Proceedings Series on Proceedings of Multidisciplinary Sciences, Volume 1, No. 1
International Conference of Business, Education, Health, and Scien-Tech (ICBENS)
ISSN: -

Effectiveness Of Training Methods In Improving Finswimming Skills For Beginner Athletes

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Abstract

The aim of this research is to determine the effectiveness of the training model used in improving finswimming skills for beginner athletes. Forty beginnerfinswimming athletes aged 16-19 years participated in this study. Participants were beginner athletes who had just learned finswimming but had average swimming abilities. Treatment was given in the 25m swimming pool at Bujana Tirta, East Jakarta. Small trials and large trials were carried out to ensure that the training method was suitable for beginner athletes. The training methods provided include body position training models, leg movement training models, arm movement training models, breathing movement training models, and coordination training models. Each exercise model is carried out on land and in the swimming pool. There are thirty-six training methods given to beginnerfinswimming athletes after being validated by test and measurement experts, finswimming training material experts, and biomechanics experts. The research results for the treatment group showed a figure of 76.2456% which was included in the effective category, and the control group was only 28.1746% and was included in the ineffective category.

Keywords: Training model; finswimming; beginner athlete.

1. Introduction

Finswimming is a development of the sport of swimming which is carried out on the surface or under water using one fin (monofin) or two fins (bifin), in this sport competition it uses the muscle strength of the swimmer [1], [2]. Eventhough this sport uses fins, the power of the movement must use the athlete's muscles. There are several competition numbers in the sport of finswimming, including surface finswimming, apnoea finswimming, immersion finswimming, bi-fins and finswimming in open water [2]. Seeing the potential for competition numbers and the development of this sport in the world, several swimming clubs in Indonesia have trained young athletes in these events. The development of young athletes in finswimming is the main goal to improve future achievements. Coaches can design good training programs by adjusting the abilities of each athlete through anthropometric and physiological profiles, [3] and good physical condition profiles [4] to support technical performance during training and in competitions.

Like the other sports, finswimming is also determined by strength, speed, agility, endurance, flexibility and balance [5], [6]. Body flexibility and joint proprioception are two aspects that are carefully determined in determining the identification of diving athletes [7]. Therefore, in finswimmingeach part of the body has an important role in the effectiveness of the movements carried out, especially the legs. It is important to know an athlete's physical condition for proper treatment to obtain maximum performance [8].The training program must be well planned and systematic and aimed at improving physical fitness and the functional capabilities of the body systems. [9]This increase allows athletes to achieve good performance. In the sport environment, studies of motor learning and motor behaviour have so

far paid little attention to the interaction between prior knowledge and incoming information. All technique correction methods used by coaches today rely on practice and repetition of correct performance during training [10]. The emphasis on this method comes from the assumption that only neurobiological factors underlie motor learning, and cognitive factors have no influence.

However, it does address performance difficulties and technique errors when athletes switch sports [11]. Coaches also note that while practice is valuable and necessary for learning new skills, it is not enough, especially when athletes are asked to modify existing, well-practiced and automatic skills [12]. Athletes often appear to improve their performance during daily training, but forget what they have learned when they are not paying attention, such as during a race. Tested using an open-ended questionnaire, whether the understanding and structure of the motor-cognitive representation of finswimming techniques in long-term memory depends on the level of expertise or previous knowledge [12], [13]. They found that even advanced athletes' answers about flipper swimming technique had elements created from butterfly and flipper swimming strokes in everyday practice. The fundamental difference between advanced and beginner athletes is that advanced athletes are aware of the coach's use of different training models, but are not aware of the effects between previous training methods in butterfly stroke and fin swimming information. This is the basis for this research to obtain the effectiveness of the training methods applied for beginner finswimming athletes.

2. Methodology

Participant; Forty beginnerfinswimming athletes aged 16-19 years participated in this study. These participants were beginner athletes who had just learned finswimming but had average swimming abilities. **Procedure**; Treatment was given in the 25m pool at the Bujana Tirta swimming pool, East Jakarta. Small trials and large trials were carried out to ensure that the training method was suitable for beginner athletes. The training methods provided include body position training models, leg movement training models, arm movement training models, breathing movement training models, and coordination training models. Each exercise model is carried out on land and in the swimming pool. There are thirty-six training methods given to beginnerfinswimming athletes after being validated by test and measurement experts, finswimming training material experts, and biomechanics experts. Twenty athletes in the experimental group were treated with training methods that had been prepared by the researcher for sixteen meetings with the level of movement difficulty adjusted to the meeting, twenty athletes were in the control group who were not given any treatment by the researcher. Each group (experimental and control) was given a pre-test and a post-test at the end of the meeting. The results of the initial test and final test were analyzed using the N-Gain test and T test to determine the level of effectiveness of the training method provided.

3. Result and Discussion

Based on small group and large group trials that have gone through a product revision of the training method, the effectiveness test is continued. The effectiveness test results can be seen in the following table:

Table 1. Results of testing the effectiveness of training methods

	Statistic	Mean	Std. Error	Interpretasi
NGain_Percent	Eksperiment	76.2456	1.19159	Effective
	Pretest	64,35		
	Posttest	91,55		
	Control	28.1746	1.69990	Ineffective
	Pretest	68,50		
	Posttest	77,45		

From table 1 it can be seen that the pretest and post-test mean for the control group was 68.5 and 77.45. Meanwhile, the treatment group was 64.35 for the pretest and 91.55 for the post-test. The average N-gain for the Treatment group shows a figure of 15.23, which means it has a high interpretation. The difference in the control group was 5.61 with a low interpretation. Meanwhile, the N-gain score (%) of the treatment group showed a figure of 76.2456% which was included in the effective category, but the control group was only 28.1746% and was included in the ineffective category.

However, the difference in the average pre-posttest and N-gain results is not enough to conclude that the athlete's skill level has increased significantly. To answer this, a paired sample test was carried out using SPSS 26.0 for window which was preceded by a normality test using Shapiro Wilk in SPSS 26.0. The following is a table of normality tests in the Treatment and Control groups.

Tabel 2. Normality Test Groub Treatment and Control

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
NGain_Percent	Class	Statistic	df	Sig.	Statistic	df	Sig.
	Eksperiment	.180	20	.087	.931	20	.165
	Control	.109	20	.200*	.976	20	.867

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

The normality test results of the pre-test and post-test data shown in the table above have a p-value of sig. 0.165 for the experimental group (treatment) and 0.867 for the control group. The Shapiro Wilk test shows > α=0.05, meaning the data is normally distributed. The normality test of the pre-test and post-test of the control group has a p-value of sig. 0.165 and 0.867, both of which indicate more than α=0.05, meaning that both data are normally distributed.

The training model is a form of manipulation prepared to achieve the objectives of the training itself. The training model is a continuous long-term process and changes continuously, because the training model will develop in relation to the athlete's development [14]. Apart from that, training can be said to be a process of perfecting the ability to exercise with a scientific approach, using the principles of planned and regular training, so as to increase the readiness and ability of athletes [15]. Other research states that training is a systematic process of training that is carried out repeatedly with increasing amounts of training load and intensity over time [16]. Therefore, the physical literacy development process must be planned in an appropriate development program, especially in the concept of multilateral movement and specialization. This form of development can be done with 4 training classifications, namely learning, repetition, skill perfection, and assessment. The training model applied is systematic. Systematic means that training is carried out regularly, planned, according to a schedule, from simple to more complex, from easy to difficult, from

light to heavy. Then doing it repeatedly means that the movements being learned must be done repeatedly, so that movements or techniques that were previously difficult to do become easier, coordinating movements that are still stiff become easier, and become automatic in their implementation. Movements become better, less stiff so they are more efficient. It is the duty of coaches to explore and improve the full potential of their athletes, both individually and as a group, therefore coaches are required to be serious and diligent. Beginning athletes need to learn how the knowledge gained does not inhibit conflicting information [17], to overcome incorrect responses and perform correct movements [11]. From a practical perspective, coaches, test and measurement experts, and biomechanics experts technique errors for beginner athletes need to be corrected through comprehensive movement methodology and analysis [11], [18].

4. Conclusion

Based on the test results, it can be concluded that the training method for beginner finswimming athletes is suitable and effective in improving finswimming skills. Training methods have their own characteristics and are very varied and can be used by beginner athletes.

5. Reference

[1] K. Oshita, M. Ross, K. Koizumi, T. Tsuno, and S. Yano, "Gender difference of aerobic contribution to surface performances in finswimming: Analysis using the critical velocity method," *Asian J. Sports Med.*, vol. 4, no. 4, pp. 256–262, 2013.

[2] CMAS, "CMAS Finswimming Rules Index," 2024.

[3] S. Bahri, D. Resmana, and I. Safei, "A comparison of anthropometry and physiological characteristics," vol. 7, no. 1, pp. 124–135, 2021.

[4] O. N. Moskovchenko, I. A. Tolstopyatov, E. V Redi, V. V Ivanitsky, and L. V Zakharova, "World records in finswimming sport: Growth profiling analysis," *Theory Pract. Phys. Cult.*, no. 3, p. 26, 2019.

[5] A. W. N. Sodikin, S. Suranto, and L. Wicaksono, "Pengaruh Latihan Melompat Dengan Satu Kaki dan Leg Squat Terhadap Kecepatan Tendangan Samping," *JUPE (Jurnal Penjaskesrek)*, vol. 6, no. 4, 2018.

[6] L. Wicaksono, T. Sardianto, and D. D. P. Utama, "Pengaruh latihan pencak silat menggunakan beban dempel terhadap kecepatan tendangan depan pesilat di padepokan PSHT cabang Lampung Barat," *J. Kejaora (Kesehatan Jasm. Dan Olah Raga)*, vol. 5, no. 2, pp. 47–52, 2020.

[7] I. Mujika, "Quantification of training and competition loads in endurance sports: methods and applications," *Int. J. Sports Physiol. Perform.*, vol. 12, no. s2, pp. S2-9, 2017.

[8] F. Rizkia, "HUBUNGAN STIFFNESS MONOFINS DENGAN KICK FREQUENCY DAN VELOCITY PADA NOMOR 100 METER SURFACE FINSWIMMING." Universitas Pendidikan Indonesia, 2021.

[9] K. Dedi and J. Arwandi, "Tinjauan kondisi fisik atlet renang club tirta kaluang padang," *J. Patriot*, vol. 2, no. 1, pp. 111–119, 2020.

[10] T. Tutko and J. W. Richards, "Psychology of Coaching, Boston," *Mass. Allyn, Bacon*, p. 49, 1971.

[11] Y. Hanin, T. Korjus, P. Jouste, and P. Baxter, "Rapid technique correction using old way/new way: Two case studies with Olympic athletes," *Sport Psychol.*, vol. 16, no. 1, pp. 79–99, 2002.

[12] M. Koulianou and S. Vosniadou, "Effects of Incompatible Prior Knowledge in Butterfly Style on Understanding Finswimming Style," *Science (80-.).*, vol. 5, pp.

121–152, 2006.
[13] M. Koulianou and S. Vosniadou, "Experts and Novices in Fin Swimming: A Cognitive Analysis of Sport Behavior," in *Proceedings of Eurocogsci 03*, Routledge, 2019, p. 409.
[14] J. Lubis, *Panduan Praktis Penyusunan Porgram Latihan*. Jakarta: PT. Raja Grafindo Persada, 2014.
[15] K. L. Eagleson, "The Ingredients of Healthy Brain and Child Development," *J. Mot. Dev.*, vol. 57, 2018.
[16] Widiastuti, *Tes dan Pengukuran Olahraga*. PT RajaGrafindo Persada, 2015.
[17] S. Vosniadou, "Exploring the relationships between conceptual change and intentional learning," *Intentional Concept. Chang.*, pp. 377–406, 2003.
[18] D. Collins, C. Morriss, and J. Trower, "Getting it back: A case study of skill recovery in an elite athlete," *Sport Psychol.*, vol. 13, no. 3, pp. 288–298, 1999.