

Journal of Applied Sports Science June 2025, Volume 15, No. 1 www.jass.alexu.edu.eg



The effect of repeated maximum intensity speed and agility training on some physical variables and the time of 100 m crawl stroke

Dr. Ahmed Salman Al-Qallaf (1)

(1) Associate Professor - Department of Physical Education and Sports - College of Basic Education - State of Kuwait

Abstract:

The research aims to identify the effect of speed and agility training at maximum repetitive intensity on some physical variables and the digital level of 100-meter freestyle swimmers. The researcher used the experimental method using the experimental design using the pre-post measurement for one experimental group. The research community includes swimmers from the Kuwait Al-Arabi Club for the training year (2024-2025), numbering (30) swimmers. The swimmers from the Kuwait Al-Arabi Club were chosen for their regularity in training and the researcher's training of the club's swimming teams. The research sample consisted of (28) swimmers. (20) swimmers were used as a basic sample in addition to (8) swimmers to conduct the scientific transactions of the study. The most important results were that the special repetitive speed and ability training led to the development of some digital abilities for 100-meter swimmers, and the special repetitive speed and ability training led to the development of some digital abilities for 100-meter swimmers. **Keywords:** (effect, swimmers, repeated)

Introduction and research problem:

Each sporting activity has special requirements for physical fitness elements that differ in nature and arrangement of their components from one sport to another. Endurance is considered one of the most important physical qualities that help in continuing efficient performance in most sporting activities that require successive or intermittent effort. Experts consider it one of the main aspects of winning in Competitions.

And he points out Bushito and Lorson Books & Laursen (2013 AD) Speed training is one of the main types of highintensity interval training, and speed training is repeated sprints lasting from 3-7 seconds interspersed with rest periods lasting less than 60 seconds.20:314)

He mentions: Bee Shop "Bishop (2011 AD) The ability to perform with a change in direction or to perform any high physical effort in a short time requires that the player have a high anaerobic capacity, as anaerobic capacity is linked to the muscular strength to accomplish a certain task in a limited time. (756:18)

And he points outby Silva Santos (2013 AD) Beato, M (2019 AD) Many sports activities require players to repeat maximum or near-maximum speeds for a short period of (1-7) seconds with short rest periods over a long period of time. Therefore, the important fitness component for these activities is called the ability to repeat maximum speed Ability Sprint-. Repeat. (41:22) (51:18)

As mentioned, Haddad (2013 AD) Machado (2007 AD) Sports scientists and coaches alike agreed that the ability to perform repeated maximum speeds with short rests between repetitions is called the ability to repeat maximum speed, and it is an important characteristic in various sports competitions, and it is considered one of the basic components of physical fitness for team sports. (41:31) (41:34) As it indicatesGregory Dupont et al2005) Rocha (2016) that High intensity repetitive speed and agility exercises can be very important for trainers if Their goal was to improve both aerobic and anaerobic performance, so introducing this type of Exercise, which is relatively short-term in training sessions, as well as speed exercises. The repeated maximal made it possible to achieve an improvement in aerobic and anaerobic capacities. (41:30) (51:37)

He seesSant' Ana (2018) Taylor (2015) The ability to repeat speed and agility at maximum intensity is a complex trait and is linked to both neuromuscular factors such as (transmission speed, neurotransmission and motor unit activation) as well as metabolic factors such as (oxidative capacity, creatine phosphate recovery and hydrogen bioregulators). (45:38) (66:41)

and Repeated high-intensity speed and agility exercises produce metabolic responses. Like responses occurring during competition, there is also a decrease in muscle acidity, creatine phosphate, adenosine triphosphate, activation of anaerobic glycogen and input. It is important for aerobic metabolism, which is why speed and agility training is used. High intensity repetitions in the form of exercises for training and testing of team athletes Sports On the increase (46:19) (51:20)

Kerry McGowley, David Bishop also add: David Bish ((2006) that repeated maximum speed protocols appear to be effective not only for assessing the ability to repeat at maximum speed, but also as a means of increasing endurance through stimulation. Rapid improvements in muscle oxidative potential (54:18)

Kamandolis et al. add, Kamandulis et al. (2018) Speed training is a high-intensity interval training method and is a training method used especially in sports activities that require repetition of performances of maximum intensity. (32:1214) and Speed training is a technique derived from highintensity interval training that aims to develop neuromuscular functions (such as speed and jumping) and metabolic functions (such as recovery between highintensity performances), during a short training period ranging from (2-6) weeks. To improve the level of skill and physical performance (21:1) (23:98)

to Repetitive speed training is effective in developing muscle power, speed, the ability to repeat speed, the speed of changing direction, and Aerobic capacity for athletes. (25:2967) (33:238) (81:40)

Confirms the above SHALFAWI (2017) However, repetitive speed training is an effective method for developing various fitness components related to performance in sports competition simultaneously and with positive improvement. (39:11)

By reviewing research on scientific references related to repetitive speed training (1) (3)(28) (4) (5) Its uses and features are summarized below:

- It is used to develop aerobic and anaerobic capacities within a short period of time.
- It features time-saving and low noticeable effort ratings.
- It aims to develop special physical qualities (such as: speed, Speed of change of direction, Muscular power, and special tolerance) For many sports activities.
- Contributes to Increased ability to recover between repetitions of high-intensity performances.
- It is easy to implement and therefore leads to commitment and continuity in training.
- It can be implemented as an effective training alternative to other training methods with high training volumes.

And Note researcher from during He trained the junior swimming teams in the State of Kuwait. And interview Many from My trainer And professors training Swimming , And follow up Many from Trainings And the championships And during examining on the reviewer And research Scientific that training Resistance organization improve racist power And speed In a way essential Which Makes for him adult The impact on Races Distances Short , It is useful in Giving speed Maximum For my stage Getting started And the rotation And stage ending The race , Which Makes importance training Speed regulation by resistors not only For distances Short But also For distances Intermediate And the long one, And it works on more capacity greater number from Fiber Muscular on the job in direction Movement and increase capacity Swimmers on Access To the maximum speed early in beginning The race Which Leads to Progress Early on Competitors And win trust And empowerment from The race Therefore win In the race, as improve also the job Muscular on road more efficiency order Phosphate, And improves Move from system to system last easily And quickly Without slow in Swimming, And building on that It is from Roads Important very in a period Competitions where He is the goal Access To the maximum intensity in Exercise And

focus on more speed Frequency And strength intensity, And from what Previously Lost Found researcher necessity presence group Complete in all loneliness Training in a period preparation private And period Competitions.

Research objective:

The research aims to identify the effect of repeated maximum intensity speed and agility training on some physical variables and the numerical level of 100-meter freestyle swimmers.

Research hypotheses:

- 1. There are statistically significant differences between the averages of the pre- and post-measurements in the level of some physical variables among 100-meter freestyle swimmers, in favor of the post-measurement.
- 2. There are statistically significant differences between the averages of the pre- and post-measurements in the numerical level of the 100-meter freestyle swimmers, in favor of the post-measurement.

Terms used in the search:

Special repetitive speed training:

He road Training using exercises to repeat high/maximum intensity kicks lasting 5–10 seconds, with incomplete rest periods in between.51:26) (29:55)

Maximum intensity repetitive speed and agility training Repeated Sprint-Agility training:

It is the repetition of extreme speed and agility running in a straight line, zigzag running, Rebound running, shuttle running, footwork on the badminton court Which continues 3-7 seconds, interspersed with incomplete rest periods. (41:27) (22:35)

Research plan and procedures: Research methodology:

The researcher used the experimental method using the experimental design. Using pre-post test of one experimental group.

Research community:

The research community includes Kuwait Al Arabi Club swimmers for the training year (2024-2025) and its number (30) swimmer, and has been selected Swimmers of the Kuwaiti Al-Arabi Club for their regular training and the researcher's training of the club's swimming teams.

Research sample:

The research sample consisted of (28) Swimmers (20) swimmers were used as a basic sample in addition to (8) swimmers to conduct the scientific transactions of the study.

How to choose a research sample:

The sample was selected intentionally by:

- Forming a committee consisting of (3) members Professional swimming and who has worked on it (10) years.

The researcher conducted homogeneity for the research sample in the variables of age, height, weight, physical tests (arm muscle strength, abdominal muscle strength, back muscle strength, leg muscle strength), And time of 100 m crawl stroke as shown in Tables (1), (2), (3).

If enough cells decrease in size, the entire organ atrophies. This is often a normal aging change and can occur in any tissue [24]. It is most common in skeletal muscle, the heart, the brain, and the sex organs such as the breasts and ovaries. Bones become thinner and more likely to break with minor trauma. The cause of atrophy is unknown, but may include reduced use, decreased workload, decreased blood supply or nutrition to the cells, and reduced stimulation by nerves or hormones. Studies indicate a strong relationship of lower extremity strength to balance and gait. The studies demon Exercise opposes the harmful effects of secondary aging by preventing the decline in mitochondrial respiration, mitigating aging-related loss of muscle mass, and enhancing insulin sensitivity. This review focuses on

mechanisms by which exercise promotes "healthy aging" by inducing modifications in skeletal muscle [33].

As people age, they gradually lose muscle fibers, with about 50% of the fibers in limb muscles being lost by the age of 80. The extent of remaining fiber atrophy depends largely on a person's level of physical activity. Even "master athletes" who maintain high fitness levels throughout their lives experience a decline in performance after the age of 40, with peak performance decreasing by around 50% by the age of 80. However, well-designed and carefully administered training programs can slow down age-related muscle atrophy, weakness, and fatigue, as evidenced by the success of master athletes and previously sedentary elderly individuals who take up such programs [10].

Table (1) Mean, Standard Deviation, Median, and Coefficient of Skewness For variables of age, height and weight

Variables	Unit of measure	Average Arithmetic	Standard deviation	The mediator	Factor twist
Age	year	14.65	0.69	14.00	0.61
height	poison	130.00	5.58	137.50	1.39
the weight	kg	42.20	7.32	42.00	0.45

It is clear from the previous table No. (1) that all the values of the arithmetic averages exceed the values of the standard deviations, and that all the values of skewness are between +3 and -3, which indicates the homogeneity of the sample individuals and their freedom from the defects of non-normal distributions for the variables of age, height and weight.

Mean, Standard Deviation, Median, and Coefficient of Skewness For physical tests n =28							
	Variables	Unit of measure	Average Arithmetic	Standard deviation	The mediator	Factor twist	
	arm muscle strength	number	20.83	3.96	20.00	0.73	
Physical tests	abdominal muscle strength	number	16.20	3.47	16.00	0.57	
	back muscle strength	kg	53.13	16.47	55.00	0.15	
	leg muscle strength	kg	152.50	13.45	155.00	0.02	
	Central part stability force	degree	56.20	3.72	56.50	0.18	

Table (2)

It is clear from the previous table No. (2) that all the arithmetic average values exceed the standard deviation values, and that all the skewness values are between +3 and -3, which indicates the homogeneity of the sample individuals and their freedom from the defects of non-normal distributions for the physical tests under study.

Mean, Standard Deviation, Median, and Coefficient of Skewness For 100 m crawl stroke n =28 Unit of Standard The Average Variables Factor twist measure Arithmetic deviation mediator tim100 m crawl stroke second 65.60 2.83 68.29 0.24-

Table (3)

Ahmed Salman Al-Qallaf

It is clear from the previous table No. (3) that all the arithmetic average values exceed the standard deviation values, and that all the skewness values are between +3 and -3, which indicates the homogeneity of the sample individuals and their freedom from the defects of non-normal distributions at the skill level of 25m backstroke swimming.

Data collection tools:

- A form for surveying the experts' opinions. The variables that the experts agreed upon (90%) were selected. The names of the experts appear while the form for surveying their opinions on the physical tests, the time and number of program units, and the exercises used appear.
- Data collection form to record data for each swimmer as well as the variables under investigation.

Devices used:

- The Rustamer device Restameer for length measurement.
- Stopwatch.
- Medical scale.
- Measure Tape.
- Dynamometer to measure the strength of the back and leg muscles.
- Swiss balls (an air-filled, elastic rubber ball with a diameter of 45 cm to 75 cm (18 to 30 in).

Tests used:

 a test Oblique pronation (for girls) To measure the strength of the arm muscles. Attachment No. (5)

- Sit-up test with bent knees to measure abdominal muscle strength. Attachment No. (6)
- Back muscle strength test to measure the strength of the back muscles. Attachment No. (7)
- Leg muscle strength test to measure leg muscle strength. Attachment No. (8)
- Central body stability test Core Stability Strength Test).

Scientific transactions for physical tests

The researcher applied scientific transactions to the exploratory study sample as follows:

- Honesty:

The researcher used the method of one-way comparison validity by applying physical tests to a sample consisting of (8)Swimmers From (the research community) and outside the basic sample, the research sample scores were arranged in ascending order in the variables under study and were divided into quartiles, and a comparison was made between the highest and lowest quartiles in order to ensure that the tests are valid in what they were designed to measure, as in Table (4)

Tasta	Unit of measure	Upper S (n=2	pring ?)	Lower s (n=2	Tughes		
1 8515	Onu oj measure	S	A	S	A	1 value	
arm muscle strength	number	31.00	0.71	27.20	0.84	7.76*	
abdominal muscle strength	number	19.20	1.79	14.00	1.00	5.67*	
back muscle strength	kg	49.00	2.24	39.00	2.23	7.07*	
leg muscle strength	kg	161.00	4.18	141.00	2.23	9.43*	

Table (4) Validity coefficients for physical tests

The tabular t-value is (2.31) at a significance level of (0.05).

The table shows:4There are significant differences between the upper and lower quartiles in favor of the upper quartile group in all the physical tests under study, which indicates the validity of the tests used.

– Stability:

The researcher applied the physical tests and then reapplied them again after a period of one week from the first application. Table (5) Stability coefficient

Ahmed Salman Al-Qallaf

Reliability coefficients for physical tests n=8									
Tosta	First application		The second of	application					
Tesis	S	A	S	A	Correlation coefficient				
arm muscle strength	29.25	1.55	29.45	2.06	0.67				
abdominal muscle strength	16.4	2.16	14.80	2.39	0.89				
back muscle strength	43.25	4.38	40.75	3.73	0.65				
leg muscle strength	149.15	56.30	145.90	57.10	0.90				

Table (5)Reliability coefficients for physical testsn=8

The tabular value of "r" is (0.44) at a significance level of (0.05).

The table shows (5There is a significant correlation between applying the test and re-applying it a second time at a significance level of (0.05), as the correlation coefficients ranged between (0.65, 0.97), which indicates that the test used has a high degree of stability.

Steps Program building:

After examining on specialized scientific books and previous research (14), (14), (26), (27), (19), He did researcher by identifying the muscles as well as the working muscles. In crawl swimming A program was designed to improve the skill level and the digital in swimming, using repetitive maximum intensity speed and agility exercises to strengthen the muscles for body Improving the level of skill and numerical performance of crawl swimming.

Executive procedures for the search:

The program Training for speed and repetitive power training:

Preparing the landing am bored Training:

It was completed Content analysis of scientific references and studies related to research variables in Capacity limits the researcher can start in Training program design for your repetitive speed training by identifying the main aspects in Preparing the landing am bored Training.

goal landing am bored Training:

goal landing am bored Training to improve the level of physical, skill and digital performance of 100-meter crawl stroke

Foundations of developing the training program:

from During the review Researchers On For studies and scientific research Related to the research topic And that To learn about the characteristics of the training load for training Speed and agility at maximum intensity And depended Researchers In designing their training program, they studied both: Mustafa Tantawi (2015) (12) Boyer and Van Aswegen and others Boer & Van Aswegen et al. (2016) (16),Ibrahim Hamed (2017) (1)and The following foundations have been laid for the training program:

- He did researcher by specifying the time period for the proposed training program, which is (8) weeks.
- The researcher did by specifying the number of daily training units during the week at (3) training units.
- The repetition time was determined between (5:10 seconds) at the player's maximum intensity, the work-to-rest ratio (1:2), the number of repetitions between (4:7 repetitions), the rest time between repetitions

between (10:20 seconds), the number of sets (2) sets, and the rest time between sets was (1.5 minutes).

- The periodic pregnancy cycle (average cycle) is formed in a (1:2) manner. (1:1).
- The weekly pregnancy cycle is formed in a (1:2) manner.
- The load levels were divided into three levels (medium, high, maximum) during the training program.

Program Content Suggested Training Attachment No. (2)

- Duration of the training program she (8) weeks.
- Number of training units per week (3) training units on (Saturday, Monday, Wednesday), for a total of (24) training units.
- Time distribution of the repetitive speed training program without warm-up and cool-down.
 - The duration of the training unit ranges between (15:30) minutes.
 - Training time during the week (52:84) minutes.
 - Training time during the special repetitive speed training program (535.5) minutes.
- Pre- test:

The researcher conducted the pre-measurement of the muscular ability tests and the offensive skills tests in handball on the research sample on the day15/7/2024Until the 18th7/2024 AD.

Suggested training design:

- 1. The purpose of the proposed exercises:
 - Develop muscle strength for swimming juniors Research sample.
 - Develop some offensive skills for swimmers Research sample.
- 2. Apply the suggested exercises:

The researcher determined the appropriate time period for implementing the proposed training (8) eight weeks over two months, as the first training unit began on 24/7/2024 AD Until 16/9/2024 AD At a rate of (3) training units per week, where the total number of training units reached (24) units on (Sunday - Tuesday - and Thursday) of each week.

– The post-test:

The researcher conducted the post-test measurement Physical variables and digital level in swimming on the research sample on 19/9/2024to 20/9/2024 AD The researcher took care to apply the same instructions, conditions and specifications during the pre- and post-measurements.

Statistical treatments:

- Arithmetic mean. -Standard deviation.
- Coefficient of skewness. -Correlation coefficient.
- T-test. -Improvement rate.

Presentation and discussion of results:

Table (6) Significance of differences between pre- and post-measurements for research sample in the physical tests

Variables		Pre <i>n</i> =20		Post n=20			-	
		S	A	S	A	T value	Improvement rate %	
	arm muscle strength	21.75	4.76	29.80	3.30	11.18*-	35.63%	
Physical tests	abdominal muscle strength	16.00	3.32	23.95	4.26	12.29*-	49.69 %	
	back muscle strength	53.75	17.61	66.50	14.15	8.18*-	23.72%	
	leg muscle strength	152.00	13.89	165.75	9.49	7.92*-	9.05%	
	Central part stability force	56.50	3.50	71.35	3.34	15.25*-	26.28%	

 Tabular t-value (2.09) at significance level (0.05)

It is clear from the table (6There were statistically significant differences between the pre- and post-measurements of the experimental group in the physical tests in favor of the post-measurement, as the calculated "t" value was higher than the tabular values, and the improvement rate ranged between (9.05%, 49.69%).

Table (7)						
Significance of differences between	pre- and post- Te	est for time of 100 m crawl	stroke			

	pre		Post		- I	_		
Variables	S	A	S	A	T value	Improvement rate %		
time 100 m crawl stroke	65.50	2.25	63.21	4.56	5.21*	3.62%		

Tabular t-value (2.09) at significance level (0.05)

it is clear from the table (7) There are statistically significant differences between the pre- and post-measurements for research sample at the skill level of 100m swimming, it appeared in favor of the dimensional measurement, as the calculated "t" value was higher than the tabular values, and the improvement rate ranged (5.21)

Discussion of results:

It is clear from the table (7) There were statistically significant differences between the pre- and postmeasurements of the research sample individuals in all the physical variables under study in favor of the postmeasurement. The calculated "t" values ranged between (8.61, 10.92) and all the differences were in favor of the post-measurement. The improvement rates ranged between (7.00%) as the smallest value and (26%) as the largest value, and all of them were in the direction of the post-measurement.

And returns researcher This is due to the effect of the training program for special repetitive speed training, which includes special direction change exercises that cause functional changes similar to those changes that occur during competitions, and this is consistent with what was stated by Shalfawi et al.et al. Soares-Caldeira(2014)

that to merge training speed Recurring In addition Agility training aims to development performance Fitness.(40:2971)

And what I mentioned also Betoand others Beato et al. (2019) that Players who are used to performance Training changing Direction Can't reduce requirements Energy (economy) during such Performances Private. (15:184)

These results are consistent with the results of study all from SHALFAWI (2013 AD)39), Monks et al. Makhonjwas et al. (2016) (35), Tariq Ezz El-Din (2018 AD) (7) Speed and repetitive power training private It has a positive effect on Agility.

And it returns researcher This improvement to Implementing the training program for speed and repetitive power training using repetitive speed exercises in their various forms, which contribute to developing the strength characterized by speed and motor speed, for a period of (8)

Ahmed Salman Al-Qallaf

weeks at a rate of (3) training units per week, and this period is considered sufficient to develop physical capabilities, based on what was mentioned.et al. Soares-Caldeira(2014) that Periods Long training (6:20 weeks)Of the matter Hato increase from probability of occurrence Developments Larger in some capacities.(40: 2972)

This confirms that "Reilly" Rey, E (2019) It has been proven that training speed recurring and twice a week for (6-10) Weeks Develops Sprint performance (acceleration and sprint time), the capacityon repeat speed and running high intensity (a test Yoyo Level 1). (36: 238)

As it goes back researcher This improvement to Use special agility exercises that produce changes similar to those that occur during competitions This is consistent with what I mentioned Betoand others Beato et al.(2019) A Including specific direction change drills in a training program can lead to greater improvements in the fitness components associated with jobs Muscular and nervous such as jumping, sprinting and performing speed repetitions The maximum, which contributes to improving the swimmer's performance level.(12:184)

These results are consistent with the results of study all from Mustafa Tantawi (2015) (12), Boyer and Van Aswegen and others Boer & Van Aswegen et al. (2016) (16), Ibrahim Hamed (2017) (1)Thus, the first research hypothesis has been achieved, which states that: There are statistically significant differences between the averages of the pre- and post-measurements in the level of some special physical variables among Swimming juniors For the benefit of dimensional measurement.

It is clear from the table (7There are statistically significant differences between the pre- and post-measurements of the research sample members in all variables Digital The research was in favor of the post-measurement, and the calculated "t" values ranged between (3.11, 20.56) and all the differences were in favor of the post-measurement. The improvement rates ranged between (8.97%) as the smallest value, (22.3%) as the largest value, and all of them were in the direction of the post-measurement. It also showed that there were improvement rates between the average Pre and post measurements I have a sample Search In favor of measurement The dimension for aerobic capacity variables (specific aerobic endurance, Maximum airspeed, Maximum heart rate, Average heart rate, time limit to exhaustion)

And it returns researcher This improvement to Use special repetitive speed drills (High/maximum intensity skill repetitions lasting 5-10 seconds, with incomplete rest periods (10-20 seconds), Which contributes to the development of aerobic capabilities. Based on what you mentioned Betoand others Beato et al.(2019)The effectiveness of repeated speed training It may depend on several variables such as: Repetition And the size and duration of performance In addition to the methodology repetition speed(Exercise protocol).(15: 183)

This confirms that Camandolisand others Kamandulis et al. (2018) That punching training at maximum effort for Very short (3 seconds) is effective in improving aerobic capacity, provided it is performed repetitive speed training Sufficient

volume for at least 6 minutes of activity at maximum an effort in the week. (32: 1218)

And he points out Gantwa and others Gantois et al. (2019) Previous studies have shown that training repetitive speed It was effective in improving aerobic fitness. In young basketball players without negative effects on strength Explosive To the party Lower. (29: 98)

These results are consistent with the results of study all from whom? Mustafa Tantawi (2015) (12), Boyer and Van Aswegen and others Boer & Van Aswegen et al. (2016) (16), Ibrahim Hamed (2017) (1) On that repetitive speed training private It has a positive effect on Skill variables.

And it returns researcher This improvement to Use of repetitive speed training, which contributes to developing the ability to repeat speed, and this is consistent with what was mentioned Bishop et al. Beato et al. (2019) that Speed training is a training method used to develop the ability to repeat maximum speed.15: 748)

This confirms that Soares Caldera and others Soares-Caldeira et al. (2014 AD) Repeated sprints have been used as a basic training method to improve speed repeatability.40: 2815)

And it returns researcher This improvement to Special repetitive speed training that includes: Performing skills High/maximum intensity skills, Which is geared towards developing the power and speed of the front circular kick (dolio chagi), which is in line with what was recommended by Camandolisand others Kamandulis et al.(2018)To improve the performance In swimming Training should be Special for Sports requirements, and therefore Include Movements Performance same intensity High/maximum inroad training different ,Use style Training that simulates competitive load scare fully quite, And it is done Include him to Very much In most Riyadh at, with undeniable benefits for achieving competitive results. (29: 1214)

As it goes back researcher This improvement led to the development of aerobic capabilities, which in turn helped in the development of Power and speed Performance This is consistent with what he indicated. Camandolisand others Kamandulis et al. (2018) It is of utmost importance that this Developments The ability to punch coincided with an increase in the aerobic capacity of the upper body. (32: 1218)

Herrera Valenzuela et al. point out that Herrera-Valenzuela et al. (2016) Developing aerobic endurance is one of the basic training goals, as aerobic endurance is an influential factor during the performance of skills.31: 23)

These results are consistent with the results of study all from Inceller and others Eniseler et al. (2017 AD)21), Camandolisand others Kamandulis et al. (2018 AD)29) On that repetitive speed training private It has a positive effect on Performance ability (strength and speed of performance).

Thus, the research hypothesis has been achieved. Second Which states: There

are statistically significant differences between the averages of the pre- and post-measurements in the level of

skill performance among Swimming juniors for the benefit of measurement

Conclusions:

- 1. Speed and repetitive power training led to developing some physical abilities for the time of 100 m crawl stroke.
- 2. Special repetitive speed and power training has led to the development of some abilities Skill For 100-meter swimmers.

Recommendations:

- 1. Use speed training and ability Recurring private in development Some special physical abilities, aerobic abilities, and Ability to repeat speed.
- Using training programs to speed training and ability Recurring private When planning programs for development Some special physical abilities, aerobic abilities, and Ability to repeat speed100m freestyle swimmers.
- 3. Rationing Speed training Special recurring for taekwondo players in Stages Sunni Different according to for nature the A disease during Competitions.

References:

Arabic references:

- 1. **Ibrahim Hamed Ibrahim Hassan.** (2017). The effect of a repeated speed training program on improving distances covered using the technique of GPS and some physiological variables during the match for field hockey players. Scientific Journal of Sports Sciences and Arts, Faculty of Physical Education for Girls, Helwan University.
- 2. Abu Al-Ala Ahmed Abdel Fattah (2012 AD) Contemporary Sports Training "Physiological Foundations Training Plans Training of Juniors Long-Term Training Training Load Errors" Dar Al-Fikr Al-Arabi, Cairo, 2012 AD.
- **3.** Bouaisha Abdelaziz, Nasser Mohammed: The effect of training units using repetition training speedS2 on the repeatability of speed R for football players foot class less than19 years old, Institute of Sciences and Technologies of Activities Physical and Sports, University of Mohamed Ben Diaf, Journal of Sports Creativity
- 4. **Ihab Saber Ismail Ismail, Khaled Mohamed El-Sadig Salama (2022 AD)** The effect of repeated maximum intensity speed and agility training on developing aerobic and anaerobic capabilities and some skill performances of badminton players, published scientific research, Journal of Comprehensive Education Research, Faculty of Physical Education for Girls, Zagazig University.
- 5. Baha'a El Din Ali Ibrahim El Sayed, Mohamed El-Sayed Mohamed Abdel-Jalil: (2022 AD) The effect of special repetitive speed training on developing some physical abilities and the strength and speed of the circular front kick (Dolio Chagi) for Taekwondo players, published scientific research, Assiut Journal of Sports Sciences and Arts, Faculty of Physical Education, Assiut University.
- 6. Hatem Abdel Moneim Saleh (2017): Speed regulation strategy and critical speed for 400m swimmers at the London 2012 Olympics and the Rio de Janeiro 2016 Olympics, published research, Scientific Journal of Physical Education and Sports Sciences, Faculty of Physical Education, Helwan University, Issue 81, Pages 87-96, September, Helwan University.
- 7. Tarek Ezz El-Din Ibrahim. (2018). The effect of a repetitive speed training program on some physical and physiological abilities of field hockey juniors. Journal of Physical Education Research, Faculty of Physical Education for Boys, Zagazig University.
- 8. Tariq Muhammad Nada and Nabil Muhammad Hassan: (1999 AD) A comparative study between male and female swimmers in the speed regulation strategy for the 400-meter freestyle race, Assiut Journal of Physical Education Sciences and Arts, Issue 5, Vol. 1: 150-167, Assiut University.
- **9.** Mohammed Ibrahim Mohammed(2004M) impact program My training Proposed For development ability Muscular on level The top for swimmers100meter Free, the best Scientific college Education Sports in Port Said university channel Suez number Fifth ten December, Suez Canal University.
- **10.** Mohamed Ibrahim Abdullah (2022 AD): The effect of maximum speed training on some physiological variables, free radicals and digital level of 50 m butterfly swimmers, published scientific research, Sinai Journal of Sports Sciences Faculty of Physical Education, Arish University
- 11. Mohammed on the cat (2005): strategy Training The athlete in swimming, The Center Arabic For publication, Part the second Cairo.
- **12.** selected Ibrahim slave The Guardian(2006M) calendar Plans Swimming for Swimmers Distances Short, message PhD not Published, college Education Sports Benin university.

- **13.** Mustafa Hassan Mohamed Tantawi. (2015). The effect of different training methods on developing the ability to repeat maximum speed and the efficiency of aerobic and anaerobic work for athletes. PhD thesis, Faculty of Physical Education for Boys, Zagazig University.
- 14. Mufti Ibrahim Hammad (2009): The Comprehensive Reference in Sports Training and Scientific Applications, Dar Al-Kitab Al-Hadith, Cairo.

Foreign references:

- **15.** Beato, M., Coratella, G., Bianchi, M., Costa, E., & Merlini, M. (2019). Short-Term Repeated-Sprint Training (Straight Sprint vs. Changes of Direction) in Soccer Players. Journal of Human Kinetics (70), 183-190.
- **16.** Bellenger, CR, Fuller, JT, Nelson, MJ, Hartland, M., Buckley, JD, & Debenedictis, TA (2015). Predicting maximum aerobic speed through set distance time trials. European journal of applied physiology, 115(12), 2593-2598.
- 17. Benjamin M. walklate. et al: Supplementing regular training with short duration sprint- agility training leads to substantial increase in repeated sprint- agility performance with national level badminton players, School of Human Movement and Sport Sciences, University of Ballarat, Victoria, Australia Eastern Institute of Technology, Napier, New Zealand4142,2009, 1477 1481.
- Bishop, D., Girard, O., & Mendez-Villanueva, A. (2011). Repeated-Sprint Ability: Part II Recommendations for Training. Sports Medicine, 41 (9), 741-756.
- **19. BOER, P., & VAN ASWEGEN, M. (2016).** Effect of combined versus repeated sprint training on physical parameters in subelite football players in South Africa. Journal of Physical Education and Sport, 16(3), 964 971.
- **20.** Buchheit, M., & Laursen, P. B. (2013). High-Intensity Interval Training, Solutions to the Programming Puzzle: Part I: Cardiopulmonary Emphasis. Sports Medicine, 43(5), 313-338.
- Campos-Vazquez, M.A., Romero-Boza, S., Toscano-Bendala, F.J., Leon-Prados, J.A., Suarez-Arrones, L.J., & Gonzalez-Jurado, J.A. (2015). Comparison of the effect of repeated-sprint training combined with two different methods of strength training on young soccer players. Journal of Strength and Conditioning Research, 29(3), 744– 751.
- 22. Da Silva Santos, J. F., & Franchini, E. (2016). Is frequency speed of kick test responsive to training? A study with taekwondo athletes. Sport Sci Health, 12, 377–382.
- 23. Da Silva Santos, J. F., Loturco, I., & Franchini, E. (2018). Relationship between frequency speed of kick test performance, optimal load, and anthropometric variables in black-belt taekwondo athletes. Journal of Martial Arts Anthropology, 18(1), 39–44.
- 24. Bishop, Johann Edge: The effects of a 10-day taper on repeated-sprint performance in females, JSci Med Sport 2005;8:2:200-209. 11- David Bishop, Girard O, Mendez-Villanueva A: Repeated-Sprint Ability Part II Recommendations for Training; Sports Med 2011; 41 (9): 741-756.
- 25. Duccio Ferrari Bravo, Impellizzeri FM, Rampinini E, CastagnaC, Bishop D, Wisloff U.: Sprint vs. interval training in football, Int J Sports Med. 2008 Aug;29(8):668-74.
- 26. Eniseler, N., Şahan, Ç., Özcan, I., & Dinler, K. (2017). High-Intensity Small-Sided Games versus Repeated Sprint Training in Junior Soccer Players. Journal of Human Kinetics, 60, 101-111.
- 27. Fernandez-Fernandez, J., Zimek, R., Wiewelhove, T., & Ferrauti, A. (2012). High-intensity interval training vs. repeated-sprint training in tennis. Journal of Strength and Conditioning Research, 26(1), 53–62.
- 28. Franchini, E., Cormack, S., & Takito, M. Y. (2019). Effects of high-intensity interval training on Olympic combat sports athletes' performance and physiological adaptation: A systematic review. Journal of Strength and Conditioning Research the TM, 33(1), 242–252.
- **29.** Gantois, P., Batista, GR, Aidar, FJ, Nakamura, FY, de Lima-Júnior, D., Cirilo-Sousa, MS, et al. (2019). Repeated sprint training improves both anaerobic and aerobic fitness in basketball players. Isokinetics and Exercise Science, 27, 97–105.
- **30. Gregory Dupont, Millet GP, Guinhouya C, Berthoin S.:** Relationship between oxygen uptake kinetics and performance in repeated running sprints, Eur JAppl Physiol. 2005 Sep;95(1):27-34.
- 31. Haddad, M., Chaouachi, A., Wong, D., Castagna, C., & Chamari, K. (2011). Heart Rate Responses and Training Load During Nonspecific and Specific Aerobic Training in Adolescent Taekwondo Athletes. Journal of Human Kinetics, 29, 59-66.

- 32. KAMANDULIS, S., BRUZAS, V., MOCKUS, P., STASIULIS, A., SNIECKUS, A., & VENCKUNAS, T. (2018). Sport-specific repeated sprint training improves punching ability and upper-body aerobic power in experienced amateur boxers. Journal of Strength and Conditioning Research, 32(5), 1214–1221.
- **33.** Kim, H.-B., Jung, H.-C., Song, J.-K., & Lee, E.-J. (2015). follow-up study on the physique, body composition, physical performance, and isokinetic strength of female collegiate Taekwondo athletes. Journal of Exercise Rehabilitation, 11(1), 57-64.
- 34. Machado, F. A., Guglielmo, L. G., & Denadai, B. S. (2007). Effect of the chronological age and sexual maturation on the time to exhaustion at maximum aerobic speed. Biology of Sport, 24(1), 21-30.
- **35.** Mathunjwa, M., Mugandani, S., Kappo, A., Ivanov, S., & Djarova-Daniels, T. (2016). EFFECT OF 4 WEEKS HIGH-INTENSITY INTERMITTENT TAEKWONDO TRAINING ON BODY COMPOSITION AND PHYSICAL FITNESS IN ZULU DESCENT, SOUTH AFRICAN TAEKWONDO ATHLETES. British Journal of Sports Medicine, 50(22), A1–A12.
- 36. Rey, E., Padrón-Cabo, A., Costa, P. B., & Lago-Fuentes, C. (2019). Effects of different repeated sprint-training frequencies in youth soccer players. Biology of Sport, 36(3), 257–264.
- **37.** Rocha, F. P., Louro, H., Matias, R., Brito, J., & Costa, A. M. (2016). Determination of Aerobic Power Through a Specific Test for Taekwondo A Predictive Equation Model. Journal of Human Kinetics, 53(1), 117-126.
- 38. Sant' Ana, J., Franchini, E., Sakugawa, R.L., & Diefenthaeler, F. (2018). Estimation equation of maximum oxygen uptake in taekwondo specific test. Sport Sciences for Health, 14, 699–703.
- **39.** SHALFAWI, SA, HAUGEN, T., JAKOBSEN, TA, ENOKSEN, E., & TØNNESSEN, E. (2013). The effect of combined resisted agility and repeated sprint training vs. Strength training on female elite soccer players. Journal of Strength and Conditioning Research, 27(11), 2966–2972.
- **40.** Soares-Caldeira, LF, de Souza, EA, de Freitas, VH, de Moraes, SM, Leicht, AS, & Nakamura, FY (2014). Effects of additional repeated sprint training during preseason on performance, heart rate variability, and stress symptoms in futsal players: A randomized controlled trial. Journal of Strength and Conditioning Research, 28(10), 2815–2826.
- **41.** Taylor, J., Macpherson, T., Spears, I., & Weston, M. (2015). The Effects of Repeated-Sprint Training on Field-Based Fitness Measures: A Meta-Analysis of Controlled and Non-Controlled Trials. Sports Med, 45, 881–891