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The Development of Neuromuscular Performance and Its Effect on Reducing Injuries in Swimming Sports for Female Students of Physical Education and Sports Science

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Abstract--- *The research aims to: Create a program to develop neuromuscular performance and know its effect in reducing injuries in swimming among female students of physical education and sports science. The research sample was randomly chosen from students of the College of Physical Education and Sports. The science and the research sample included (40) students and were among the researchers the experimental method used, and the researcher concluded that the program has a significant impact on some of the interoperability capabilities of students and training of neuromuscular performance has a positive effect on the reduction of some injuries in swimming sports is the most common among students of the Faculty of Physical Education and Sports Science.*

Keywords--- *Muscle Performance Neuromuscular Sports Injuries*

I. INTRODUCTION PROBLEM AND RESEARCH

The central nervous system plays a major and vital role in sports performance in all conditions and levels; It is responsible for controlling the accuracy of kinetic performance in terms of strength and speed and determining the kinematic directions of the whole body or parts of it. The nervous system also controls harmonic movements by coordinating compatibility between the kinematic units of the muscles and the muscle groups and is responsible for all movements requiring balance, agility, accuracy in performance, and reflexes.

The true importance of the neuromuscular performance in the female student's swimming sport in the College of Physical Education lies in the fact that it mainly depends on the performance of consecutive muscle contractions in a flowing and relatively high speed and that most of the basic skills, whether in a team or individual sports, which in turn depend on the compatibility between the nervous and muscular systems To perform these skills fast, accurate, agile and highly portable.

The performance of the muscular nervous system in swimming with physical mobility capabilities, which depends mainly on the consistency between the work of muscles and nervousness, which is important in the life of the public and professional, and when practicing various sports activities, especially in sports, which requires a dynamic performance where more than one muscle group is used simultaneously Or, move more than one part of the body in more than one direction, as is the case in all sports activities.

Majid Fayez Majali (2004) states that he performs neuromuscular performance and is an essential element in

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most sports activities, especially in swimming and through the development of cognitive features also contributes to improving muscle and nervous work and contributes to coordination between different parts of the body and maintains the level of skills performance Different kinetics. (10:44)

Muscular nervous performance exercises are movements that depend on the organized and coordinated action between the nervous and muscular systems. If the coordination between the work of the nervous and muscular systems is good, the movement becomes consistent and is expressed through (neuromuscular compatibility), then the individual feels the ability to perform well and requires the use of consensual exercises are tools or without tools, and that these exercises whose primary purpose is In developing a proper and balanced body and skill, each part of the body has special exercises in order to avoid sudden sports injuries. (14: 69).

Jantezin and Euler and Kelso (Jantzen, Oullier & Kelso, 2008) indicate that neuromuscular performance is a complex ability that requires good levels of other fitness components, such as balance, agility, and strength, and all activities and exercises share the need for a varying degree of coordination of movements and extent Its compatibility in the ever-changing environment, despite the complexity of the processes associated with neuromuscular and synaptic compatibility, the human brain is able to easily integrate the information received through the sensory organs, muscles, and joints, thereby providing a wide range of adaptive behavior. In the mathematical field, there is a need to understand, understand, and improve the behavioral and neurological mechanisms behind the performance. (13:335)

Abdullah Hussain Al-Lami (2006) notes that muscular nervous performance is of great importance; This is because its development is one of the main goals of physical education, just as the importance of motor alignment is not limited to sports activity only, but extends to the general life of the individual, as all the requirements of public life require some degree of compatibility between different parts of the body, and neuromuscular performance is the ability The individual merges more than one movement using more than one part of his body in one frame, accurately, smoothly and high. (4:29)

Neuromuscular performance plays an essential role effective in different human movements, so it is urgent because of its importance in performing sports skills in general and swimming in particular for a smooth, consistent and economic performance in the effort and performance in general and reducing injuries in sports swimming in particular.

Al-Mu'tasim Shatnawi (2006) states that sports injury science is one of the sciences interested in studying sports movement in times and conditions of different fixed conditions and animations, individual and group ability to anticipate injury before it occurs and determine its types and forms and patterns of injuries associated with the activity of a sports practitioner in order to work to protect the player from injury. (11: 167).

Zakaria Hassan Shehata (2004) indicates that strong competition for important things that may lead to a rate that increases the likelihood of injury is that lack of interest in a sufficient physical preparation to meet performance requirements and focus on technical and tactical aspects in order to achieve rapid goals and failure to provide protection to avoid injuries through Preparing preventive training programs to meet the continuous rapid development in technical performance and what it requires in terms of severity and size, which requires attention to

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physical fitness elements, including neuromuscular performance and the development of some morphological variables of their positive effects in avoiding injury and preventing and reducing them (4: 5).

It is worth noting that Mahmoud Selim is lighter (2005), it is natural that the level of sports for any player affected by the injury, especially those severe that prevent him mainly from playing the game naturally with the player remains on the situation for a long time despite the development of treatment methods and the development of The methods, theories, and devices used in this field. One of the things that affect the player is that the coach returns the player to participate in play before completing treatment periods, causing a repeated injury to him that affects his athletic level in general (8: 23).

Hence the interest in this study was to reach a better approach to preventing injuries in swimming sports by identifying injuries and the extent of the student's health information to avoid these injuries, believing that keeping the student intact is one of the goals of playing sports while reducing the incidence of injury from During the guidance and guidance of female students ,this is important to ensure continuity and participation in competitions and progress.

Through M observed a researcher for the students of the College of the Physical Education and Sports Science in swimming it found that all the skills and that t the people of the students are the result of the work of a single muscle or group of muscle and sometimes calls it for many muscle groups involvement depending on the amount of force work type To be used physiologically, based on the type of energy used to contract and stretch the muscle , and the participation of more than one muscle in a particular work does not mean that all of these muscles work in one direction or all share the same amount, but the work of these muscles varies among them in terms of relative importance And the nature of the skillful work ,which requires a degree of compatibility between the nervous and muscular system, and the importance of muscular and nervous compatibility among the female students in order to perform the different skills in swimming sport through muscular nervous compatibility.

Through note researcher for students in the sport of swimming for a h J t repeat the existence of the phenomenon of sports injuries and fatigue and muscle through the low level of performance they have , which requires a high degree of concentration and precision through the amount of common muscle performance and the possibility of control and in different parts of the body and the inability to perform the total time of the lectures and increased injuries occurring muscle tension and tear muscular muscles and lower private party muscles of the previous background , which called for the researcher to study the development of muscular performance nervous in a to some extent of injuries in sports swimming I have students of physical education and sport sciences.

Research Objective

The research aims to ːdevelop a program for the development of the nervous muscular performance and

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knowledge of its impact in the reduction of injuries in sports swimming I have students of physical education and sport sciences.

Research Hypotheses

- There are statistically significant differences "between the pre and post measurements of the experimental group in some harmonic variables in favor of the post measurement.
- There are statistically significant differences "between the pre and post measurements of the experimental group in reducing injuries in swimming sports among female students of physical education and sports science in favor of post measurement.

Research Terms

1. Harmonic Abilities: It is the group of abilities responsible for organizing and directing motor performance and assists the individual to learn motor skills and enables him to achieve it in different situations with the greatest efficiency and least effort (2:26).
2. Sports injuries: are the anatomical and physiological changes in the tissues of the body as a result of exposure to external or internal stimuli, which leads to the function of collision tissue (6:23).
3. Muscular nervous performance: It is the individual's ability to control the work of different parts of the body participating in the performance of a specific motor duty and linking these parts with a simplified mono movement with an effective effort to accomplish this motor duty and is divided into a general agreement and special agreement. (5: 52)

Previous Studies

1. The study "Charlton and Kidman Charlton and Kidman (1997) entitled" Football Injury Prevention Strategy "This study aims to develop a football injury prevention strategy, and the researcher used the descriptive approach and included coaches and the doctor (6) players from the Deuterine team conducted the research The results showed the extent to which the team followed up on basic injury prevention strategies and identified obstacles that stand in the way of implementing injury prevention strategies.
2. The study "Medhat Qassem Abdel-Razek" (2000) entitled "The effectiveness of the elements of strength and flexibility in preventing common injuries and the impact of injuries on the level of efficiency of the immune system for soccer and manual players." The study aimed to reduce injuries in football and handball, and the researcher used the survey method and the experimental method on a sample consisting of (26) players in an intentional manner, (14) football players (12) handball players, and the most important results are the decrease in injuries due to Implement a strength and flexibility program to increase muscle size, strength, and flexibility to prevent injuries by 40.98%. An inverse relationship between the experimental group, the increase in the effectiveness of the elements of strength and flexibility, and the decrease in cases of all types and locations.

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II. RESEARCH PROCEDURES

Research Methodology

Use the experimental method of the researcher T using one group and measure the previous and subsequent groups for the same occasion of the nature of the research.

The Research Sample

The research sample was randomly selected from female students who often decided to swim by the College of Physical Education and Sports Science, University of Baghdad. The research sample included (40) students, a core sample, and (20) students from a survey sample.

Data collection devices and tools:

The Devices and Tools Used

- A device for measuring the length (perimeter).
- A medical scale to measure the player's weight.
- Tape measure.
- Electronic stopwatch for the nearest (1/100 second).
- Medical balls 3 kg.
- Swedish seats.
- A ruler is included.
- Lightweight machine (dumbbell).

Data Collection Tools

Due to the nature of the research, then use the following tools:

1- Attached Sports Injury Form No. (2), which included:

- Joint injuries.
- Skin injuries.
- Muscle injuries.
- Orthopedic injuries.

Table 1: The Frequency, Proportion, and Relative Importance of Expert Opinion on Sports Injuries Most Popular Among Students of the Faculty of Physical Education and Sports Science Number = 9

Relative importance	inappropriate		Appropriate		Injuries
	The ratio%	Repetition	The ratio%	Repetition	
100	0.00	0	100	9	Muscle injuries
88.89	11.11	1	88.89	8	Bone injuries
100	0.00	0	100	9	Joint injuries
100	0.00	0	100	9	Skin injuries

The researcher presented the forms for sports medicine experts from the College of Physical Education and Sports Science attached (1). Statistical treatments showed that all phrases have a higher rate (70%), which indicates

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the validity of the forms.

It is clear from Table (1), the frequency, ratio, and relative importance of expert opinion on the suitability of injuries for sports injuries, that the relative importance of expert opinion came between (88.89% to 100%) which confirms the experts' agreement to place this type of injury in the model.

III. RESEARCH TESTS

The researcher conducted personal interviews with a group of experts in the field of physical education and the Sports Injury Facility (1) to seek their views on the harmonic capabilities of students of the Faculty of Physical Education and Sports Science Appendix No. (2) where most of the studies agreed that the most important capabilities of compatibility is the ability to distinguish between mobility, The ability to adapt and change, the ability to kinematic correlation, the ability to respond quickly, the ability to organize and steer the movement, the ability to kinematic rhythm, the ability to the maximum ability to balance the effort, and the ability of kinesthetic sense, and therefore the researcher put those capabilities in the attached expert survey form (9) Presented to a group of specialized professors with at least 10 years' experience. The number of experts reached (9) experts to start their opinions on these capabilities in a manner consistent with the research sample and Table (2) that clarifies the result:

Table 2: The Percentage of Expert Opinions to Determine and Rank the Most Important Consensus Capabilities

B Students of the Faculty of Physical Education and Sports Science

priority level	The opinion				Harmonic capabilities	No.
	not agree		OK			
	percent	Number	percent	Number		
92	-	-	%100	9	The ability to distinguish motor	1
36	%55.56	5	%44.44	4	Adaptability and change	2
36	%44.44	4	%55.56	5	Kinetic connectivity	3
90	%11.11	1	%88.89	8	The ability to quickly respond	4
92	-	-	%100	9	Organizational and motor direction ability	5
36	%44.44	4	%55.56	5	Kinetic rhythm capacity	6
94	-	-	%100	9	Balance ability	7
14	%66.67	6	%33.33	3	Kinetic sensation ability	8
26	%55.56	5	%44.44	4	The ability to exert maximum effort	9

The researcher's acceptance rate for Artd T. (70%) and more is to accept all interoperability capabilities. Accordingly, the researcher determines and ranks the most important interoperability capabilities of swimming sports students to the College of Physical Education and Sports. Science and T. selection for tests of interoperability capabilities are as follows:

1. Engine Excellence: Jump test over a dividing box and unit of measurement in centimeters.
2. The ability to organize and direct movement: test the number of cards transferred, and the unit of measure number.
3. Response speed: Sliding ball test, centimeter unit of measurement.
4. Balance force: test the number of passing rollers, unit of measure, number.

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First Survey

The survey was conducted on the survey sample from Sunday 3/3/20 18 until Tuesday 3/15/20 18 and the study targeted:

Learn about the correctness of the tools and devices used.

- Try some suggested exercises and see how the training load fits students 'abilities.
- Suitable for testing, sample, and research suitability.
- Finding scientific coefficients for the tests under study.

1. Validity of the Tests

To calculate honest harmonic amplitude tests under T. The researcher using the validity of the comparison station that applies to a possible sample from the research community and outside the original sample of the research and their number (20) twenty students, scores of female students were arranged in descending order to determine the highest quarters to represent a group of women with the highest levels in those The exams, whose number is (5), students with a rate of (25%) and the lowest quarters to represent a group of students and the lowest levels in those tests, and they are (5) students with a rate of (25%). The importance of the differences between the two groups was calculated in the exams under discussion as shown in table (3).

Table 3: The Importance of Differences between the Highest and Lowest Quadrants in Harmonic Capabilities Tests In Search of the Mann-Whitney Labarometric Method

Significance level	Values z	U	Lower quarters (N-5)		Original quadrants (n5-)		measuring unit	Variables	
			Average rank	Total ranks	Average rank	Total ranks			
0.031	2.15	3.00	7.40	37.00	3.60	18.00	cm	Jump test over a divider box	Motor discrimination
0.014	2.45	2.50	3.50	17.50	7.50	37.50	Number	Test the number of cards that were turned over	Motor regulation
0.013	2.47	1.00	7.80	39.00	3.20	16.00	cm	Sliding ball test	Responsiveness
0.014	2.45	2.50	3.50	17.50	7.50	37.50	Number	Cylindrical rollers test	Balance

It is clear from Table (3) that there are statistically significant differences between the group with the highest quarters, which represents students with the highest level in the compatibility capabilities tests under discussion and the group with the lowest quarters, which represents students with the lowest level in those tests and in favor of higher quarters as all The significance level values are lower than the significance level (0.05), which indicates the validity of these tests and their ability to distinguish between groups.

2. Stability of the Tests

To calculate the interoperability of the stability tests in the question used T. The researcher used the test method

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and re-application on a sample consisting of ten (10) students from the research community and outside the time delay of the original sample for three (3) days between the two applications, then the researcher found a parameter The link between the first two applications illustrates the second and Table (4) that.

Table 4: Correlation Coefficients between the First and Second Applications of the Proficiency Test Under Consideration

Significance level	Correlation coefficient	The second application		The first application		measuring unit	Variables	
		±p	M	±p	M			
0.001	0.89	1.70	14.30	1.58	14.50	cm	Jump test over a divider box	Motor discrimination
0.003	0.83	0.79	3.20	0.85	3.50	Number	Test the number of cards that were turned over	Motor regulation
0.007	0.78	0.11	1.89	0.10	1.91	cm	Sliding ball test	Responsiveness
0.000	0.93	1.45	11.90	1.14	11.80	Number	Cylindrical rollers test	Balance

It is clear from Table (4) that the correlation coefficients between the first and second applications of the harmonic capabilities in question ranged between (0.78: 0.93) which are Correlation coefficients are statistically significant because all significance level values are lower than the significance level (0.05), which indicates the consistency of these tests.

The Second Survey

This study was conducted from Sunday, 3/17/20 1 8 until the 3/3/20 1 8 to identify:

The extent to which the research sample understands how to perform the various exercises.

Define and record the exercises used in the research.

Ensure that the time and frequency of training are appropriate for each training.

Ensure that the load is distributed properly and in proportion to the characteristics of the age stage of the sample concerned.

The survey resulted in identifying and coding the different training used in the program, as well as the validity of the tools and devices used and their suitability for research.

Search steps:

Tribal measurement:

A tribal sample was measured for all research members during the period from Tuesday 11/6/20/1 to Tuesday 6/6 CE.

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Basic Study

Implementation of the proposed program for the performance of the muscular nervous system on the basic research sample during the period from 6/6/2018 to 18/8/2018.

Telemetry

The process of measuring dimensions was done for all members of the research sample during the period from Thursday, corresponding to 8/8/19/2018, until Thursday corresponding to 8/8/19/2018.

Statistical Treatments

Computer statistical treatments were made using SPSS & Excel in order to achieve the research objectives and test the validity of the hypotheses. The researcher used the following statistical treatments:

-standard deviation.	-SMA.
-T-Test T. Test.	-Coefficient of torsion.
-The difference between two averages.	-Correlation coefficient.
-Mann and Toni test	-Improvement rate.

IV. VIEW AND DISCUSS THE RESULTS

Presenting and discussing the results, the first hypothesis" there are statistically significant differences" between the pre and post measurements of the experimental group in some harmonic variables in favor of the post measurement.

Table 5: An Indication of the Differences between the Pre and Post Mean Averages of the Experimental Group in the Harmonic Variables in Search

Improvement%	level indication	Value of t	The difference between the two mediums	Telemetry		Tribal measurement		measuring unit	Variables
				±p	M	±p	M		
29.66	0.000	32.55	4.25	1.51	10.08	1.61	14.33	cm	Motor discrimination
58.48	0.000	16.25	2.00	0.67	5.42	0.90	3.42	Number	Motor regulation
10.53	0.000	18.38	0.20	0.10	1.70	0.10	1.90	cm	Responsiveness
29.79	0.000	32.22	3.50	1.06	15.25	1.22	11.75	Number	Balance

There were statistically significant differences between the previous and posterior measurements of the experimental group in all harmonic variables under consideration and the improvement ratio in favor of posterior measurement since all the significance level values are less than the significance level (0.05).

And T. Ezz and the researcher that the improvement in the harmonic variables of the effect of muscular training on deer with simple loads, which are appropriate for the sample and the performance of many times and high efficiency with the progress of pregnancy in addition to the diversity and multiplicity of exercises that sponsor a researcher in the principles of design for the implementation of training and this reflected its impact on Improving interoperability.

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In this regard, Tony Reinus remembers Tony Ronolds "(2006) performing neuromuscular training functional ways to develop interoperability capabilities better than training freely as it was found that athletes have more accuracy when using here and can feel their inaccurate appointment and be adjusted and adjusted accordingly (16:19).

These results coincide with what Matthew (2009) stated that through training he develops both the interoperability capabilities of players and then switches to general skills and then to the special skills of mathematical specialists, they create the nervous system to be ready and ready to stimulate the movement of units further because it The more muscle movement you use, the greater the force used during muscle contraction. Strong muscle contraction leads to a great deal of speed, agility, and compatibility, which reflects its effect on developing the skill level and helps in finding an athlete with a high level of performance (11:15).

Presenting and discussing the results, the second hypothesis "the presence of statistically significant differences" between the previous and subsequent measurements of the experimental group in reducing injuries in swimming sport for female students of physical education and sports science in favor of posterior measurement.

Table 6: Repetition and the Percentage of Muscular Injuries (Swimming) in Swimming Sport Among Students of the Faculty of Physical Education and Sports Science Before and After the Program (P = 40)

The difference between the pre and post ratio	Telemetry					Tribal measurement				
	Incidence of infection	The infection did not occur		The injury occurred		Incidence of infection	The infection did not occur		The injury occurred	
		The ratio %	Repetition	The ratio %	Repetition		The ratio %	Repetition	The ratio %	Repetition
8.51	8.38	93.62	44	6.38	3	14.09	85.1005	40	14.89	7
4.20	2.13	97.87	46	2.13	1	6.38	93.617	44	6.36	3
4.26	4.26	95.74	45	4.26	2	8.51	91.489	43	8.51	4
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0
4.26	0.00	100.00	47	0.00	0	4.26	95.745	45	4.26	2
4.26	6.38	93.62	44	6.38	3	10.64	89.382	42	10.46	5
2.13	2.13	97.87	46	2.13	1	4.26	95.745	45	4.26	2
2.13	0.00	100.00	47	0.00	0	2.13	97.872	46	2.13	1
4.26	0.00	100.00	47	0.00	0	4.26	95.745	45	4.26	2
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.0	0
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0

It is clear from table (6) about the frequency and incidence of (muscle injuries) in swimming sport before and after the program, that the percentage of muscle strain in obesity muscles in the tribal measurement was 14.89%, and

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in the dimensions, measurement reached 6.38%, a difference of (8.51), and the percentage For cases of muscular tension of the front thigh muscles in the pre-measurement 6.38%, and in the posterior measurement reached 2.13%, with a difference of (4.25), and the tension of the muscles of the front thigh in the pre-measurement of 8.51% and in the posterior measurement 4.26%, a difference (4.26), and the occurrence of tension Muscular in the abdomen. Muscles were in pre-measurement 4.26%, and in the posterior measurement 0%, a difference (4.26), and the muscle tension in the lower back muscles in the pre-measurement reached 10.64% and in the arrival after the measurement d 6.38% with differences (4.26). The incidence of rupture of obesity muscles in tribal measurements was 4.26%, and in dimensions it was 2.13%, a difference (2.139). The cases of rupture of the anterior thigh muscles in the prior measurement were 2.13%, and in the posterior measurement it was zero% by a difference (2.13) and the incidence of rupture of the thigh muscle muscles in the prior measurement was 4.26% and in the posterior measurement was zero%, a difference of 4.26).

Table 7: Frequency and Percentage of Bone Injury in Swimming Sport Among Students of the Faculty of Physical Education and Sports Science Before and After the Program (P = 40)

The difference between the pre and post ratio	Telemetry					Tribal measurement				
	Incidence of infection	The infection did not occur		The injury occurred		Incidence of infection	The infection did not occur		The injury occurred	
		The ratio %	Repetition	The ratio %	Repetition		The ratio %	Repetition	The ratio %	Repetition
0.00	0.00	1000.00	47	0.00	0	0.00	100,000	47	0.00.	0
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0
2.13	0.00	0.00	47	0.00	0	2.13	97.872	46	2.13	1
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0
4.26	0.00	100.00	47	0.000	0	4.26	95.745	45	4.26	2
4.26	0.00	100.00	47	0.00	0	4.26	95.745	45	4.26	2
2.13	0.00	100.00	47	0.00	0	2.13	97.872	46	2.13	1
0.00	0.00	100.00	47	0.00	0	0.00	100.00	47	0.00	0
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0
2.13	0.00	100.00	47	0.00	0	2.13	97.872	46	2.13	1
4.26	0.00	100.00	47	0.00	0	4.26	95.745	45	4.26	2
0.00	0.00	100.00	47	0.00	0	0.00	100.00	47	0.00	0
4.26	0.00	100.00	47	0.00	0	4.26	95.745	45	4.26	2

It is clear from table no. (7) Related to the frequency and incidence of (bone injuries) in swimming sport before

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and after the programs, that the percentage of bone injuries with hand bone fractures in the pre-measurement was 2.13%. In the post-measurement, it reached zero%, with a difference (2.13), and the percentage of bone injuries in the bones of the foot bone was in the previous measurement 4.26%, and in the subsequent measurement it was zero% with a difference (4.26). The incidence of bone lesions in the leg bone in the initial measurement was 4.26%, and in the subsequent measurement it was zero%, with a difference (4.26). The incidence of bone wounds in the knee bone in the prior measurement was 2.13%, and in the subsequent measurement it was zero%, with a difference (2.13). The rate of occurrence of bruises with bruises on the elbow bone in the pre-measurement was 2.13%, in dimensional measurement it reached zero%, with a difference (2.13) and the percentage of occurrence of bruises with bruises on the bone in the previous measurement was 4.26%, and in the posterior measurement, it reached zero% by a difference (4.26). The rate of occurrence of bruises with bruises on the head bone in the pre-measurement was 4.26%, and in the posterior measurement was 0%, with a difference (4.26).

Table 8: Frequency and Incidence of (Joint Injuries) in Swimming Sport Among Students of the Faculty of Physical Education and Sports Science Before and After the Program (P = 40)

The difference between the pre and post ratio	Telemetry					Tribal measurement					Injuries	
	Incidence of infection	The infection did not occur		The injury occurred		Incidence of infection	The infection did not occur		The injury occurred			
		The ratio %	Repetition	The ratio %	Repetition		The ratio %	Repetition	The ratio %	Repetition		
4.26	2.13	97.87	48	2.13	1	6.38	93.617	44	6.38	3	the shoulder	Joint injuries
4.26	2.13	97.87	48	2.13	1	6.38	93.617	44	6.38	3	Attached	
4.26	2.13	97.87	48	2.13	1	6.38	93.617	44	8.38	3	Wrist	
4.26	4.26	95.74	45	4.26	2	8.51	91.489	43	8.51	4	Finger pacifiers	
4.26	6.38	93.62	44	8.38	3	10.64	89.382	42	10.64	5	Spine	
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0	Thigh	
8.51	2.13	97.87	48	2.13	1	10.64	89.362	42	10.64	5	knee	
8.51	4.26	95.74	45	4.26	2	12.77	87.234	41	12.77	6	Uncle	
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0	Peaceful toes	

It is clear from Table (8) related to the frequency and incidence of (joint injuries) in swimming sport before and after the program, that the percentage of injuries in the shoulder joint in the tribal measurement was 6.38%, in dimensional measurement it reached 2.13%, and the percentage of differences (4.26), and the proportion of Injuries to the elbow joint, in the pre-measurement, reached 6.38%, in dimensional measurements reached 2.13%, with a

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difference of (4.26), injuries in the wrist wrist in the previous measurement reached 6.38%, in dimensional measurements of 2.13%, and with the ratio of differences (4.26), the average Joint injuries The fingers canines in the pre-measurement reached 8.51%, and in the subsequent measurement they reached 26%, with a relative difference (4.26), and the injuries of the spine joint in the previous measurement reached 10.64%, in the post-measurement it reached 6.38%, with a percentage of differences (4.26) The knee injuries rate was 10.64% in the tribal measurement, in dimensional measurements reached 13%, with a difference of (8.51), the occurrence of injuries and the ankle joint in the tribal measurement was 12.77%, and dimensional measurements reached 4.26% with a difference of (8.51).

Table 9: Frequency and Occurrence of (Skin Injuries) in Swimming Sport Among Students of the Faculty of Physical Education and Sports Science Before and After the Program (P = 40)

The difference between the pre and post ratio	Telemetry					Tribal measurement						Injuries
	Incidence of infection	The infection did not occur		The injury occurred		Incidence of infection	The infection did not occur		The injury occurred			
		The ratio %	Repetition	The ratio %	Repetition		The ratio %	Repetition	The ratio %	Repetition		
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0	Infections	Dermatology
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0	Reviews	
6.39	6.38	93.62	44	6.38	3	12.77	87.234	41	12.77	6	shavings	
8.51	0.00	100.00	47	0.00	0	8.51	91.489	43	8.51	4	Wounds	
0.00	0.00	100.00	47	0.00	0	0.00	100,000	47	0.00	0	cut	

It is clear from Table No. (9) Related to the frequency and incidence of (skin injuries) in swimming sport before and after the program, that the percentage of skin injuries with membranes in the previous measurement was 12.77%. In the posterior measurement, it reached 6.38%, the percentage of differences (6.39), and the rate of occurrence of skin injuries, wounds in the prior measurement reached 8.51%, and in the subsequent measurement, it reached zero%, with a difference (8.51).

Despite the scientific progress in the sports field in the last period of time, which is concerned with more security and safety for players through the development of procedures and methods used in training, learning and competition, the rates of injury are still high, which leads to obstruction, the speed of access to the higher levels varies And rates of injury according to sports practice as it depends on the quality and sport of exercise and the availability of safety and security factors and the prevention of injuries during training or competitions.

The researcher agreed with Usama Al-Riyadh (2000) and Abu Al-Ula Abdel-Fattah (2003) that injuries can be divided according to the degree of injury into minor injuries such as muscle contraction - menstruation - light palate - bruising and moderate-severe injuries such as non-torn fractures - muscle fatigue and other severe injuries like a fracture-dislocation - a wound accompanied by a fracture wound with dislocation. (3: 164) (1:32).

It is clear from Table (6) (7) (8) (9) regarding the frequency and incidence of (muscle injuries) in swimming

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sport before and after the program, that the incidence of muscle fatigue for obesity muscles in the initial measurement reached 14.89% and in the subsequent measurement 6.38%, with a difference (8.51), and the occurrence of a muscle strain injury in the anterior thigh muscles in the previous measurement 6.38%, and in the post measure it reached 2.13%, a difference (4.26), and the muscle strain injuries of the back thigh muscles reached in the previous measurement 8.51%, and in the dimensional measurement 4.26%, By a difference (4.26), and cases of muscle strain in the abdominal muscles in tribal measurements 4.26%, and in dimensional measurement zero% by a difference (4.26), and the occurrence of muscle strain in the lower back muscles in tribal measurements 10.64% and in dimensions ionic measurement reached 6.38%, a difference (4.26), and the incidence of rupture muscles of obesity in the pre-measurement 4.26%, and in the post-measurement reached 2.13%, a difference (2.13). The incidence of muscle tear in the anterior thigh muscles in the preoperative measurement was 2.13%, and the posterior measurement was zero%, with a difference (2.13). The rate of injury to the posterior femoral muscle tear in the previous measurement was 4.26% and in the posterior measurement it was zero% difference (4.26).

V. CONCLUSIONS

Through the research procedures and within the framework of the chosen sample and the results of the results, the researcher clarified the following conclusions:

1. The program has a major impact on some harmonic capabilities in swimming sport for students of the Faculty of Physical Education and Sports Science.
2. Training in neuromuscular performance has a positive effect on reducing some of the most common swimming injuries for female students from the Faculty of Physical Education and Sports Science.

RECOMMENDATIONS

The researcher recommends through the previous results within the framework of the research sample and the procedures followed:

1. Guidance on the neuromuscular performance program as one of the methods of preventing sports injuries common in swimming among students of the Faculty of Physical Education and Sports Science.
2. Increasing health awareness among students of the Faculty of Physical Education and Sports Science.
3. Application of the program within the teaching curricula to prevent injuries in swimming sport in the Faculty of Physical Education and Sports Science.
4. Attention to placing neuromuscular performance programs within the general program, and not as a warm-up period, as it has a significant impact on developing harmonic capabilities and reducing some injuries among students of the College of Physical Education and Sports Science.
5. T. Guardian researcher to conduct similar studies on other dental stages.

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