

## The impact of the Dynavision Device on Increasing Pupils' Reaction Times (responses) During the Commencement of Backstroke Among the Yarmouk University Swimming Team

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### Abstract:

This study aimed to identify the effect of the Dynavision device in improving the reaction time (response) when performing the start of backstroke swimming students swimming team - Yarmouk University . The researcher used the semi-experimental approach to fit the nature of the study and its objectives, and the study's sample was carefully chosen from among the Faculty of Physical Education students enrolled in the swimming course during the summer semester of 2023–2024. The swimming team at the university taught six female students in specific exercises that used the Dynavision device to assess response time. Each encounter consisted of three and lasted 30 minutes, and the training period lasted six weeks. Standard deviations and computational averages were employed, together with a test (the T-Test)

The results showed that utilizing the Dynavision device improved reaction time (response) when completing the commencement of a Backstroke swimming in the distance tests in the research sample. In light of the outcomes and findings, a number of recommendations were made, the most important of which was the importance of using the exercises—particularly with the Dynavision device—because of their influence on improving the capacity to begin other swimming types.

**Keywords:** *Dynavision device ,response time training, starting Backstroke swimming skill..*

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### Introduction and Importance of the Research:

Reaction time is a fundamental mental ability, and modern training aims to leverage other sciences in this area. This is especially true when it comes to training for sporting activities. To improve performance for all sports in general and swimming in particular, this is particularly valid when it comes to preparing for athletic endeavours requires meticulous attention to detail, unwavering focus, and fast recovery from failures. These technological achievements are essential to enhancing athletic performance.

That is, awareness of kinetic difficulties aids in reducing the time required to reach the athlete and build a speedy response. This, in turn, is the relationship between mental and physical abilities in the sport of swimming, which is one of the most essential scientific foundations for the general growth. sports performance capabilities This link must be evident to the instructor or coach in order to establish the most appropriate method in the development of those abilities that is commensurate with the athlete's potential. Linking attention and kinetic response is one of the fundamental prerequisites for performance, especially since each kinetic performance is accompanied by acute attention, resulting in a good reaction and a correct kinetic response. It is an adaptation that leads the athlete to the right knowledge of the things that are attention to him, that is, the perception of kinetic difficulties, which helps to shorten the time required for kinetic perception, allowing the athlete to produce a

speedy response. It is the action made as soon as the They are within a single line from the time the stimulus reaches the brain until the response occurs. (Hikmat , Hussein, & Abdeljabbar, 2005) determined that perception of kinetic difficulties aids in time reduction. That is, the perception of kinetic difficulties reduces the time required to reach the athlete in order to construct a speedy response.

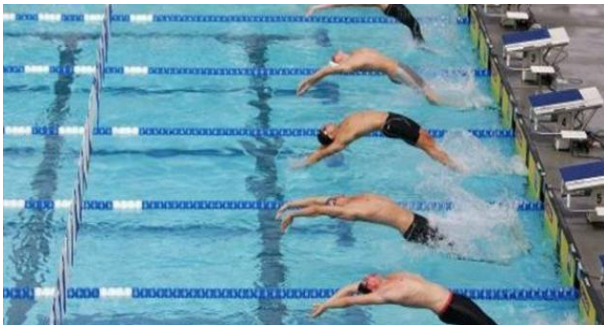
According to this framework, study is crucial to ascertain the significance of the impact of Dynavision in enhancing the students' reaction time (response) during the start of Backstroke swimming at Yarmouk University. The Dynavision is a contemporary tool designed to help students on swim teams improve their performance by concentrating on their kinetic reaction. Numerous studies, like those conducted by (Hay, 2010 ) ( Maglescho , 2003), suggest that the race's overall time is comprised of the start stage time of (15)m (8-26.1). Because improving the start stage time will have a beneficial impact on the swimmer's ranking in the start stage, this highlights the significance of focus and kinetic reaction to the start stage, along with other aspects of the race

Therefore, the researcher demonstrated how to utilize the Dynavision equipment and created unique exercises that employed it to enhance Backstroke swimming performance time. While (Megleschio , 2003) asserts that setting new records is significant for both coaches and swimmers, its significance is focused on the competitive field where swimmers must traverse water as quickly as

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possible. The plan is to train swimmers using the Dynavision technology, which trains swimmers' minds and enhances their reaction times and speeds when the whistle sounds during a Backstroke. The plan is to train swimmers using the Dynavision apparatus, which functions to train the swimmers with best performance.

The researcher did not find a previous study using the Dynavision device or any of it another tool to adjust the reaction time, improve the timing during training to start Backstroke swimming, while (Abu al-Ela & Hazem , 2011) noted the importance of using devices to control the rate of strikes in swimming. The current study from previous studies is characterized by the use of the Dynavision device in improving the reaction time (response) when performing the start of Backstroke swimming in the students of the swimming team - Yarmouk University and measuring its impact on the development of the reaction time.



#### **Problem of Study :**

The researcher noted that there is a clear delay in the start time of Backstroke swimming at different times, especially after giving instructions to some students as well as the existence of modest figures on the technological achievement of the skill to start Backstroke swimming during the race activities at Swimming team (female), Faculty of Physical Education. The researcher sought to find a way to improve the level of temporal performance in starting Backstroke swimming by using the Dynavision device to improve the reaction time of the starting of Backstroke swimming skill.

#### **Objectives of the study :**

This study aimed to identify:

1. Improving the time of leaving the hands and feet edge of the basin to start Backstroke swimming skill.
2. Improving the time of entry of hands in the landing stage to start Backstroke swimming skill.
3. Improving the post-start time of Backstroke swimming within a distance of 15 meters, and 25 meters.

#### **Study Hypotheses:**

1. The Dynavision equipment has a statistically significant effect on improving the time of leaving

hands and feet to the border of the pelvis for start Backstroke swimming technique.

2. The Dynavision technology has a statistically significant effect on hand time entering the landing phase to begin Backstroke swimming technique.

3. The Dynavision equipment has a statistically significant effect on improving the post-start time of Backstroke swimming within 15 and 25 meters.

#### **Research Method:**

The semi-experimental curriculum was used for its appropriateness and the nature of the study

#### **Research areas:**

##### **Human Field:**

Swimming team (female) students from the Faculty of Physical Education at Yarmouk University, with a total of (6) students.

##### **Spatial Area :**

- 1 .Yarmouk University's Psychological Preparation Center for Sports Performance - Performing mental excersises with the Dynavision device

- 2 .The swimming pool of the Faculty of Physical Education, measuring 25 meters in length and 12.5 meters in breadth.

**Time domain:** From 8/10 to 17/11/2023, with three training meetings over six weeks and a training time of 30 minutes per encounter using the Dynavision response time gadget.

#### **Theoretical Framework :**

Researchers in the field of sports training science and sports psychology have been interested in finding theories and concepts that are scientifically related to the concept of mental abilities in terms of attention and concentration, their types and how to employ these types in the training process to modify and develop methods .

The kinetic performance of many skills or sports movements, and this type is clearly shown in the sport of swimming and hence the importance of trained mothers, especially in the sport of swimming to achieve the highest levels by swimmers. Swimming includes many competitions of different distances in each of the four swimming methods, and each race has three stages (the start stage, the swimming stage for the needed distances, the rotation stage, and the end stage). (Hahn, 2009))) Swimming differs from other sports in terms of training and the environment used for this sport, effective use of muscular strength, good performance by reducing water resistance to swim and helping to move forward faster, and this requires full compatibility between the nervous and muscular systems. Using mental powers to recognize the vital aspects of the skill by focusing on them and boosting their level, in order to improve the kinetic performance of the entire team. To improve all kinetic

performance of the skill while decreasing performance time (Ibrahim, 2000).

There is also a clear difference from one way to another in the sport of swimming, whether in training or in teaching different swimming methods. Training professionals try to use a method that is appropriate to the nature of the swimmers they deal with, and by which they are able to develop kinetic and physical skills to the highest possible level. Elements of mental abilities such as attention, concentration, and reaction time in their various forms play a prominent role in all sports, and the coach should take advantage of these elements during training, and employ them well. In particular, the speed factor in its various forms to reach the time of achievement, and the fact that this achievement is affected. The speed rate for a swimmer is its ability to perform successive repetitive movements of one type in the shortest possible time, as determined by mental abilities that have to do with the response of the reaction and its impact on the speed rate, which is related to both distance and time taken to cut them.

The speed factor represents three main important forms in the sports field that can be divided into:

#### A. Reaction Speed

Reaction speed is viewed as a physiological, genetic kinetics trait that can be developed and improved and is considered an indicator of the player's muscular and nervous system safety and can be defined (the ability of the nervous system to respond quickly to the stimulus) and depends on the level of speed improvement. The players' reactions to the exercises, as well as the positions in the game where the player is present throughout the performance of sporting talents. Swimming and the opponent are two major components of the reaction, which are reflected in several sports. In several sports (the easy reaction is to regulate the movement, knowing the timing of the pace ahead of time) Composite reaction (appearance of this type when participating in many sports and when the player is shocked to do a certain kinetic position that he did not expect, such as boxing, fencing, basketball, football, handball, and others). Swimming requires the swimmer to acquire all types of speed because the first stage of the race (start) is fully based on response time. The speed of repeated movements and the speed of transition are two further types of speed. (Ungerechts, Volck, & Freitag, 2000).

#### B. The Relationship of Kinetic Response and its Role in Sports:

The kinetic response on the different levels in sports represents the cornerstone of kinetic performance, especially the rhythmic variable performance, which requires the player to adapt and change quickly to deal with performance variables. In order to achieve positive results. (Adel Abdul Basir, 1999) the kinetic response means "the time between the instructions and the end of the movement", i.e. the time taken to perform the movement reflects the ability of the athlete to respond successfully.

It also means "the ability to respond to a particular stimulus in the shortest possible time" (Al Arabi Shimon, 2001), in the sense of the ability to form a reaction to the perceived effects within a short period of time.

In sports, there are two types of response, as the use of one of them is determined by the type of stimulus whether known or unknown, and within this is divided **into Simple Response:** This occurs when the player knows the type of stimulus in advance, and comes to respond in a certain way, such as in running competitions or swimming, which is a process of sending a known conditional exciting and responding to that exciting.

**Composite Response:** In this type, the player does not know what type of stimulus will occur in advance, as well as the type of kinetic response. The response is characterized by the presence of many stimuli in the performance space as well as the multiplicity of responsive movements, such as in the ball games and some individual games. For example, in ball games and several solo games.

#### C. Kinetic Reaction Reaction Time:

Reaction time is a quick realization of understanding the kinetic task of carrying it out, i.e. an individual's ability to respond to surrounding stimuli received by sense organs. The time elapsed between the transfer of the stimulus from the senses to the brain and the first appearance of movement is referred to as reaction time. It is also defined as the time elapsed between the instant the exciter is detected by the senses and the first signal of muscle fiber movement. The speed of the kinetic reaction is one of the forms of speed that is especially essential at the start of skills or movements, as the speed of the player's start at the outset of the race has a psychological impact on the competitors. However, it should be emphasized that reaction speed is not always related to other forms of speed. The player may have a fast reaction time but a slow kinetic speed or kinetic frequency speed (transition), or vice versa. Because

success in speed competitions necessitates the growth of all types of speed, focusing on the development and measurement of each type is the most effective strategy to improve speed. The diagram below depicts

### Types of Kinetic Reaction Time:

The kinetic reaction time is divided into two basic types:

#### First – Simple Kinetic Reaction Time:

Time trapped between the moment of appearance of one known stimulus and the moment of appearance of response to that stimulus (the first manifestation of movement), An example of this is the case of the start of arena and field competitions or swimming, and the time of simple reaction can be divided as indicated by ( Abdel Hamid & Subhi Hassanin, 2001) to the following

1. The start of the occurrence of the exciter (start shot)
2. The sensory moment during which the sensory receptors of the body receive (i.e., the ear reception of the signal to start the running competitions).
3. The associative moment in which the perception of the exciter occurs (that is, the shot means the start).
4. The kinetic moment when the stimuli of movement occur in the central nervous system and sent to the muscles concerned by the nerves exported to start movement.
3. The associated moment at which the exciter is perceived (that is, the shot denotes the commencement).
5. The kinetic moment when movement stimuli originate in the central nervous system and are transmitted to the muscles involved by nerves extruded to initiate movement.

#### Second – Composite Reaction Time:

In this case there is more than one stimulus and the athlete's attempt to respond to only one of these stimuli. The kinetic reaction is then called the complex or discriminatory kinetic reaction and this type is prevalent in many sports activities such as individual and group games. The reaction time of the kinetic vehicle as indicated by the names (Hikmat, Hussein, & Abdeljabbar, 2005) can be divided into the following

1. The beginning of the occurrence of stimuli to the playing positions.
2. The sensory moment in which stimuli are received from the sense organs such as the ear, eye and others.
3. The moment of distinguishing the exciter from other stimuli occurring at the same time, and this means identifying and organizing it within a group known to the individual.

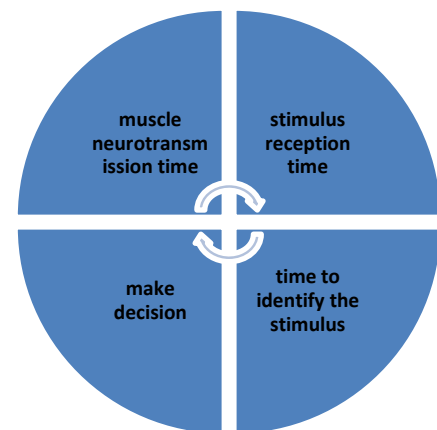
4. The moment of choosing the appropriate kinetic response to the exciter.
5. The kinetic moment and preceded by the central nervous system alert moment in the preparation of the kinetic response

#### D. Reaction Time Relation to Movement Time and Response Time:

The time of response must be distinguished from the time of movement and the time of reaction in order to make it easier for the educational or training process to know the strengths and weaknesses of the athlete and develop them, as the response time consists of the following:

$$\text{Response Time} = \text{Reaction Time} + \text{Movement Time}$$

Figure (1)



The reaction time is determined by (stimulus receiving time, stimulus identification time, decision time, and neural-to-muscle transfer time), as can be seen in Figure (1). It can transmit stimuli to the brain and spinal cord at a speed of approximately 100 m/s and is a part of the kinetic (kama) system. Because the exciter's reception time (the exciter's transfer time from the sense organ to the centre of mental and neurological processes in the brain for its interpretation and perception) is constant and the diameters of sensory nerves in the primary receptors are about 17 microns. Because the ends of the carrier in the secondary receptors are only around 8 microns in size, the nerve transfer time to the muscles is likewise constant. In diameter) and possess the speed (50 m/Tha) to transfer stimuli. They are part of the kinetic (alpha) system, which is found within the skeletal muscle fibers, and make up the majority of the carrier nuclear sheath fibers, also known as kinetic nerves. Motion time is the opposite stage, spanning from the onset of motion to the



conclusion of the kinetic response. (Abu Al-Ela, Abdel-Fattah, & Nasr Al-Din, 1993).

It is thus possible to deduce that, for the purposes of this game and others, the response time start Backstroke swimming distance 100 m is calculated from the first shot to the finish line.

As shown in Figure (1), the reaction time is governed by (stirring reception time, stimulus recognition time, decision time, and neural-to-muscle transfer time). It is part of the kinetic (kama) system and may transfer inputs to the brain and spinal cord at a pace of around 100 m/s. Because the exciter's reception time (the exciter's transfer time from the sense organ to the centre of mental and neurological processes in the brain for interpretation and perception) is constant, and the diameters of sensory nerves in primary receptors are approximately 17 microns, Because the ends of the carrier in secondary receptors are just 8 microns in diameter, the nerve transfer time to the muscles is also constant. in diameter) and the ability to convey stimuli at a high pace (50 m/Tha). They form the majority of the carrier nuclear sheath fibers, also known as kinetic nerves, and are part of the kinetic (alpha) system, which is present within skeletal muscle fibers. The opposing stage is motion time, which lasts from the start of motion until the end of the kinetic reaction. (Abu Al-Ela, Abdel-Fattah, & Nasr Al-Din, 1993).

Thus, for the purposes of this and other games, the response time start Backstroke swimming distance 100 m is computed from the first shot to the finish line.

#### **E. The Importance of Attention and Kinetic Response in Swimming :**

Attention and response are critical components in the world of sports that impact the result of any movement involving sporting goods. The belief that any skill must be completed by arousing all senses in order for information to reach the brain and evoke the appropriate response at the right time; in other words, attention comes before response and situation comes before performance. The player focuses on what is crucial while remaining aware of the stimuli present in the performance environment. At some point, he must create a timely and correct reaction that is suited for the situation. The response is a state of alertness in response to the perceived exciter. The water runner is required to respond effectively to those incentives within the permitted time, the swimmer must focus on the opponent player's movement, the start of the start, the time required to accomplish the assignment, and the flow of water. In both games, time is important because "the player is more able to focus attention on the exciter itself and respond faster and more accurately if the time increases

if there is less time available or required for the player to pay attention to the exciter." Whether it was essential or available, the effort to concentrate was enhanced. (Intisar, 2001).

Attention intensity is arguably one of the most important elements for determining the level of response and the amount of interaction between them. An early response to sharpness gives a greater chance of kinetic performance, especially when swimmer's position is appropriate when he is well prepared. On this basis, the relationship between sharpness and responsiveness is a positive state of interaction between them, especially if the expectation is correct.

Within the general framework, it can be said that the high achievement of kinetic performance is accompanied by attention and kinetic response to reaction time, as well as other basic requirements.

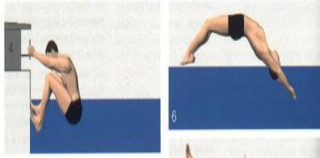




The level of reaction and the quantity of interaction between them are arguably determined by the intensity of attention. An early response to sharpness increases the likelihood of kinetic performance, particularly when the swimmer's position is appropriate and he is well prepared. On this basis, the connection between sharpness and responsiveness is a good one, especially if the anticipation is correct.

Within the overall framework, high kinetic performance is accompanied by attention and kinetic response to reaction time, as well as other basic needs.

#### **F. Starting from the Bottom on the Backstroke Swimming:**

Starting (Start) from below in a Backstroke swimming is an important factor to win in short distance competitions and evidence suggests that improvement in starting performance reduces race time by at least 0.1 second . The improvement in rotation performance also reduces race time by at least 0.2 second per length . An improvement in finishing the race can reduce the race time by at least 1/10 of a second, so two hours of training each week from start, spin and finish can improve the 50 m swimming time by at least 0.4 seconds, which means a short time The 100 m is about 0.8 seconds at least Longer races are also improving, and it was reported in the 1980 American 100 m event that the difference between sixth in his championship and twelfth in the same race was only 0.45 seconds. (Wilke, & Daniel, 2007) (Gunther, 2002).

Technical analysis of the beginning stages of Backstroke swimming: (Wilke, & Daniel, 2007).

<p><b>Start mode:</b>                  The swimmer descends into the water and holds a handle with wide shoulders, placing the feet on the wall while maintaining the toes under water. When the start signal is given, the swimmer flexes his or her arms, raising his or her body and head up and forward towards the wall or starting cube.</p>	
<p><b>Upgrading phase:</b>                  The swimmer swings his head back firmly with the individual of the two men, and the arm swing is straight in an arch to the outside, so that the arms are stretched behind the head, the thumbs are aligned, and the hands are straight up.</p>	
<p><b>Flight phase:</b>                  The swimmer attempts to elevate his body as much as possible out of the water with a slight curve.</p>	
<p><b>Landing stage:</b>                  The entry of water is with the fingers of the hand first and then the rest of the body at a small angle in a non-deep range, and the arms remain single.</p>	
<p><b>Slippage stage:</b>                  At a depth of 50 cm, the swimmer begins to beat the two guys and the first intensity of one arm.</p>	

**Tests Used:**

1. Give each student two tries on a Dynavision device a reaction time response of (one minute).
2. Calculate the time of leaving hands together for handles to skill start swimming Backstroke when giving instructions.
3. Calculate the time of leaving the feet from the bottom of the edge of the pool to skill start Backstroke swimming.
4. Calculate the time of the landing phase the moment the arms enter the water.
5. Calculate the time of 15 m of the Backstroke swimming after the start.
6. Calculating the time of 25 m of the Backstroke swimming.

**Instruments Used:**

Tools and devices used in research:

1. Dynavision device
2. Questionnaire form for experts on the selection of tests used.
3. Data registration form.
4. Manual calculator.
5. Stopwatch.
6. Adhesive tape display (5 m).
7. Metal tape length (5 m).

**Study Variables:**

• **Independent Variables:** Special exercises using Dynavision device to measure reaction time.

• **Affiliate variants:** Improve reaction time for starting skill in Backstroke swimming.

**Dynavision gadget description:** an electron panel with 62 points lighted by a computer connector within a particular program that the expert calculates the reaction time response of the laboratory appears at number 1 until it reaches number 5 The laboratory begins with a quick reflex movement to eliminate the light spot. The laboratory continues to operate until the one-minute time limit has been met.



**Perform Experiment:**

- ✓ Have each of the (6) students stand in front of the device panel, with their level of consideration parallel to the middle of the subject reference on the device.
- ✓ When hearing a whistle, the student tries to pay attention and focus to track the numbers on the device plate from 1 to 5.
- ✓ After reading the number 5, the student must answer with a swift movement to extinguish any button of the number 62 that has been lit, where the student

must press the button to extinguish it at a high questioning speed, using the right or left hand.

- ✓ For both pre and post measures, the test lasts one minute, each student is given two attempts, and the best effort is picked.
- ✓ Female students were trained in specific activities for 30 minutes at each of the three encounters and for 6 weeks using the Dynavision equipment. Yarmouk University's Centre for Psychological Preparation of Sports Performance is part of the Faculty of Physical Education.

### **Training**

Mental exercises for the kinetic reaction were performed in a series of escalating times for the student to turn off the buttons when hearing a whistle for (20, 40, 60 seconds) until the time stipulated for them was completed using the right hand. Using the right hand, repeat the preceding exercise and gradually increase the time duration (20, 40, 60 seconds).

- ✓ For one minute, repeat the previous exercise while pressing the extinguishing buttons with both hands.
- ✓ For a minute, perform the exercise with one hand and the other hand behind the back, followed by the opposite with the other hand.
- ✓ The motion of sewing the basketball with one hand, extinguishing the button with the other hand throughout the activity, and afterward
- ✓ For a minute, sew the basketball with one hand while performing the activity, extinguish the button with the other hand and then the opposite with the other hand. Repeat the previous workout, but this time cut the distance as short as possible.
- ✓ Training on full timing of the two men's motions and arms with breathing.
- ✓ The students' performance was monitored, and the emphasis on time was attained through time achievement .
- ✓ All pupils had their pre and post measurements taken.

### **Sample Survey:**

The researcher conducted a survey study at the Center for Psychological Preparation Sports Yarmouk University and the swimming pool of the Faculty of Physical Education on a sample of the same research community, one week, 3 meetings 1,3, 5/10/ 2023 with the aim of:

- Recognizing how to perform tests accurately and using devices for that
- Legalizing Mental Exercises on the Dynavision Device.
- Recognizing Difficulties and Problems a Study Could Have.
- Making sure the measurement results are recorded for each student

For a minute, sew the basketball with one hand while performing the activity, extinguish the button with the other hand and then the opposite with the other hand. Repeat the previous workout, but this time cut the distance as short as possible.

Training on full timing of the two men's motions and arms with breathing.

The students' performance was monitored, and the emphasis on time was attained through time achievement.

All pupils had their pre and post measurements taken.

### **Honesty:**

In order to ensure the sincerity of the study tools, they were presented to professionals specialized in swimming and psychological preparation, and to make their observations on the method of conducting the experiment, and the adoption of the time for performance. The tests were also applied to a survey sample by instructors who would oversee the final application of the study to reveal the compatibility of their measurements and the viability of the Dynavision device used to calculate reaction time. The compatibility rate between the measurements for the trainers was more than (94%), and the compatibility between the trainers in the measurements was confirmed in the middle of the original application period, and the compatibility factor (95%). These actions were considered sufficient and a strong indication of the sincerity of the time measurements and the device used .These activities were deemed adequate and a strong indicator of the accuracy of the time measurements and the instrument utilized.

### **Constancy**

The study tools were validated to be fixed by applying them to the reconnaissance sample twice a week time difference and extracting the correlation coefficients between the two applications, with the findings demonstrating a high degree of stability. All link transactions between the two programs were greater than (0.86), knowing that a stability factor greater than (0.76) is regarded acceptable.

### **Statistical Processing:**

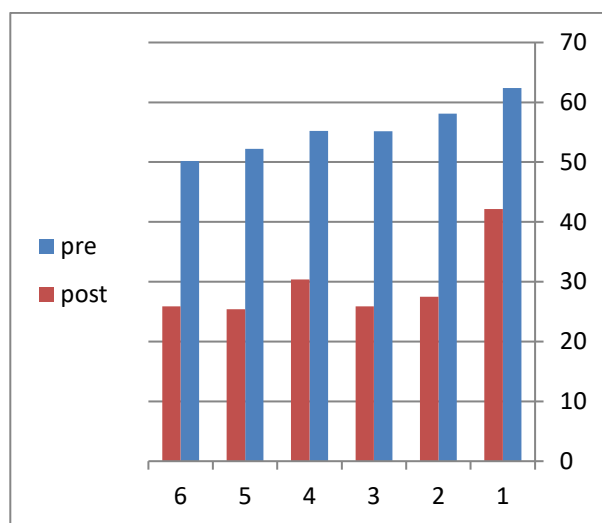
The following statistical treatments were used to test the research hypotheses and achieve the study's results:

- ✓ Averages and standard deviations computed for study variables.
- ✓ Dual Specimen Test (Payred Samples T-Test) to determine the statistical significance of variations in study variable pre and post measurements.
- ✓ Pearson Correlation Factor is used to determine the stability of study variables, improve reaction time, and show and analyze statistical analysis results.

Here is a presentation and discussion of the statistical analysis of the study aimed at recognizing the impact of the Dynavision device in enhancing reaction time (response) when executing the start of Backstroke swimming in students of the Yarmouk University swimming team.

### Anthropometric Measurements of the Study Sample:

Figure (2) Pre and Post Measurements of Reaction Time (Response) for Button Light (Hit Light Ring) within one minute.



The researcher explains how to use the Dynavision equipment to increase reaction time in post-method assessments of starting Backstroke swimming, which reflected positively on 15 m and total distance. Because special exercises using the Dynavision equipment have considerably improved swimmers' ability to focus when the start whistle sounds. It leverages the depth by conducting dolphin or reciprocating movements under the water, taking advantage of the power of the batch that was launched, especially when it reaches the water at a suitable angle. To get a greater flow distance, speed compounded through the angle of entry into the water, and cutting the distance beneath the water before getting out of the start and moving the arms and legs. Starting to Backstroke swimming exercises improved response time significantly, therefore trainers should build particular training modules for the start phases and focus on the attention of hearing the sound of the whistle when starting. This was validated by both (Mohsen, Ahmad, & Hashem, 2017), resulting in a higher overall time for swimming.

There are technical faults in the team swimmers where it was found that the skill to start Backstroke swimming is one of the physical systems related to projectiles. Therefore, there are technical faults in swimmers clubs

and teams and trainers must work to get rid of them through daily and weekly training doses at the moment of general training. This is confirmed by (Al-hawari (.2021 ), 2021) in her study, the focus of trainers in training to exploit modern technology and equipment, and the training of swimmers on them, and the exploitation in achieving a start serving the start stage for swimmers. As the positive impact of the attention and response variables of an effective role to achieve the reaction time for the start of the Backstroke swimming Khadraoui and Shuwe, in the case of (Khadraoui , Shuwe, & Mohamed , 2020).. In the instance of (Khadraoui , Shuwe, & Mohamed , 2020) the beneficial influence of the attention and response factors had an important role in achieving the reaction time for the commencement of the Backstroke swimming (Khadraoui , Shuwe, & Mohamed , 2020).

Table (1) Anthropometric measurements of the study sample

Variables	Arithmetic Mean	Standard Deviation
Length (cm)	166.20	4.8
Weight (kg)	60.15	5.22
Age(year)	20.14	1.13

appears from a table (1) that the arithmetic average of the length of the sample members was (166.2) cm, and the arithmetic average of the weight of the sample members was (60.15) kg . The arithmetic average age of the sample was (20.14) years.

A test (paired sample t.test) has been applied to reveal differences between the pre and post measurements

Table (2) Test results (paired sample t. test) between pre and post for all study test

Test	Measurement	Arithmetic Mean	Standard Deviation	T - Value	Statistical Significance
Time to let go of the handles	Pre	1.47	0.25	3.076	0.028
	Post	1.23	0.12		
Time for the feet to leave the edge of the pool	Pre	1.36	0.32	0.689	0.025
	Post	1.27	0.21		
The time the fingers of the hands enter the water	Pre	1.23	0.07	0.264	0.034
	Post	1.18	0.24		
The time of 15 m after start	Pre	18.14	0.65	4.126	0.009
	Post	17.52	0.57		
Total time for 25 m	Pre	28.69	0.52	3.725	0.014
	Post	28.21	0.55		

It appears from table (2) that all values (t) are a statistical function at the semantics level (0.05) between pre and



post measurements of all reaction-time tests. The differences were in favor of telemetry as the reaction time of each skill decreased to perform starting a Backstroke swimming after undergoing training on the Dynavision device..

### **Presentation and Discussion of Results :**

The researcher attributed the favorable increase in time results to the use of the Dynavision gadget for developing reaction time post measurements to start for Backstroke and post-start swimming inside 15 m and 25 m. Where the training includes codified to assist improve mental training, where it was marked by a unique nature, it contains within its composition some aspects that are not available in other types of training, as many professionals in sports and science have discovered. The educational self uses mental training supported by scientific performance to achieve more effective results than the use of practical training alone during training to conduct mental movements in any game that requires a particular amount of time to be played. The educational self to use mental training supported by scientific performance leads to more effective results than the use of practical training alone during training to perform mental movements in any game that requires a certain amount of time to be more accurate at estimating the time it takes to move or skill (Day , 2003); and. Attention concentration is another important mental skill that helps the player develop his various movements. It affects the accuracy, clarity, and mastery of the technical aspects of the kinetic skill procedure and is an important foundation for the success of kinetic skills. Because of its usefulness in mental training that is not confined to use in sports contests ( Khadraoui , Shuwe, & Mohamed , 2020) (Mohammed Al Arabi , 2001)is regarded the common denominator in all mental training programs and the basic input for mental perception and concentration of attention and response. However, it is widely employed in the field of movement in general, particularly during the stages of gaining kinetic skills, to play a significant role in the process.

The swimmer need comprehension and awareness to explain the incentives in the performance space, so that he may create the correct answer at the appropriate time, and that attention and response did not consume up much space. In the case of swimming, the association has also been demonstrated morally, with evidence that mental exercises utilizing the Dynavision gadget resulted in a speedy response to the combination of performance level in time. The movement is caused by a response to auditory and sensory signals, as "the response time for the sensory and sound signs is shorter than the response time for the visual sign" ( Qassim , 1998). In the sense that time is a factor influencing the achievement of an organization's goals, In the sense that time is a factor

influencing the achievement of advanced performance results, which demonstrated a positive improvement in kinetic cognitive abilities using exercises on the Dynavision device that ensure access to the correct interpretation of incentives, which is positively reflected Mental training has aided in increasing the ability to improve performance reaction time. Thus, the exercises raised the skill level by creating a brain pathway that assisted in performing correctly the next time. (Orlick & Mccfery, 1991) confirms this.

The researcher attributed to the lack of interest in training units that will help to increase or raise the level of reaction speed in swimming pools, especially in short distance races in the skill of starting a Backstroke swimming. As well as the lack of advanced devices that accurately measure the speed of the reaction and measure the digital achievement accurately and masterfully. (Graumann, Lohmann, & Pflesser , 2004) .

The researcher attributed the emergence of a significant and positive development between the pre and post measurements of total time to the mental exercises used in achieving the total time of Backstroke swimming and in favor of dimension measurements due to the use of exercises for the use of the device Dynavision next to training Mahari, which helped form a complete visualization of the kinetic path, thus preparing the nervous system well for the kinetic duty that was done inside the water, which led and helped in achieving the achievement. This is what they stressed (Sinager, 2003)that achieving achievement and advancement in technical performance is not accessible without mental skills as technical performance and mental skills work in tandem in the process of training and education.

### **Conclusions :**

Based on the study's findings, the following conclusions were reached:

- 1.Training with the Dynavision gadget improved reaction time for starting Backstroke swimming, post-start time within 15m, and performance time for a 50m Backstroke swim.
- 2.The presence of significant variations in the percentage change between pre and post-sample readings in total time digital Backstroke swimming 50 meters.
- 3.High performance level of the students' swimming team while performing these mental exercises with the Dynavision gadget, providing a proper training environment ambiance for concentration and improving the reaction time to start and total time in Backstroke swimming.

**Recommendations :**

Based on the data, the researcher suggests that:

1. Attention should be paid to training for excersises using the Dynamivision gadget to increase the digital level of Backstroke swimming.
2. The requirement for all swimming training specialists to increase digital achievement in short distances, focusing on skill more and focusing on mental training in its different forms, to develop the swimmer's response time of reaction.
3. The necessity to undertake similar study on various swimming styles in which unique exercises are used utilizing the Dynavision gadget.
4. Work on the development of programs that have a clear impact on the development of attention sharpness and kinetic response, as well as the use of multiple stimuli to increase the efficacy of sharpness and minimize the time necessary to respond, which improves performance.

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