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THE EFFECT OF VERY SHORT SPEED TRAINING ON THE DIGITAL LEVEL OF SWIMMING 100 M FRONT CRAWL

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Abstract: The study aims to identify the effect of very short speed training on the digital level of swimming 100m front crawl. The sample was selected from the swimmers of Al-Nasr Club in Heliopolis, Cairo, consisting of (27) swimmers for the age group (14) years. The research sample was selected using the deliberate stratified method from swimmers born in 2009, and their number was (24) swimmers. (4) swimmers were excluded for not being regular in the training process and attending, and (4) swimmers were randomly drawn from the research sample as a survey sample; thus, the basic study sample became (16) swimmers.
The results indicated that.

- Very short speed regulation training had a statistically significant positive effect on the digital level of 100m crawl swimming for junior swimmers.
- There were improvement ratios between the pre-measurement and post-measurement in the digital level of 100m crawl swimming using very short speed regulation training for junior swimmers.

Conclusion. The role of the coach in training swimmers on this type of USRPT is that he must play the role of a teacher of technique, and the second role is that of a training program designer and technical director and performs other activities such as timing the swimmers and calling on the swimmers to perform repetitions in the training set so that time is not wasted.

Keywords: *USRPT, 100 m front crawl, speed*

Introduction

Scientific research has recently paid great attention to measuring and evaluating the functional efficiency and the level of digital achievement of swimmers. This evaluation is based on evaluating traditional training methods (repetitive training - interval training - distance training and Maglishko's divisions of aerobic and anaerobic work) and working on developing and finding innovative scientific methods that work to raise the efficiency of swimmers.

Brad McGregor (2006) states that the continuous and increasing emphasis on achieving athletic achievement has led scientists to search for training methods that have positive effects on performance in general and specialized performance in particular.

Abu Al-Ala Abdel Fattah and Hazem Hussein (2011) state that during the next ten years, the improvement in the digital level in swimming will be 5-10% increase in aerobic capacity training and about 20% in anaerobic

capacity training. This means that there is a trend towards speed training (anaerobic capacity) in training programs in the coming years, but this does not mean reducing aerobic capacity. Based on the above, we find that there are many different methods of training. Due to this difference, it has become necessary for the coach to choose the method that suits the characteristics and capabilities of the swimmers he deals with, and through which the set goals and required numerical levels can be reached.

In 2013, Brent Rushtill introduced the idea of Ultra-short Race-pace Training (USRPT), which is a series of swimming exercises performed at the best target speed for the race distance. When the swimmer reaches a degree of adaptation that enables him to achieve the target levels - the target times are gradually increased to increase the speed. To facilitate the repetition of his larger training sets, the total race distance is divided into smaller parts with a specific target time for performing each part, which together constitutes the target time for the race distance and short rest periods of more than 20 seconds between performing the distance parts. The swimming volume in the training sets at race speed should not be less than three times the race distance, i.e. if the race is 100, the total repetitions should be at least 300 meters in the form of 6 x 50 at 100-meter speed with a 20-second rest between them or 12 x 25 meters at 100-meter speed with a 15-second rest. It is preferable for the training volume at race speed to reach 5-10 times the race distance, thus achieving the standard volume for the most repetitions. Influentially, this training method aims to put the swimmer in conditions that make him cover parts of the distances by training at high intensities that are like the same degree of intensity that he faces when performing the total distance of the race. Thus, the method of implementing (USRPT) differs from the traditional training method because it focuses on applying the principle of specificity as an integrative process that combines the complex neurological and physiological functions to perform motor skills.

Rushal & Pyke (1991), Rushal (2003) indicated that training that uses work and rest periods is described as very short training, and studies have proven since the late fifties that if the exercise performance period is short with a high degree of intensity and a short recovery period, the result is high and rapid mechanical performance without the formation of lactic acid.

Ruzenk et al (2003) also recorded that the size of the training load can be increased through natural training that depends on more distances than longer distances, and this is one of the race specialization trainings that the swimmer must employ to perform better in races. Regulating speed in swimming is considered one of the most important things and has a great impact on the results of swimmers, as regulating speed in swimming training plays a critical role in ensuring that the effort expended in training is not wasted and maintaining the swimmer's speed in all sections of the race in a good way, which qualifies him to reach the highest numerical level in it. The issue of forming the training load for swimmers within training programs and the related training for energy production systems is still a subject of scientific controversy, which opens the way for more studies and research in this field, and therefore the researcher has turned to using a new and innovative method, which is the very short speed regulation training method USRPT. This method depends on exerting effort and speed in high-intensity motor performance for swimmers through very short distances and little rest in between, which results in the largest volume of training at high intensities that are completely related to the same requirements of the actual race, which leads to achieving an appropriate numerical level of achievement. Based on the above and to the best of the researcher's knowledge, and through the reference survey, it became clear to the researcher that there is a lack of scientific research on swimming that has addressed the study of this topic, which prompted the researcher to conduct the study with the aim of identifying the effect of very short speed training on the digital level of swimming 100 m crawl.

Methods.

Participation.

The sample was selected from the swimmers of Al-Nasr Club in Heliopolis, Cairo, consisting of (27) swimmers for the age group (14) years. The research sample was selected using the deliberate stratified method from swimmers born in 2009, and their number was (24) swimmers. (4) swimmers were excluded for not being

regular in the training process and attending, and (4) swimmers were randomly drawn from the research sample as a survey sample; thus, the basic study sample became (16) swimmers.

Steps to implement the research experiment:

- Pre-measurements:

Pre-measurements were conducted for the research sample members in all the tests under study on Monday 6/12/2023.

- Implementation of the training program:

After the researcher confirmed the homogeneity of the research group, the researcher implemented the basic experiment starting from Wednesday 6/14/2023 to Tuesday 7/25/2023 on the members of the experimental research group for a period of (6) weeks according to the design of Brent Rushal. The times required to be achieved during training are determined for each swimmer according to his individual abilities. The program was applied at the swimming pool at Al-Nasr Club in Heliopolis, Cairo.

- Post-measurements:

After completing the implementation of the basic research experiment, the researcher conducted post-measurements on the last day of implementing the program after completing the last training unit in the program on Tuesday 7/25/2023.

Statistical treatments:

The researcher used the statistical program (SPSS) for the humanities and social sciences to process the data.

Results.

Table (1)

The significance of the differences between the pre- and post-measurements at the digital level of 100-meter freestyle swimming

Variables	Unite	Pre		Post		Imp.
		M	Sd	M	Sd	
Digital level for 100m freestyle	Second	48.406	0.76	47.70*	0.76	8.01%

Table (1) shows that there were statistically significant differences between the pre- and post-measurements of the research sample in the digital level of 100-meter swimming, in favor of the post-measurement. The percentage of change between the two measurements reached 8.01%.

Discussion.

The researcher attributes these differences to the swimmers' use of very short and scientifically standardized speed regulation training by specifying and standardizing physical loads, repetitions, and rest periods between each training and swimming, which were given to the research sample members for a standardized period of time, which the research sample adhered to throughout this period, which led to a clear difference between the pre- and post-measurements in the 100-meter freestyle swimming time, as the pre-measurement achieved a time of 48.406 seconds, and the second measurement achieved 47.70 seconds. These differences in seconds are considered a great numerical achievement in this type of race in particular, given the variation in levels and abilities (technical-physiological) among the swimmers and the high numerical levels among them, and in swimming in general, given the closeness of the numerical levels and that the fraction of a second achieved requires the swimmers to undergo many training programs for long periods and months, and even years in the training process. The researcher attributes these results to the training provided for the very short speed regulation, which helped improve the numerical level of the swimmers under study in the 100-meter freestyle race.

The researcher believes that the role of the coach in training swimmers on this type of very short speed regulation USRPT is that he must play the role of a teacher of technique, and the second role is that of a training program designer and technical director who performs other activities such as measuring the swimmers' time and calling on swimmers to perform repetitions in the training group so as not to waste time, and since

technique is the cornerstone of the USRPT method, the coach must be an excellent teacher. Unfortunately, many coaches are not excellent teachers for teaching the motor skills specific to the technique of competitive swimming and its skills, and to raise the level of technique, the coach must return to teaching methods and learn how to present the motor skill and progress with it.

The results of this study are consistent with the results of the study of Ahmed El-Hafnawy (2005) (3), which concluded that there are statistically significant differences between the pre- and post-measurements in strength and speed tests and in the numerical level. Also, the study of Mona Adel and Hussein Abdeen (2020) (11), one of the most important results of which was the presence of an improvement in the digital level of the swimmers under study, and the presence of statistically significant differences in the level of aerobic and anaerobic endurance after applying the application program.

These results are consistent with the results of the study of Muhammad Gharib (2019) (6), which indicated the presence of improvement rates and significant differences in favor of the ultra-shorts training group over traditional training in the variables under study.

The study of Mona Adel et al. (2020) (10) also indicated an improvement in the digital level of the swimmers under study when they used speed regulation training using USRPT.

There are slight improvement rates between the pre- and post-measurements in the digital level, and this result also agreed with the results of the study of Mahmoud Madhat (2005) (8) in increasing the improvement of the digital level in the result of applying the program using ultra-shorts training.

From the above, the training program using Usrpt exercises has a clear effect on improving the digital level of swimming 100 meters crawl on the stomach for the sample under study. Thus, the hypothesis has been achieved that there are statistically significant differences between the pre-measurement and the post-measurement in the digital level of swimming 100 meters freestyle in favor of the post-measurement for young swimmers.

Conclusion.

Very short speed regulation training had a statistically significant positive effect on the digital level of 100m crawl swimming for junior swimmers. There were improvement ratios between the pre-measurement and post-measurement in the digital level of 100m crawl swimming using very short speed regulation training for junior swimmers.

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