

The Influence of The Learning-to-Swim Method Using Fins and Swimming Boards on The Butterfly-Style Swimming Ability of SeaRIA Aquatic Athletes

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ABSTRACT

This study examines how SeaRIA Aquatic athletes' butterfly-style swimming proficiency is affected by using fins and swimming boards during the learning phase. Using a quasi-experimental methodology, the study concentrates on 55 SeaRIA Aquatic athletes. Twenty male athletes were chosen using purposive selection, and groups were created using matching strategies. A pretest, a 14-session therapy phase, and a posttest are all included in the study. The butterfly swimming ability test is used as the assessment instrument. The normality test (Liliefors) and the t-test with a significance level of $\alpha=0.05$ are used in data analysis. The results show a strong relationship between the fin-and-swimming board learning approach and the improvement of butterfly swimming skills in SeaRIA Aquatic athletes. The estimated t-value of 15.37 is more than the essential t-table value of 1.81, indicating that the observed influence is significant. These findings highlight how well fins and swimming boards can be incorporated into swim training regimens for SeaRIA Aquatic athletes, especially when mastering the difficult butterfly-style technique. The consequences of this study go beyond its local setting, providing insightful information to aquatic sports organisations, coaches, and trainers looking for evidence-based methods to improve their participants' swimming skills. This study adds to the current conversation about novel and efficient ways to maximise training plans and lays the groundwork for further research on water sports education and performance improvement.

Keywords: Fins; swimming board; Butterfly Style

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INTRODUCTION

Swimming is a sport that can make the body healthier and can make the nation proud. The sport of swimming has accompanied the history of primitive human life, where they had to be able to conquer nature. Swimming is one of the popular water sports and is loved by most people. One form of movement learning in physical education in elementary schools (SD) is swimming. Through swimming, children have the opportunity to know and understand their environment. Because swimming is a low-impact activity, it can be helpful for people with musculoskeletal, cardiovascular, or pulmonary issues. Preschoolers, among other age groups, have been the focus of research and development about the principles and techniques of swimming instruction (N. Dakal, 2022; Parahonko & Khimich, 2023; Zubko et al., 2023). Children



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also get the opportunity to move butterflies because, like it or not, they have to move all their body parts. The most important learning goal is the cooperation of the hands and feet to enter and jump into the water to create swimming movements.

Swimming has four styles, namely (1) breaststroke, (2) butterfly style, (3) backstroke, and (4) butterfly style, but in swimming lessons in elementary school, the butterfly style is studied; butterfly style is considered an easy style to learn. Butterfly swimming has quite complex movements and requires good hand and foot coordination. There are four different styles of swimming: freestyle, backstroke, butterfly style, and breaststroke (Zubko et al., 2023). Since the butterfly style is thought to be simple to learn, it is studied in primary school swimming instruction (N. A. Dakal, 2023). When doing the butterfly style, the body is positioned with the face facing the water's surface (Tian & Yu, 2023). It's a style where good hand-foot coordination is necessary (Cai et al., 2023).

In addition to approaches supported by friends without the use of tools, swimming boards and fins are employed in the instruction of swimming. The butterfly stroke is the most widely used in leisure and competitive swimming due to its speed. Research indicates that effective and interactive teaching techniques improve young people's life skills and development (Bayyat et al., 2016). Additionally, studies reveal that incorporating a swim board into swimming instruction might boost pupils' enthusiasm for learning how to swim freestyle (Sin & Hudayani, 2020). Moreover, research comparing the usage of swimming boards with friends' assistance in learning freestyle swimming has revealed that the former improves swimming speed (Priyo Wicaksono et al., 2022). Nevertheless, some research has also examined the biomechanical elements of swimming, including assessing active drag during swimming (Formosa et al., 2012) and employing machine learning techniques to replicate fish motions (Zhu et al., 2020). Lastly, research has also been done on how people with hearing problems might learn to swim using visual aids (Eid et al., 2023) and the use of deep learning techniques for the prediction of hydrodynamic data on a manta robot (Bai et al., 2022).

One of the swimming strokes used in swimming is butterfly swimming. Arm and leg motions must be coordinated and rhythmic for this type of swimming. According to several studies, HIIT and MST training combined for eight weeks can improve muscle strength, technique, and butterfly swimming performance by 3.5%. Furthermore, the load-speed profile can also predict and assess butterfly swimming performance (Amara et al., 2023; Gonjo et al., 2020).

Training using fins and swimming boards is an exercise in mastering sports techniques that are taught, starting from a series of easy movements to difficult movements. Do butterfly swimming leg movements, both hands holding the fins and swimming board in front. The arms, body, and legs are straight, and the source of movement of the legs is from the groin until the knees are not bent, but only bent when moving, until when moving the legs forward.

Butterfly-style swimming coordination in learning to swim uses fins and a swimming board, both hands holding the fins and swimming board, both legs straight, and the body floating on the water's surface; 1) do a sliding movement with both hands holding the board; 2) do 2, 4 and 6-foot strokes; 3) do a hand movement by removing your right hand from the board, then do a catch, pull, push, hand movement. 4) Take a breath when the hand is pulled back; 5) Then, the body recovers. When the hand touches the board, the left-hand makes the same movement.

METHODS AND MATERIALS

This type of research is included in quasi-experimental research. This research was carried out at the Lalang Market swimming pool, Kuranji. The population in this study was 55 SeaRIA Aquatic athletes; based on the population sampling using a purposive sampling technique, the research sample was only 20 male athletes. Sampling is according to the researcher's needs. The data used in this research is the butterfly swimming ability of SeaRIA Aquatic male athletes. The instrument used in the research was butterfly swimming ability before and after the learning process, while the instrument used was butterfly swimming ability. Data collected from the pretest and post-test results were analyzed using normality test statistics and a t-test. The following is the research design table:

Table 1. Research Design

Matching	Kelompok	Pretest	Treatment	Posttest
M	K1	T1	X1	T2

RESULTS AND DISCUSSION

Findings

To find out whether the data is normally distributed, a Liliefors test is carried out with the criterion of accepting the conclusion that the data is normally distributed if $Lo < L_{table}$ for $n=10$ with a significance level of $\alpha=0.05$. The following are the results of calculating the data normality test using the Liliefors test.

Table 2. Normality Test Results

Group	N	Lo	L _{table}	information
Posttest	10	0,1483	0.258	Normal

Description of the final data (posttest) on learning to use fins and a swimming board, obtained by the farthest distance of 15.9 meters, the closest distance of 9 meters, the average of 12.38, and the standard deviation of 2.42 according to frequency tabulation can be presented as follows:

Table 3. Frequency distribution of final data (posttest) for study groups using fins and swimming boards

No	K-i	Fa	Fr %
1	9.0-10.7	3	30
2	10.8-12.8	3	30
3	12.9-14.9	1	10
4	14.10-15.10	3	30
		10	100

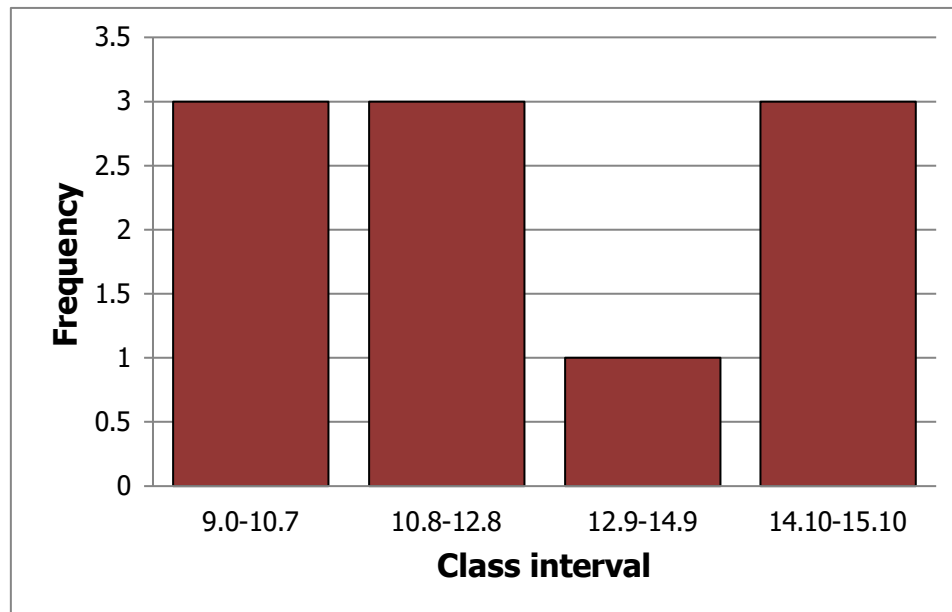


Figure 1. Histogram of posttest data using fins and swimming boards

Based on the results of pretest and posttest data calculations using the t-test for the study group using fins and swimming boards, the t-count was 15.37 and table 1.81, which means $t\text{-count} > t\text{-table}$. So, H_0 is rejected, and H_a is accepted. Thus, learning to use fins and a swimming board significantly influences the butterfly swimming ability of SeaRIA Aquatic athletes. At the significant level $\alpha = 0.05$.

DISCUSSION

To assess the normality of the data distribution in the posttest group, this study used the Liliefors test. The test results demonstrate that, at the significance level $\alpha=0.05$, the statistical value L_0 (0.1483) is less than the table's critical value ($L_{table} = 0.258$) for $n = 10$. Therefore, it may be said that the data distribution in the posttest group is roughly normal.

More specific information about the participants' accomplishments with the fins and swimming board is included in the final data description (posttest). The distance travelled was 12.38 metres on average, with a standard deviation of 2.42 metres, indicating the degree of fluctuation. According to a frequency distribution study, most participants (60%) attained distances between 9.0 and 12.8 metres, while the other 30% were dispersed equally throughout the other two intervals. Less variation was seen in the 12.9–14.9 metre range, which included 10% of all subjects.

In light of this, the participants performed quite consistently on the posttest, with most of them managing to get a fairly steady distance. While the normality test confirms the consistency of the data distribution, frequency distribution analysis offers additional insight into the distribution of accomplishments. These findings serve as a foundation for additional analysis and thought about learning how to use swimming boards and fins.

CONCLUSION

Learning to swim using fins and a swimming board significantly influences the butterfly swimming ability of SeaRIA Aquatic athletes. The findings of this study offer compelling

evidence that teaching swimmers to use fins and boards greatly enhances their ability to swim butterfly SeaRIA Aquatic athletes. Statistical study using t-tests and normality tests supports these conclusions. Therefore, training with fins and a swimming board greatly impacts how well SeaRIA Aquatic athletes can swim butterflies. The results of this study have implications for designing training regimens that enhance swimmers' abilities more successfully. However, more investigation is required to comprehend these findings' long-term implications and applicability to other athlete populations or training environments.

CONFLICT OF INTEREST

Author certify that there is no actual or potential conflict of interest in relation to this article.

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