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Fins Aids Increase Freestyle Swimming Speed

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ABSTRACT

The legs are lifted, resulting in weak leg strokes or leg thrusts in freestyle swimming. This study aims to determine how much influence the fins aids have on increasing the freestyle swimming speed of early childhood athletes at the Alpa Swimming Club, Ciamis Regency. Therefore, athletes are unable to maintain their speed or are inconsistent when performing freestyle swimming leg movements. This study uses an experimental method with a one group pretest-posttest design. The test results show that there is an influence of training using*fins*on the speed of 50-meter freestyle swimming to athletes of Alpa Swimming Club, Ciamis Regency. Hypothesis testing shows that the t-value is 5.45> t-table 1.81, so it shows that H0 is rejected and Ha is accepted, which means that there is a significant effect on increasing the speed of 50-meter freestyle swimming after being treated using fins.

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INTRODUCTION

The progress of sports today, especially in the field of swimming, shows significant development. This can be seen from the increasing interest of various groups, from toddlers, children, adults, to the elderly, each of whom has their own goals and reasons for getting involved in this sport. According to Pratiwi (2015) "swimming is a very fun sport and is suitable for anyone regardless

of age. Swimming is one of the sports that can be taught to children and adults, even babies a few months old can start to be taught".

Swimming is a fun activity to do in the water and can be an ideal recreational choice during free time. According to (Haller, 2015) said that "Swimming is a sport that can be enjoyed during free time and is healthy for the body because almost all the muscles of the body move so that all muscles develop rapidly and the swimmer's strength increases". Swimming has experienced a lot of progress and development in accordance with various goals, both to maintain health and fitness, recreation, and achievement. Swimmers who undergo sports training focus on efforts to achieve the best performance, where success in swimming is determined by swimming speed. According to Solihin and Sriningsih (2016) explained that "Swimming is part of a water sport that requires athletes to make effective and efficient movements, this is because this sport requires maximum speed to produce the best time record to finish".

In the sport of swimming, there are several styles that are quite popular and always appear in competitions, including freestyle, breaststroke, backstroke, and butterfly. This is in accordance with Arhesa, S. (2020) "swimming is divided into several types of movements or styles, namely crawl (free), breaststroke (frog), backstroke, and dolphin (butterfly)". Of the four styles, the topic of discussion in this study is freestyle. Freestyle swimming resembles the swimming style of an animal, therefore it is also called the crawl style which means crawling. In sports terms, swimming is also called freestyle (Murni, 2000).

When discussing freestyle swimming, the speed factor becomes an inseparable thing because it plays an important role in supporting swimming ability. As stated by Hastuti (2009) Freestyle is the fastest style of all swimming styles that are competed and one of the first styles that must be taught to beginner swimmers.

Speed is a person's ability to perform continuous movements in a very short time. This is in accordance with Harsono (2018) "speed is the ability to perform similar movements in succession in the shortest possible time". So speed is a person's ability to perform continuous movements in the shortest possible time. In addition to athletes having mastered effective and efficient swimming techniques, to achieve maximum speed, of course athletes must also be supported by exercises that can help achieve speed.

Training is certainly very important to improve the physical condition or fitness of an athlete. According to Harsono (2018) "training is a systematic process and training that is done repeatedly, the training increases day by day". Therefore, to achieve optimal speed increases, training activities must be carried out systematically, gradually and repeatedly by increasing the load every day. In addition to training swimming techniques, athletes must also be

supported by exercises that can improve the performance of arm and leg movements with the aim of increasing speed when swimming.

According to Spanton & Joesidawati (2024) stated that "Leg movements in the crawl style are the main source of forward propulsion. In fact, most swimmers consider it to be the sole source of forward propulsion". This is confirmed by Arhesa (2020) that to increase swimming speed must be trained with leg movement exercises, and to achieve maximum speed in the legs using six stroke rhythms according to swimmers who use the closest distance or sprinters. So to achieve maximum speed in freestyle swimming using six leg stroke rhythms because you have to cover the distance by producing the best time.

Alpa Swimming Club is one of the swimming athlete associations in Ciamis Regency which was just established in 2023. Based on the facts in the field that researchers observed and the results of interviews with coaches, there is a problem with early childhood swimmers at Alpa Swimming Club, namely there are errors in the freestyle leg movement technique as evidenced by when practicing, the legs are lifted up resulting in weak leg strokes or leg thrusts when swimming freestyle. Therefore, athletes are unable to maintain their speed or are inconsistent when doing freestyle swimming movements. Based on Rahmani's opinion, (2017) "Leg movements in swimming are one of the sources of driving force, so that the movements made without breaking will produce fast speed". Therefore, weaknesses such as weak legs and stiff ankles can inhibit speed in swimming.

Ankles that are not flexible enough will reduce the effectiveness of the push because the optimal action-reaction is not achieved. To improve ability, a structured training program is needed. In advanced swimmers, there is often a delay in mastering the speed of freestyle leg swimming. One of the factors that affects speed is strength and flexibility, therefore freestyle swimming requires optimal strength, especially in the legs, requiring leg muscle strength and leg muscle flexibility that are trained according to the needs to perform the push (Pradana & Aji, 2018). Thus, the physical condition of the athlete can be said to be still very lacking. According to Aji Firmansyah (2017) "the physical components that must be possessed by a swimming athlete are strength, endurance, explosive power, and speed". Therefore, to be able to improve the physical condition of athletes, training must be held, this training can use aids.

In swimming training, aids are very necessary to support the training process in order to achieve maximum results and achieve the desired goals. Alnendra (2016) explains that learning aids are means and facilities, both hardware and software to support the optimization of learning activities that can be used by educators to facilitate, make effective and efficient efforts to achieve educational goals. Therefore, aids play a very important role and are very helpful in the training process, aids or media can be used or utilized for training variations and are able

to provide optimal results when the aids or media are used properly according to needs. Efforts that can be made to be able to do the thrust at the speed of freestyle leg swimming using aids are by using fins.

*Fins*or fins are swimming aids that are specially designed to increase propulsion during swimming training. This tool is also useful for training ankle flexibility and is generally made of rubber. Octavianno (2025) that "Fins or fins are tools that are created to give strength to the legs and increase paddling power". So the feet that use fins make the leg strokes heavy because they are not used to using the aids, indirectly this will train the strength of the leg muscles and the swimmer's endurance. This is in line with the opinion of Febrianto (2019) "The use of swimming fins is also related to improving physical fitness (physical condition). Feet that use swimming fins will make the leg strokes heavy. in this paddling movement will use large leg muscles. Indirectly this will train the strength and endurance of the swimmer. By using large muscles in the legs, you will get good benefits in the cardiovascular system burning lots of calories and increasing your physical fitness level". Therefore, by using fins, swimmers can train the strength of their leg muscles and can increase the speed of their freestyle legs.

According to NAEYC (National Association For The Education Of Young Children) early childhood is a child who is in the age range of 0 to 8 years who receive educational services in kindergarten, child care, pre-school education and elementary school (Mulyasa, 2005). In this study in accordance with what was expressed by Harsono (2015) that "Exercise for children should not make them feel pressured, or feel too heavy (stressful). Therefore, do not give them high intensity exercise, just enough to medium".

Based on these problems, the researcher took the initiative that to increase speed, it is necessary to use aids that can strengthen muscles and produce increased speed. The aids are fins. The use of this aid aims to train muscle strength and ankle flexibility, so that it can increase swimming speed. By using fins, the author hopes to help increase the speed of freestyle swimming in early childhood swimmers at the Alpha Swimming Club in Ciamis Regency to experience changes and improvements.

METHOD

The research method is the systematic steps used in a study to collect, analyze, and interpret data, with the aim of answering research questions or testing hypotheses. This is in line with Sugiyono's statement (2017) which states that "Research Methods are a scientific way to obtain data with certain goals and uses". To test the hypothesis that the author proposed in this study, the method used by the researcher is a quantitative experimental method by testing fins aids on increasing freestyle swimming speed. This method was chosen based on the consideration that experimental research aims to test something in order to understand the impact or effect of a treatment. In addition, the author also wants to know the effect of independent variables

on the dependent variables studied or observed. The character of the research conducted by the author is in line with Sugiyono's opinion (2017) "the experimental research method is a research method used to find the effect of certain treatments on others under controlled conditions". This will clarify how the causal relationship between the variables to be studied. This experimental method is used to determine the results of the effect of training using fins aids on freestyle leg swimming speed in advanced swimming.

This research requires a research design so that it can be carried out systematically and run smoothly. According to Sugiyono (2017) "there are several forms of experimental design that can be used in business research, namely: pre Experimental Design, True Experimental Design, Factorial Design, and Quasi Experimental Design".

In this study, the research design used is the pre-Experimental Design model. According to Sugiyono (2017) "it is called pre-Experimental Design, because this design is not yet a real experiment. Why? because there are still external variables that influence the formation of the dependent variable". In this study, the researcher used the second pre-Experimental Design model design, namely the One-Group Pretest-posttest Design, this design contains a pretest before being given treatment. Thus, the results of the treatment can be known accurately, because it can be compared with the conditions before being given treatment. This design can be described as follows:

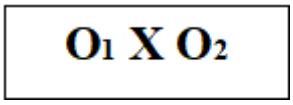

Figure 1. Research Design
Source: Sugiyono (2017)

RESULTS

Hypothesis testing aims to prove whether the hypothesis proposed in this study is accepted or rejected. To prove the truth of the proposed hypothesis, the t-test is used, the results of the t-test can be seen in the table below.

Table 1. Hypothesis Testing Results

Variables	T-value	The value of ttable on a = 0.05 (11)	Results
Initial Test	5.45	1.81	Significant
Final Test			

So from the calculation results obtained tcount = 5.45 and ttable at a = 0.05 and dk = N-1 = 10-1 = 1.81. This means tcount > ttable and is in the rejection area H0 and the working hypothesis (Ha) is accepted. So it can be concluded that there is a significant effect of training using fins on increasing the speed of 50-meter freestyle swimming applied to athletes of the Alpa Swimming Club, Ciamis Regency.

DISCUSSION

Based on the results of the research and data analysis that have been presented in the previous sub-chapter, it shows that the training method using fins can increase freestyle swimming speed, this is influenced by several factors in its increase, including the use of appropriate training principles, the quality of freestyle swimming training carried out, and factors from training using fins itself. The training principles used in this study are the principle of overload, the principle of individualization, the principle of training quality, and the principle of training variation. In this study, the training load was increased so that the training carried out could improve quality, in accordance with Harsono's opinion (2017) by implementing a ladder system or often with a wave system. In its application, namely by adding sets according to the training program that has been prepared. The principle of individualization is applied to ensure that each athlete gets training that suits their physical condition and needs. Furthermore, the principle of training quality emphasizes the importance of quality over quantity. In this case, training using fins is carried out with full awareness of technique and speed, without rushing to increase freestyle swimming speed. Finally, the principle of training variation is used to create variation in training, so that athletes do not feel monotonous and can develop their abilities. In this study, the variations used include variations in the combination of kicking, pulling, and sprint drills. These variations are also applied in training using fins, where athletes are given fins to develop their abilities. In this study, the variations used include variations in kicking, pulling, and sprint drills.

In addition to the training principles that have been discussed, another factor that influences the effectiveness of training using fins is the quality of the freestyle swimming training itself. This is in line with the opinion of Totong Umar et al., (2024) "To increase freestyle swimming speed,

proper training is needed". In this study, freestyle swimming training was carried out using a drill method with varying levels of difficulty. Each drill is designed to increase freestyle swimming speed. According to Malik & Is (2024) "drill training techniques are effective in increasing freestyle swimming speed". This is in accordance with this study which uses the drill method to increase freestyle swimming speed. Furthermore, Bompa & Haff (2019) in (Malik & Is, (2024) said that increasing freestyle swimming speed can be explained through several mechanisms. First, "drill training allows students to repeatedly practice freestyle swimming movements with the correct technique. Through repetition, students can strengthen movement patterns and increase movement efficiency, so they can swim faster. Second, drill training can also increase the strength of the muscles involved in freestyle swimming, such as the arm, shoulder, and leg muscles. The quality of freestyle swimming training provided also includes varied exercises, from kicking, pulling, and sprint drills. The quality of this good freestyle swimming training, combined with training using fins, has a significant impact on increasing freestyle swimming speed, because both support each other in improving the athlete's technique and speed.

The last factor that greatly influences the results of this study is the fins training factor itself. To improve the performance of freestyle kicks, it is suspected that training using fins can affect the speed of freestyle swimming with the use of the right equipment can help and produce a maximum training process. This is reinforced by the opinion of Solihin & Sriningsih (2016) "swimming has a relatively high and complex level of movement mastery so that teachers or trainers carefully maximize the use of media in the learning process or swimming training". This fins training is designed to provide strength to the legs and increase paddling power. This is in accordance with the opinion of Octavianno (2025) that "Fins or frog legs are tools that are created to provide strength to the legs and increase paddling power". So the legs that use fins make the leg strokes heavy because they are not used to using the equipment, indirectly this will train the strength of the leg muscles and the swimmer's endurance.

The use of aids must of course be in accordance with the objectives to be achieved, the use of appropriate aids has been proven to provide improvements to the training process, so the selection of media or aids must be done by considering the criteria and objectives. This is explained by Alnendra (2016) explaining that "learning aids or also called learning media are as means and facilities, both hardware and software to support the optimization of learning activities that can be used by educators to facilitate, make effective and efficient efforts to achieve educational goals".

The selection of this fins aid aims to increase the speed of 50-meter freestyle swimming. When practicing using fins, athletes perform freestyle swimming movements in place for a predetermined time, athletes are also required to continue to perform freestyle swimming

movements correctly and achieve the predetermined training intensity. Training using this aid also makes athletes feel more challenged, because in the process the time that must be taken by the athlete will be increased again, besides that they have to fight all the existing resistance will be heavier so that the leg kick will be stronger. For swimmers who have weak leg strokes, their legs are usually lifted up so that the swimming speed cannot be fast, so with these fins their legs will always be kept in the water and help the body in an average water position (streamlined position). According to Febrianto (2019) legs that use swimming fins will cause the leg strokes to become heavy. in this stroke movement will use large leg muscles. Indirectly this will train the strength and endurance of the swimmer.

Unlike training without using fins, training will be lighter because there is no load or resistance when doing the exercise. Swimming training without using aids can have a boring effect on swimmers and also the training program is less varied. The use of aids in the world of swimming is expected to be a solution in efforts to improve and increase the speed of athletes. So that various training programs for athletes can be implemented without experiencing obstacles. Overall, the combination of appropriate training principles, good quality freestyle swimming training, and training using effective fins can increase freestyle swimming speed.

From the explanation of the three factors that affect the results of training using fins to increase freestyle swimming speed, this is similar to the results of previous studies with the difference that using one of the aids. Research conducted by Puspita (2017) stated that training using fins and paddles can increase the speed of 50-meter butterfly stroke KU IV & V at the Yogyakarta Dash Club. It turns out that this study proved that other swimming styles such as freestyle can also be increased. So this method can be used as an effective training strategy in increasing freestyle swimming speed, especially for Alpa Swimming Club Ciamis athletes.

CONCLUSION

Based on the results of the research that has been carried out and the hypothesis testing using a statistical approach, the author can conclude the research results as follows: "training using fins has a significant effect on increasing the speed of 50-meter freestyle swimming in early childhood swimmers at the Alpa Swimming Club, Ciamis Regency".

The truth of the hypothesis test results is supported by research data using the t-test which shows that the sample is normally distributed and homogeneous. The results of the t-test in this study obtained a value of t count > t table. So this means that training using fins is effective in increasing the speed of 50-meter freestyle swimming.

The limitations of this study are the availability of facilities and infrastructure to be used, so that during the implementation it takes a long time. In addition, this study still lacks references regarding the use of these aids.

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