP laptop. - Trade mail treadmill. - Handball court inside a restricted space. Medicine balls, available in various weights. A dolphin whistle of Chinese manufacture. An instrument for measuring height and weight in medicine. One stopwatch with a 1/100th of a second accuracy. - Casio electronic calculator. - Handball lawful, number 10. The wooden box with number four. No. 4 on the Swedish bench. - A form for documenting the test outcomes. Number (15). 411). Cone chart.

2-4 Tests Employed in the Study

After examining a wide range of literature and research on the subject of handball strength and speaking with experts in the fields of sports physiology, sports training, and handball, it was determined that explosive ability and strength characterized by speed are the two main components of special strength in this game. In light of the study's focus and the unique characteristics of the handball game, the researchers selected a few structural hormones based on their clarity, suitability for the research sample—emerging handball players—and ability to help the study achieve its goals. as seen in table (2) below.

Table (2): Hormonal Variables.

Hormonal Variables	No.
Testosterone	1
Growth hormone	2

After examining the relevant research sources, the researchers integrated a few physical tests that the experts had recommended in a questionnaire. The individuals who were in charge of them were experts in the handball game, sports training physiology, and sports training experience.

The tests that received the highest percentage were sorted by the researchers once they had gathered and opened the questionnaires, as shown in Table No. (3).

Table Number (3): It Displays the Opinions of Professionals and Experts about the Physical Test Nominations, together with the Percentage of Approval and Rejection.

No.	Physical Abilities	Parts of Body	Tests	Fits Percentage	Doesn't Fit Percentage	Ca Value	Indication		
1	Explosive capacity	for arms	Throwing a 3 kg medicine ball while standing	5	33.333	10	66.667	1.667	Unaccepted
			Throwing a 3 kg medicine ball from a seated position on a chair	12	80.000	3	20.000	5.400	Accepted
		for legs	Vertical jump up from a standstill	13	86.667	2	13.333	8.067	Accepted
			Horizontal jump forward	6	40.000	9	60.000	0.600	Unaccepted
2	Power distinguished by speed	for arms	Pull up with the bar continuously for 10 seconds	7	46.667	8	53.333	0.067	Unaccepted
			Lie down, then bend and extend the arms for 10 seconds	14	93.333	1	6.667	11.267	Accepted
		for legs	Partridge on one leg 30 m right and left	15	100.000	0	0.000	15.000	Accepted
			Partridge maximum distance 10 seconds for each leg individually	5	33.333	10	66.667	1.667	Unaccepted
		for abdomentorso	From the position of leaning on the back with the hands clasped behind the head, raise and lower the torso with the help of a colleague while pressing the knees with the elbows for 10 seconds.	13	86.667	2	13.333	8.067	Accepted

No.	Physical Abilities	Parts of Body	Tests	Fits Percentage	Doesn't Fit Percentage	Ca Value	Indication		
			From the position of leaning on the back with the hands clasped behind the head and holding the feet steady with the help of a colleague, raise the torso while pressing the knees with the elbows for 10 seconds.	4	26.667	11	73.333	3.267	غير مقبول
			From the prone position on the stomach, clasping the hands behind the head, while stabilizing the feet, with the help of a colleague, raising the torso up to a certain level for 10 seconds.	12	80.000	3	20.000	5.400	مقبول
		for back	From the prone position on the stomach, clasping the hands behind the head and stabilizing the feet with the help of a colleague, raising and lowering the torso off the ground for 10 seconds.	10	66.667	5	33.333	1.667	Unaccepted

2-4-1 Tests Used in the Research

Testing the explosive ability of the arms. (4:289)

Explosive ability test for the legs: (6:285)

Arm speed strength test: (5:149)

Test of strength and speed of the legs: (4:248)

Raising the torso and pressing the knees (abdomen) in (10 seconds) (5:340)

Raising the torso back (back) in (10 seconds) (3:127)

2-5 Field Procedures

2-5-1 The Exploratory Experiment: It was carried out on a sample of four youth handball players from the Al-Nasr Sports Club by the researchers, with assistance from the assistant work team, after their explanation of the tests and registration procedures. The experiment was conducted on November 6–12, 2023. Physical examinations and hormone measures took place at precisely four o'clock in the afternoon for two days. The exams were as follows:

Day one, June 11, 2023 physical examinations.

Day Two: June 12, 2023 Measurements of hormones

2-5-2 Pretests

On June 14–15, 2023, the first day of the pre-tests was dedicated to physical examinations, while the second day was devoted to hormone tests for the study. The tests were spread out over two days in order to prevent the athlete from being tired from taking so many tests and thus not receiving accurate results.

2-5-3 Principal Experiment

The exercises were carried out throughout the primary portion of the team coach's training unit. Body weight was used in the workouts, which were performed in a high-intensity, repeating interval training style with high intensities ranging from 80 to 100%.

The primary purpose of the interval training approach is to improve aerobic capacity because most workouts are completed rapidly, which causes lactic acid to build up. (1:218)

The exercises (volume, intensity, and interval comfort) were chosen based on the sources and preliminary tests carried out on the research sample and administered to the experimental group during the training process, overseen by the team's trainer.

2-5-4 Post-Tests

After implementing the exercises, the researchers re-administered the post-tests for the research sample (the experimental and control groups), where the researchers conducted the physical tests for the research sample on one day, and the hormonal tests were conducted by the researchers on another day, 9/18-19/2023, after the end of the exercise period, in the same manner as the pre-tests. The researchers were keen to Prepare the post-tests as similar in terms of spatial and temporal conditions to the pre-tests as much as possible.

2-5-5 Statistical Methods

The data was processed statistically using the Statistical Package for the Social Sciences (SPSS 26) program.

3. Results Presentation, Analysis, and Discussion

It involved studying and debating the data after they were displayed in informative tables.

3-1 Outlining, Evaluating, and Talking about the Findings of a Few Anabolic Hormones Prior to Physical Activity for the Control Group

Table (4): Displays the Variations in Several Anabolic Hormones Between the Pre- and Post-Tests Prior to the Effort for the Control Group.

No.	Variable	Measuring Unit	Pretest		Post-Test		Amd	Sd D	Calculated T Value	Significance Level
			Am	Sd	Am	Sd				
1	Testosterone		3.413	0.548	3.930	0.310	-0.517	0.593	2.758	0.022
2	Growth hormone		1.007	0.181	1.280	0.108	-0.273	0.227	3.794	0.004

From the presentation, it seems that the trainer's training program had an effect on the control group sample members. Additionally, the development of the control group members due to ongoing training, feedback, and daily dedication to the program helped to develop and execute the trainer's prepared program accurately and in line with his style. The human body adjusts to the physical activities it engages in, which results in modifications to skill and tactical performance in addition to hormonal alterations. Development of broad physical and motor traits must result from practicing effectiveness and carrying out game-specific workouts.

"A set of exercises that mimic the speed and strength of a group of muscles' movement in the same direction as the muscles perform in the game or sporting event must be performed in order to achieve an effective training effect. These exercises must be derived from the game or sporting event in which the athlete specializes." (2:63)

3-2 Outlining, Evaluating, and Debating the Findings of a Few Anabolic Substances Prior to the Experimental Group's Endeavor

Table (5): It Displays the Variations in Several Anabolic Hormones between the Pre- and Post-Tests Prior to the Experimental Group's Exertion.

No.	Variable	Measuring Unit	Pretest		Posttest		Amd	Sd D	Calculated T Value	Significance Level
			Am	Sd	Am	Sd				
1	Testosterone		3.518	0.521	4.230	0.125	-0.712	0.493	4.570	0.001
2	Growth hormone		1.045	0.173	1.420	0.103	-0.375	0.215	5.523	0.000

Examining the pre- and post-test results for the experimental group prior to the effort, we find that there are definite, noteworthy differences in favor of the post-test due to the use of unique exercises created by the researchers and implemented precisely scientifically in accordance with the schedule called for in the curriculum.

"At the same time as working on the player's skill mastery, the coach can develop physical attributes by selecting appropriate exercises." (2:46)

The statistical evidence indicates that the emerging player was impacted by exercises at both maximum and below maximum intensity. This effect is observed on certain functional indicators, particularly structural hormones, where the effect became apparent post-training. This is evident when discussing the results of hormonal measurements prior to the effort. which, at this point, had lasted for three months, giving it a noticeable impact on the hormone variables and physical prowess, particularly for the developing athlete.

In addition to the fact that the research sample is from the junior category, which these exercises clearly affect, we notice the development of the characteristic of special strength before effort after applying the exercises, through which the functional equipment is developed for players who need such exercises to increase the functional efficiency of the respiratory and circulatory systems.

Growth hormone is thought to be in charge of construction activities, and because the body needs it, its percentage rose. Regarding the post-test, the researchers observe that the rise in the proportion of testosterone and growth hormone (GH) suggests that the planned exercises contribute positively to muscle growth and that the intensity levels are at the highest and lowest possible. Depending on the stresses and efforts put in, the body's systems adapt to their maximum.

Saad El-Din Al-Sharnouby mentions, "Endurance is linked to the functional capabilities of the body's systems, such as (the heart, blood circulation, breathing, catabolic and reconstructive processes, secretions of various hormones, and chemical changes in the muscles." (5:27)

The findings indicate that the post-tests showed significant differences from the other tests. The researchers attribute this to the unique exercises that the experimental group's players received, which were tailored to the specifics of the handball game. Specifically, the players trained on these strength exercises in a setting that replicated match conditions and the right number of repetitions, as well as providing rest periods that correspond with work schedules, as well as the gradual load method, which develops the players' functional equipment, as well as the fact that the research sample is from the junior category, which these exercises clearly affect. These changes happened both before and after applying specific strength exercises.

3-3 Presentation, Analysis and Discussion of the Results of Some Anabolic Hormones Before Exercise for the Control and Experimental Groups

Table (6): It Shows the Differences Between the Control and Experimental Groups in the Post-Test in Some Anabolic Hormones Before Exertion.

No.	Variable	Measuring Unit	Pretest		Posttest		Amd	Sd D	Calculated T Value	Significance Level
			Am	Sd	Am	Sd				
1	Testosterone		3.930	0.310	4.230	0.125	2.711	0.014	3.930	0.310
2	Growth hormone		1.280	0.108	1.420	0.103	2.885	0.010	1.280	0.108

The findings of growth hormone and testosterone tests prior to the endeavor show that there are notable variances in favor of the experimental group, which suggests that it was obviously impacted, according to the researchers. The percentage of growth hormone in the post-tests is higher than in the pre-tests, as seen by looking at the arithmetic mean. Unlike the control group, the researchers claimed that the experimental group's exercise duration was long enough to show signs of biochemical alterations.

"6–9 weeks of practice and training are sufficient for resistance adaptation to occur or to reduce damage to muscle tissue," as Greg et. al have confirmed. (156:8)

Because members of the experimental group significantly outperformed the control group in biochemical assays, the researchers conclude that resistance training is the cause of these outcomes.

The impact of strength training on testosterone is discussed by Sullivan et al. Strength training raises testosterone levels via increasing muscular force generation and strength training intensity. (9:37)

According to the researchers, low testosterone may have an adverse effect on a number of bodily processes in males, including the heart and blood vessels, as well as respiratory and cardiovascular problems.

According to Jason Dudley, weight training raises both testosterone levels. (119:10)

3–4. Results of Several Physical Factors for the Control and Experimental Groups Are Presented, Analyzed, and Discussed

Table (7): Displays the Variations in a Few Physical Variables Between the Experimental and Control Groups in the Post-Test.

No.	Variables	Pretest		Posttest		Calculated T Value	Significance Level
		Am	Sd	Am	Sd		
1	The explosive ability of the arms	4.036	0.145	4.240	0.066	3.828	0.001
2	The explosive ability of the legs	44.200	0.872	46.400	0.663	6.025	0.000
3	The strength and speed of the arms	13.300	0.640	14.600	0.800	3.806	0.001
4	The strength and speed of the legs	7.749	0.090	8.099	0.234	4.183	0.001
5	The strength characterized by speed of the abdomen	10.000	0.447	11.300	0.781	4.333	0.000
6	The strength and speed of the back	15.300	0.781	16.800	0.600	4.569	0.000

Table (7) makes it evident that there are notable variations in the physical capacities post-test.

It was discovered that there is a significant difference in the results of the post-tests of the experimental group, which research exercises were applied to her, and the researcher saw that physical abilities were clearly developed through these exercises. This finding is concerning with regard to the study between

the two research groups, the control and the experimental, and for the benefit of the experimental group, where we note that the differences in arithmetic settings are very clear in favor of the experimental group, and that the superiority obtained in the experimental group over the control group in physical abilities. It is believed that these notable differences resulted from the use of specific strength exercises, which work directly to improve the efficiency of the internal vital systems in the human body, the heart, lungs, and circulatory system because they are specialized and built on codified scientific foundations. Although the development that occurred for the control group was due to the continuation of the training exercises used by the trainer, we see that the effect of the exercises used in the research contributed better to the development of the experimental group. All of these factors, in addition to encouraging the nervous system to function and using high-intensity interval training and repetitive training to develop the elements of physical fitness—which was very close to the intensity of the competitions—helped to increase the players' efficiency and their development in this way and quantity. The researcher started by carefully planning and preparing the exercises.

"The coach's plans must be well formed and he must succeed in applying the training methods," adds Gamal Sabry. This will present the chance for accomplishment in the realm of success. The individual capabilities of each athlete must be considered by the coach. (103:11)

Using all of the proper training methods, tools, and techniques increases the effectiveness of the training dose in order to get the greatest outcomes, according to Al-Beik et al. "The conscious trainer is the one who has the ability to recognize and choose the appropriate method at each stage of training." (37:12)

4-Recommendations and Conclusions

1-4 Conclusions

The investigators arrived at a series of conclusions:

1. Some of the physiological markers and physical skills of the experimental group are effectively developed by the unique activities designed by the researchers.
2. The activities that the researchers performed led to functional alterations in the muscles by increasing the blood's and structural hormones' responses to the applied effort.
3. Exercise revealed that the research sample's increased testosterone and development were due to specific strength training, which was not received by the control group.

4-2 Recommendations

Among the conclusions reached by the researchers are the following:

1. Stressing the importance of using diversity in training unit exercises because of its proven ability to help develop some of the structural hormones and physical skills in handball that are being studied.
2. Extrapolating the training program exercises that the researchers used and their direct contribution to the development of certain physical skills and anabolic hormones under investigation to a broader audience.
3. The importance of measuring growth hormone and testosterone levels on a regular basis for young players, as these hormones affect the development and skill of handball players.

Arabic and Foreign References

1. Hanafi Mahmoud Mukhtar: Football Technical Director, Cairo, Al-Kitab Center for Publishing, 1998.

2. Raysan Khuraibet and Abu Al-Ala Abdel Fattah: Sports Training, 1st edition, Al-Kitab Publishing Center, 2016.
3. Qais Naji Abdul-Jabbar and Bastawisi Ahmed: Tests and principles of statistics in the mathematical field, Iraq, Baghdad University Library, 1999.
4. Qais Naji and Bastawisi Ahmed: Tests and principles of statistics in the mathematical field, Baghdad, Higher Education Press, 1987.
5. Saad Al-Din Al-Sharnoubi, Abdel Moneim Ibrahim: Track and Field Competitions, Al-Isha'a Technical Press, Cairo, 1998.
6. Laila Al-Sayed Farhan: Measurement and Testing in Physical Education, Cairo, Al-Kitab Center, 2005.
7. Muhammad Reda Ibrahim Al-Madamgha: Field application of theories and methods of sports training, College of Physical Education, University of Baghdad, 2008.
8. Greg G, Others: Op cite, 2002, 37 (2)
9. Sollivan and others (2005): The effect of strength training of the muscles and the hormone testosterone on elderly males. *Medicine and science in sports and exercise*
10. Jason dadiy (2010): The effect of insulin on testosterone and growth hormone IGF-1 after resistance training *Clinical Endocrinology*.
11. Jamal Sabri Faraj: Strength, Ability and Sports Training, Amman, Dar Degla, 2012.
12. Ali Fahmy Al-Beik et al.: Planning sports training, Ma'arifat facility, Alexandria, 2009.

Appendix (1) Questionnaire for Experts and Specialists

The honorable Mr

Kind regards

The researchers intend to conduct their research entitled (Special strength exercises and their effect on some measurements of structural hormones and physical abilities among junior handball players) as part of obtaining a doctorate degree in physical education and sports sciences / University of Dhi Qar.

Name

Scientific title

University/college

Specialization

The researchers

Abbas Muhsin Eliwi

Ph. D. Sadiq Yousuf Mohammed

No.	Physical Abilities	Parts Of Body	Tests	Fits	Doesn't Fit
1	Explosive capacity	for arms	Throwing a 3 kg medicine ball while standing Throwing a 3 kg medicine ball from a seated position on a chair		
		for legs	Vertical jump up from a standstill Horizontal jump forward		
2	Power distinguished by speed	for arms	Pull up with the bar continuously for 10 seconds Lie down, then bend and extend the arms for 10 seconds		
		for legs	Partridge on one leg, 30 meters, right and left The maximum distance is 10 seconds for each leg separately		
3	Torso	For the abdomen	From lying on your back with your hands clasped behind your head and raising your torso while pressing your knees with your elbows for 10 seconds. From the lying position on the back with the hands clasped behind the head and the feet fixed with the help of a colleague, raising the torso while pressing the knees with the elbows for 10 seconds.		
		for the back	From the prone position on the stomach, clasping the hands behind the head, while stabilizing the feet, with the help of a colleague, raise the torso up to a certain level for 10 seconds. From the prone position on the stomach, clasping the hands behind the head and stabilizing the feet with the help of a colleague, lift the torso off the ground for 10 seconds.		

Appendix (2) Shows the Names of the Supporting Staff.

No.	Name	Specialization	Workplace
1	Dr. Mohammed Ali Hussein	Cardiac rehabilitation	Nasiriyah Heart Center
2	Dr. Sura Al-Talib	Eco check	Nasiriyah Heart Center
3	Ahmed Tawfiq Awad	Medical Technologist Pathological Analysis	Nasiriyah Heart Center
4	Muhannad Kareem Mohammed	PhD student	Dhi Qar Education Directorate