

The Effect of Training Methods and Arm Power on Freestyle Swimming Speed of Tirta Taruna Swimmers

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Abstract

This study aims to find out and analyze the differences in the effect of interval and continuous training method on the 100 meter swimming speed of Tirta Taruna swimmers in Yogyakarta. This study used a random sampling technique. The data collection technique used tests and measurements. This type of study was experimental research through treatment or treatment. The subjects of the study were 20 Tirta Taruna Yogyakarta swimmers. The sample was taken using a random sampling technique from the population of all swimmers. The research instrument used Two Hand Medicine Ball Test and Swimming Speed Test. Based on the results of the data analysis from the Anova results it was obtained that $F_{\text{value}} = 0.312$ and $F_{\text{table}} = 5.95$, it means that $F_{\text{value}} > F_{\text{table}}$, therefore, it can be stated that there was a significant correlation or relationship between training methods and arm power with the results of the third hypothesis showing that significant results between factor A (interval and continuous training method) and B (arm power) on the 100 meter swimming speed. The results related to the hypothesis of the training method proved that there was an interaction between the type of interval and continuous training method with arm power in effect on the 100meter freestyle swimming speed.

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INTRODUCTION

Sport has become a world phenomenon and an integral part of life for humans on this earth. Sport has a very strategic role in the establishment and improvement of the quality of human resources for development. (Santosa, Sugiyanto, and Kristiyanto, 2014)

Sport cannot be separated from achievement as a goal in a training program so that it requires achievement training. According to Rumini (2015) achievement coaching is a systematic effort undertaken to obtain better results in achievement. Sports achievements can reach the target with the right training program.

Sukadiyanto (2005) explains that training is a process of change in a better direction, to improve physical quality, functional abilities of body equipment, and the psychological quality of the trainers.

The training program and process that are performed affect the change during and after training, especially when competing. DIY Province has many clubs that can produce talented athletes with many achievements, both at regional and national levels. One of the swimming associations in DIY is Tirta Taruna. Tirta Taruna is an association formed by members/swimmers and managed by members/parents of the swimmers for the benefit of swimmer's achievements.

The purpose of establishing the swimming association is to improve and advance swimming in achieving achievements. This was due to the coaching of the athlete's achievements in both the age and professional category.

The development of an athlete's achievements is inseparable from the role of the trainers who have training programs to achieve the athlete's achievements and goals. But in the implementation of the training programs, there are still obstacles faced by athletes during the training process, one of them is the training method in increasing arm power that is less than optimal.

According to Subhan, Putra, and Abdurrahman (2016) swimming is an activity performed on the surface of the water and with

various styles such as freestyle, breaststroke, butterfly stroke, and backstroke. Furthermore, Pandey, and Verma (2016) says that swimming is a sport that performed in the water using only the body, without using assistive devices. Swimming has been known throughout the world from a long time ago, from urban areas to rural areas in remote areas.

In the initial observation the researcher found some problems: (1) during this time the swimming training process performed in the Tirta Taruna association was limited to technical development in water, while achievement sports coaching must include physical, technical, tactic, and mental training, (2) in choosing the method of training, it was not in accordance with the characteristics and the needs of the athletes

Based on the discussion above, it can be seen that in increasing the training process in Tirta Taruna, there is a problem felt by the athletes, which is in conducting training methods and increasing speed. Swimmers' performance is strongly influenced by various elements, which include athlete coaching, training methods, arm power, leg power, and others. According to Sukadiyanto (2010) interval training method is a method of training interspersed by intervals in the form of resting, interval is the rest time given between series, circuits, or sessions per training unit.

Based on the background, the researcher was interested in conducting research on the effect of training methods and arm power on the 100meter freestyle swimming speed of the Tirta Taruna swimmers in Yogyakarta.

METHODS

This study was an experimental study with a quantitative descriptive approach. The research design used in this study was an experimental method using a 2x2 factorial design. Gazali (2016) states that factorial experiment is a design that can provide treatment/manipulation of two or more independent variables at the same time to see the effect of each independent variable separately and concurrently on the dependent

variables and the effects that occur due to the interaction of several variables.

The population in this study was all swimmers in the Tirta Taruna club Yogyakarta. While the population was 37 athletes registered in the Tirta Taruna club Yogyakarta. In this study, the sample was collected by random sampling technique. Random sampling is a sampling technique based on the ranking and determined by 27% of the upper group and 27% of the lower group of the test results.

The instruments used swimming speed tests and two hand medicine ball to measure arm power. It used two hand medicine ball test, which had a validity of 0.840 and reliability of 0.910 (Ismaryati, 2006).

Based on this, ten athletes with high arm power and ten athletes with low arm power were found. Furthermore, from each of the data, they were divided into two groups randomly, and respectively, five athletes were selected.

RESULTS AND DISCUSSION

The level of normality of data obtained through the data collection shows that A_1B_1 , A_1B_2 , A_2B_1 , A_2B_2 were from populations that had a normal distribution because the value of normal significance was greater than 0.05.

From the results of the Kolmogorov-Smirnov calculation using SPSS 20, it can be seen that the variable data was normally distributed as well as the training method and power variable were normally distributed. The results of this study provide further interpretation of the results of data analysis that have been stated.

Based on the hypothesis testing it produced two groups of conclusion analysis that there were significant differences between the main factors of the study, and there were significant interactions between the main factors in the form of two-factor interactions. The discussion of the results of the analysis can be further explained.

The hypothesis is that there was an interaction between the training methods and the power on the 100meter swimming speed of Tirta Taruna swimmers in Yogyakarta. Based on the analysis of the variance of SPSS 20, it turns out

that there was an interaction between the training methods and arm power on the 100 meter freestyle swimming speed, because the F_{value} was greater than F_{table} ($6.837 < 3.24$) and the significance is less than 0.05 ($0.00 < 0.05$) so it was accepted. This states that there was an increase in training and power methods and an interaction between training methods and power towards freestyle swimming speed in freestyle swimmers.

The low interval method and arm training were better for increasing the ability of the 100 meter freestyle swimming speed compared to the continuous training method and high arm power or the continuous training method and low arm power. It can be seen from the calculation of the mean value of 6.600.

This study provides further interpretation with the results of the data analysis that have been explained based on hypothesis testing resulting in two groups of conclusion analysis: (1) there were significant differences in the effect between the main factors of the study and (2) there were significant interactions between the main factors in the form of a two-factor interaction.

Each variable could make a difference in the effect on the results of gross motor skills, or in other words that the proposed hypothesis was valid. This was indicated by the results of the Anova that $F_{\text{value}} = 6.837$ and $F_{\text{table}} = 2.021$, which means that $F_{\text{value}} > F_{\text{table}}$.

The third hypothesis testing results show significant results between factor A (interval and continuous training method) and B (arm power) on the 100 meter freestyle swimming speed. The results related to the testing of the interaction hypothesis proved that there was an interaction between the type of interval and continuous training method with the arm power in its effect on the 100 meter freestyle swimming speed. Lekso (2013) states that the training method has a positive influence on increasing speed in swimming.

The obtained testing data explains that the training and power methods played a role to increase the 100 meter freestyle swimming speed of swimmers in tirta taruna yogyakarta. The training methods were divided into two: interval

training and continuous training. Both types of training had the same goal to increase the 100 meter freestyle swimming speed.

Skills are interpreted as a person's ability to do things that include all the tasks of skills, attitudes, values, and understandings considered as something important to support their success in completing tasks (Yanto, 2005). Skill level is closely related to the level of concentration, which means with good concentration. According to Mulyana (2013) concentration is a very important role in sports because if it is disturbed, there will be problems. Especially it will determine the accuracy of the right motion response as well. Thus, an information processing system is needed inside the player so that he can receive stimuli properly and answer them in the form of motion quickly and precisely.

In sports activities that require speed of movement. Because speed itself is a fast movement, speed is a movement that is done as short as possible. Malik, Putra, and Ifwandi (2015) states that speed is the ability to travel a certain distance, especially short distances.

Speed is affected by the reaction time, which is starting to listen to the signal until the first movement is carried out. One who has good speed and stays focused on the initial goals of the match will produce encouragement or motivation from within himself either from inside (internal) or from outside (external) (Muliarta, 2015).

Swimming is an aquatic branch that is included in the speed of action (movement) because swimming movements occur at the speed of movement of body parts such as hand and foot movement that takes place separately. When it is viewed from the structure of the movement phase and the characteristics of the speed of movement, the speed is included in the cyclic velocity because swimming has a movement amplitude and frequency. Therefore, a method that can increase cyclic speed is the interval method (Winarni, 2015).

According to de Araujo, Gobatto, Marcos-Pereira, Dos Reis, and Verlengia (2015) interval model training is more recommended for aerobic adaptation because the recovery period allows high-intensity implementation, and as a

consequence, a higher workload is carried out in continuous training.

What can be done by the trainer is that the trainer must provide an understanding of how important the training program is in the activities performed by athletes because all activities require appropriate methods so that the activities are finished quickly and precisely.

McKay, Paterson, and Kowalchuk (2009) states that interval is very important between training times. Interval provides an opportunity for athletes to recover between repetitive movements. Recovery is done after doing work or training with high intensity during training. Training with distributed practice methods can also be applied to increase freestyle swimming speed. Break time or interval is not a breakthrough time, but an important part of the skill training process. Break time between training times aims for recovery. With sufficient rest time between training times, it allows the athlete to recover and be better prepared to do the next work or practice.

CONCLUSION

Based on the results of the research and discussion described above, it can be concluded that: There was an influence between the training method and arm power on the 100 meter freestyle swimming speed in swimmers of Tirta Taruna Yogyakarta, the results show that there were significant differences in interval and continuous training method on the 100 meter freestyle swimming speed of swimmers of Tirta Taruna Yogyakarta, the application of the interval training method was more appropriate in increasing the 100 meter freestyle swimming speed.

If the group of athletes trained using the low power interval training method were compared with the group of athletes trained using the interval training method with high arm power, there were significant differences in the effect. The group of athletes who were trained using the interval training method with low arm power was better than the group of athletes who were trained using the interval training method

with high arm power, with a significance value of $0.000 < 0.05$.

Practical research results can be used as consideration for trainers, as well as swimming coaches in making appropriate training programs to increase the 100meter freestyle swimming speed. Thus, the training will be effective and will get results following the expectation of the coach.

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