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The Effect of Training Using Hand Paddles and Fins on Craw Swimming Speed at the SPC Swimming Club

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Article Info **Abstract**

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This study aims to determine the effect of training using hand paddles and fins on the crawl swimming speed of athletes from the ULMA Swimming Club. The study was conducted over a period of approximately two months at the Tanah Pata Swimming Pool in Bengkulu City, with a total of 16 training sessions. The research method used was an experiment, with a sample of 20 male athletes selected through purposive sampling, specifically athletes from age groups 4 and 5. The instrument used was a crawl stroke (freestyle) swimming speed test. Data analysis was conducted through analysis prerequisite tests, including normality tests, homogeneity tests, and hypothesis tests. The normality test results showed that the pretest and posttest data had a normal distribution, with Lhitung < Ltabel (0.112 < 0.190 for the pretest and 0.165 < 0.190 for the posttest). The homogeneity test showed that the data was homogeneous, with Fhitung = 0.78 < Ftabel = 3.52. From the data analysis, the correlation coefficient was found to be r = 0.93 and the determination coefficient was 85.63%, indicating that training using hand paddles and fins has a very strong influence on improving crawl swimming speed. Therefore, it can be concluded that this training program is effective in enhancing crawl swimming performance in young athletes.

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INTRODUCTION

Swimming is one of the water sports that is very easy for people to enjoy. This is because the place is easy to do and available in the community. Swimming has many benefits besides health, namely making the body healthy and as an activity to fill free time or recreation. Recreational swimming is often used by workers who want to relieve fatigue and relax. There are four types of styles that are competed in swimming, namely butterfly (butterfly), backstroke (backfree), breaststroke (breaststroke) and freestyle (freestyle). Freestyle by some people is called freestyle or freestyle. Freestyle is one of the swimming techniques. Because in every freestyle competition, almost all swimmers use the freestyle technique, freestyle is often called freestyle. Freestyle is the fastest style among other swimming styles.

Optimal swimming speed is the ultimate goal of the swimming training process. Various forms of training are used by coaches in the hope that their athletes' swimming speed can increase. The components that can increase swimming speed are the work of the coaches and strive for these components to be implemented in the training process. As we all know in all measurable sports including swimming, the components that can improve performance are the physical components (physical condition) and swimming technique components. Training is said to be effective if in the training process each element of training functions as a whole, athletes feel happy, satisfied with the results of the training, bring good impressions, materials and training methods from the teacher/coach. The main review of training effectiveness is its output, namely athlete achievement. Effectiveness can be achieved if all elements and components contained in the training process function in accordance with the goals and objectives set.

SPC Swimming Club is one of several swimming clubs in the city of Majalengka. Various achievements have been made by athletes who are under the auspices of this club. However, in the development of swimming sports that continues to increase, efforts are needed to maintain and improve the swimming achievements of its athletes, one of which is by implementing forms of training that are derived from scientific knowledge or training theory.

Based on the results of pre-observation research conducted by researchers at the Bengkulu City Swimming Club, beginner athletes experienced delays in increasing their freestyle swimming speed. The cause of the lack of freestyle swimming speed at the SPC Swimming Club is that the beginner athletes' swimming techniques are still not correct, and their arm strokes are not powerful enough. In their swimming technique, the ankle movements are still hitting the water instead of whipping in the water. So it only produces splashes of water instead of pushing water. Another cause is weak arm strokes because they do not have adequate arm power. For this reason, proper training is needed to improve leg movement techniques and increase arm power.

Freestyle swimming speed is also related to weight training. Lack of power in the stroke phase will reduce speed in the glide. Lack of power when paddling (in arm movements) will result in reduced speed. To increase freestyle swimming speed, weight training is also needed when swimming.

From the explanation above, the author has an assumption that to increase the speed of time, weight training is needed to train the quality of the strength of the hand and leg muscles. Weight training is using something outside the body to increase the dose of

training. To get good speed with freestyle, correct hand and foot strokes are needed. To train this swimming, a tool is needed, namely a hand paddle and fins swimming (frog legs). Swimming using this tool is one of the techniques that influences a freestyle swimming branch, especially for beginners. According to Bayu (2022:22) he said: "Teaching tools can also enhance the teaching of style techniques and maximize the influence of training".

So, with problems like this, researchers are interested in researching "The Effect of Training Using Hand Paddles and Fins on Craw Swimming Speed at the SPC Swimming Club".

METHODS

According to Budiwanto (2017:29) quantitative research or can also be called an experiment is a research method that allows researchers to manipulate variables and examine their effects. The independent variable is training using Hand Paddle and Fins while the dependent variable is swimming speed. The influence and level of relationship of these variables are important because by knowing the level of relationship that exists, researchers will be able to develop it according to the research objectives.

Participants

Athletes at SPC Swimming Club. The population in this study was 40 people. This type of sample uses the Purposive Sampling technique. The sample of this study was 20 male athletes at SPC Swimming Club.

Materials and Equipment

The research instrument is a crawl swimming speed test using hand paddle and fins. Where the crawl swimming speed test was compiled by Fahrur Rozi, et al (2015:24). While the assessment used is to see the results before using the hand paddle and fins and the results after using the hand paddle and fins.

Procedure

The initial step in this study was to determine a sample of 20 athletes. Then this sample was grouped by age, then a freestyle swimming test was carried out using hand paddles and fins which aimed to increase the freestyle swimming speed of SPC Swimming Club athletes.

Design or Data Analysis

1. Prerequisite Test

Before looking for the contribution between the swimming test using Hand Paddle and Fins (X) to the freestyle swimming speed (Y) of SPC Swimming Club athletes, a correlational statistical test was carried out. Before the correlational statistical test was carried out, a normality test and a homogeneity test were first carried out as prerequisite tests.

a. Normality Test

The normality test aims to determine whether the data distribution deviates from the normal distribution or not. Good and suitable data to prove the research models are data that have a normal distribution. The basic concept of the normality test with the Liliefor test.

Formula: $\mathbf{Z_i = \frac{X_i - \bar{X}}{S}}$

Information:

X_i = Data or values
$\bar{X}$ = Average (Mean)
S = Standard Deviation

Kriteria:

if Lhitung, < L table then accept Ho and reject Ha.

if Lhitung > L table then accept Ho and reject Ha.

Liliefor test is to compare the distribution of data to be tested for normality with the standard normal distribution. The advantage of this test is that it is simple and does not cause differences in perception between one observer and another, which often occurs in normality tests using graphs. The normality test is analyzed with the help of the Microsoft Office Excel program.

b. Homogeneity test

The homogeneity test aims to test the error of the experiment or experimental tool and test the linear model that has been taken. For that, in this regression linearity test, it will produce an independent test and a linear regression fit test. This is intended to test whether the correlation between the predictor variable and the criterion is linear or not. Regression is said to be linear if the calculated F value (observation) is smaller than the F table. In this study, the researcher used the help of the Microsoft Office Excel program.

c. Validation test

Validation Test was conducted to determine the contribution between swimming tests using Hand Paddle and Fins to the freestyle swimming speed of SPC Swimming Club athletes.

$$r_{xy} = \frac{N \sum xy - (\sum x)(\sum y)}{\sqrt{(N \sum X^2 - (\sum X)^2)(N \sum Y^2 - (\sum Y)^2)}}$$

Source : ((Hidayanti et al., 2013)

Information:

X = Predictor Variables
Y = Criterion Variables
N = Number of Pairs Score
$\sum xy$ = Sum of Scores x and y
$\sum x$ = Total Score x
$\sum y$ = Total Score y
$\sum X^2$ = Sum of squares Score x
$\sum Y^2$ = Sum of squares Score y
$(\sum X)^2$ = Sum of Scores x Square
$(\sum Y)^2$ = Sum of Scores y Square

information:

If r count > r table then the alternative hypothesis (Ha) is accepted.

d. T-test

T-test or t-test is a statistical method used to test hypotheses. The t-test can be used to compare means between two populations or groups.

$$t = \frac{r\sqrt{(n-2)}}{\sqrt{1-r^2}}$$

RESULTS

The results of the pretest of training using hand paddles and fins as aids on the speed of the crawl swimming style with a sample of 20 people showed that 2 people (10%) were in the sufficient category, 10 people (50%) were in the less category and 8 people (40%) were in the very less category.

The results of the post-test of training using hand paddles and fins on the speed of the crawl swimming style with a sample of 20 people showed that 4 people (20%) had a good category, 12 people (60%) had a sufficient category, 2 people (10%) had a less than adequate category and 2 people (10%) had a very poor category.

Tables & Figures

Table 1 Pretest Results and Posttest Results

Kategori	Pretest	%	Postest	%
Very Good	0	0	0	0
good	0	0	4	20
Adequate	2	10	12	60
poor	10	50	2	10
Very Poor	8	40	2	10
	20	**100**	**20**	**100**

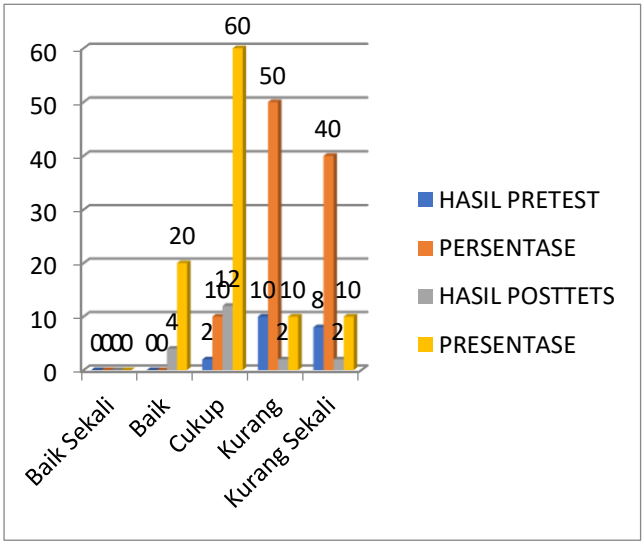

Table 1 Pretest Results and Posttest Results

DISCUSSION

The discussion in this study is to see the effect of training before using hand paddle and fins aids and after using hand paddle and fins aids on freestyle swimming speed. Where it can be seen the overall results of the normality data results show that the test results for the pretest of craw swimming speed using hand paddle and fins aids (X) score L. Calculate 0.112 with n = 20 while Ltable at a significant level of 5% or 0.05 is obtained 0.190. because L. Calculate is smaller than Ltable so it can be concluded that the scores obtained from the pretest are normally distributed and the results of the posttest of craw swimming speed using hand paddle and fins aids (Y) score L. Calculate 0.165 with n = 20 while Ltable at a significant level of 5% or 0.05 is obtained 0.190. because L. Calculate is smaller than Ltable so it can be concluded that the scores obtained from the posttest are normally distributed.

Then for the Homogeneity results show that the pretest results of the craw swimming speed using hand paddle and fins (X) obtained a score of 2.73, while the posttest results of the craw swimming speed using hand paddle and fins (Y) obtained a score of 3.49. So that the F count obtained using the Hevley F test obtained a score of 0.78. While for the F table value with a significance level of 5% or 0.05 is = 3.52 because F count (0.78) is smaller than F table (3.52) then it can be concluded that the score obtained for the craw swimming speed training using hand paddle and fins is Homogeneous.

CONCLUSION

Based on the results of statistical analysis, a correlation coefficient (r) of 0.93 was obtained, indicating a very strong relationship between training using hand paddles and fins and crawl swimming speed at the SPC Swimming Club. This r value is greater than the r table value at a significance level of $\alpha = 0.05$ with degrees of freedom (df) = 18, which is 0.443.

Furthermore, the t-test shows that the calculated t-value of 9.58 is greater than the t-table value of 2.10, indicating a statistically significant effect of training using hand paddles and fins on improving crawl swimming speed.

Additionally, based on the calculation of the coefficient of determination (K) of 85.63%, it can be concluded that training using hand paddles and fins contributes 85.63% to the improvement in crawl swimming speed. The remaining 14.37% is

influenced by other factors outside the variables studied.

Therefore, it can be concluded that training using hand paddles and fins significantly and strongly influences the improvement in crawl swimming speed among athletes at the SPC Swimming Club.

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