

Open Access Article

The Effect of Handstand Exercises on Entry Results in Diving Athletes, South Sumatra

Kevin Octara*, Soegiyanto, Tjepjep Rohendi Rohidi, Sulaiman

Universitas Negeri Semarang, Indonesia

Abstract: The purpose of the research is to identify the influence of handstand exercises on the entry results of South Sumatra diving athletes. Entry is one of the techniques in diving that is important in the final completion of a jump. The local diving athletes have weaknesses in entry techniques; therefore, it takes practice to improve the ability of entry techniques. The research population of diving athletes who actively exercised numbered ten people, and all athletes were sampled using purposive true experimental methods with one group pre-test. Research Site was located at Jakabaring Sport City Aquatic. The research was conducted during 16 meetings. The results of this study show that handstand exercises are very effective in improving entry movement. The statistical tests resulted in t-values -7,739, $df = 19$, and p-value $0.00 < 0.05$, which means there is a significant difference in the influence on the athletes' entry results before the treatment and after the treatment. Thus, it can be concluded that handstand exercises influence the results of entry or, in other words, handstand exercises are effective in improving the ability of entry.

Keywords: handstand, entry, diving.

倒立练习对南苏门答腊跳水运动员入围成绩的影响

摘要: 研究的目的是确定倒立练习对南苏门答腊潜水运动员的入门成绩的影响。进入是跳水技术中的一种,对于最终完成跳跃很重要。本地跳水运动员在入门技术上存在弱点;因此,提高入门技巧的能力需要练习。积极锻炼的跳水运动员的研究人群为 10 人,所有运动员均采用有目的的真实实验方法进行抽样,一组预测。研究地点位于雅卡巴林运动城水上运动。该研究是在 16 次会议期间进行的。这项研究的结果表明,倒立练习在改善入门运动方面非常有效。统计检验得到 t 值-7739, $df=19$, p 值 $0.00 < 0.05$,说明治疗前后对运动员入围成绩的影响存在显著差异。由此可见,倒立练习对入门的结果有影响,或者说,倒立练习对提高入门的能力是有效的。

关键词: 倒立, 入门, 潜水。

1. Introduction

Aquatic is a sport that is entirely done in the swimming pool. Aquatic sports consist of swimming, beautiful swimming, diving, water polo, and open swimming. One of the branches of sports aquatic is diving. Diving was first discovered in Europe and began to become a competitive sport in the UK in 1905. Diving is a plunge into the pool [1]. It is now known as an individual and team competition sport (consisting of two people) with separate matches

between men and women. Diving can be done from platforms and springboards. Diving consists of a jump that starts from a takeoff step or reflection, then goes into the water. Diving as a sport in modern regions has its origins in Germany and Scandinavia in the 18th and 19th centuries [2]. Still, the thrill of throwing yourself from head-first height into the water has a long history.

Diving is done individually, and the culprit is called a jumper. Each jumper determines the movement that will be performed in the air from the height of the board or tower and displays one of the simple

Received: March 22, 2021 / Revised: April 20, 2021 / Accepted: May 25, 2021 / Published: June 28, 2021

About the authors: Kevin Octara, Soegiyanto, Tjepjep Rohendi Rohidi, Sulaiman, Universitas Negeri Semarang, Indonesia

Corresponding author Kevin Octara, Kevin_octara@students.unnes.ac.id

movements of falling by hand touching the water or feet before entering the water. Diving movements include jumping movements performed from platforms and springboards. Springboard diving techniques can include roads, steps, takeoffs, aerial action, and into the water [3]. Jumping into the water is classified into two kinds: jumping with hands first getting into the water and jumping with feet first getting into the water.

The diving technique is a combination of gymnastics techniques and the art of body flexibility. Although it looks difficult actually, diving techniques can be learned by everyone, and all that must be needed to learn Diving techniques is a strong will, courage (not afraid), and of course can swim. South Sumatra has a diving training center located in Palembang city. The training ground in Jakabaring Aquatic has an international standard size and has special facilities for land training for diving. The training is conducted from Monday to Friday.

In the sport of diving, the most important thing is the entry movement. Entry is a movement that aims to make holes in the water to avoid water breaking or water soaring. The position of the body is the hand touching the water first [4]. Entry movement can be said to be the most important movement because this movement determines the results that the jumper will obtain.

Based on observations at the time of the exercise activities, many athletes perform entry movements. But athletes have many difficulties; they have difficulty in locking the legs, locking the waist, locking the abdomen, locking the pelvis, and shrinking the pliers. To get a good result, the body position must be straight vertically, and the body from the tip of the hand to the toe must be strong. According to the diving coach Adi Wahyuono, the shortcomings of the athletes in south Sumatra is only the entry movement; this is due to the lack of training from the entry movement itself. The entry movement is said to be good when entering vertical decay and splashes of water that do not exist. To produce a good entry movement required strong arm muscle strength, then it takes a workout in line with the activity entry, namely handstand movement. A handstand is the ability to maintain the body by resting on both arms. The principles that need to be considered in teaching handstands to diving athletes include: in warming, pressure on the hands in a straight state need to be much-reduced [5]. The handstand movement technique is to squat in a high place, place the palm below. Lean forward so that the weight is entirely on the hands. According to Sayuti Sahara [6], from the ends of the feet, body, shoulders and both hands are straight lines perpendicular to the floor. The requirement in performing this handstand movement is adequate physical preparation on the upper body, which is a requirement to display the correct handstand. Because the position is very important in the development of gymnastics at a later stage, certain

steps are necessary to perform these basic skills properly. Thus, the jumper must develop posture from the orientation of the pelvis, head, and shoulder bracelet in a state of standing and lying down.

Activities handstand movement requires an explosive force for the muscles to stretch quickly to obtain explosive handstand movement with strength. This can be found at any phase or stage of movement in doing a handstand with strength, which will result in the diving athlete's body moving easily. Based on the description above, it can be concluded that handstand is very influential in apply produce entry in diving athletes.

2. Method

The Quantitative Research method was used with quasi-experimental analysis techniques because it is based on the philosophy of positivism. This study aims to determine how much influence variable X (Exercise Handstand) with variable Y (Entry Result). In this study, the data obtained through measurement tests against all variables. The population of this study is Diving athletes who number 10 people. The technique used in this study was purposive sampling. Therefore, ten diving athletes from south Sumatra took part in the research. The sampled athletes were able to carry out entry techniques. The data collection in this study is by preliminary measurement test (pre-test) and final measurement (post-test) [7]. Tests and measurements in this study were conducted to obtain data on the entry results that were carried out twice, namely pre-test and post-test and treatment as many as 16 times.

Awards are given in half-point increments according to the following scale. Excellent 10 points. Entry test results are recorded in the Rating Scale assessment, i.e. [8]:

Excellent = 10 points

Very Good = 8.5 ± 9.5 points

Good = 7.0 ± 8.0 points

Satisfactory = 5.0 ± 6.5 points

Deficient = 2.5 ± 4.5 points

Unsatisfactory = 0.5 ± 2.0 points

Completely failed = 0 points

Data analysis techniques used using different mean tests by using t-test in calculating coefficients that calculate the increase in the average value of pre-test with post-test breaststroke swimming speed of 50 meters for more clarity can be seen in the following formula [9]: $t = \frac{\sum D}{\sqrt{\sum D^2 - \frac{(\sum D)^2}{n - 1}}}$ Description: $\sum D$ = The number of differences between each pair As for the data analysis techniques in the study summed up with the value of t table if dk-1 against a significant level of 0.05. If the calculated t value is greater than the table t value, then there is an influence on the study results.

3. Results and Discussion

The conclusion is the final, overall summary of the entire paper. The conclusions should generally be listed in the order of 1), 2), 3), or structured as paragraphs.

The results in this study discuss the average, standard deviation, variance, minimum and maximum values, and the average increase obtained from the results of the entrance test given. The test results are recorded and calculated, then analyzed based on research data using the IBM SPSS 1.6 program, outlined in the table below.

Table 1 Descriptive statistics

	N	Minimum	Maximum	Mean	Std. deviation
Pretest	10	2.5	4.0	3.600	.5164
Post-test	10	6.0	7.5	6.650	.6258
Valid N (listwise)	10				

From the table above, it is known that the results of the measurement entered before being given the model of movement training entry (pre-test) has an average of 3,600 with a standard deviation of 0.5164, a maximum score of 4.0, and a score of at least 2.5. After being

given handstand exercise treatment (post-test), the result of entry measurement has an average of 6,650 with a standard deviation of 0.6258, a maximum score of 7.5, and a minimum score of 6.0. After being given handstand (post-test) exercises, entry results had an average change of 3.05, a maximum score of 3.5, and a minimum score of 3.5. These results show the handstand exercises can provide a change of entry 3.05. The description above shows that there are differences in the entry test results that can be seen from the difference in the average value of pre-test that shows a lower value than the post-test. This means that executed handstand exercises affect improving the entry results.

After the population is declared normal distribution through normality and homogeneity test through homogeneity test, then continued with a t-test to figure out the effectiveness of handstand exercises for entry results based on data obtained from the given. The mean difference test used for analysis in this study is the t-test. The values used in t-test calculations are pre-test and post-test values.

Table 2 One sample test

	Test value = 8					
	T.	Df	Sig. (2tailed)	Mean Difference	99% confidence interval of the difference	
					Lower	Upper
Result entry	-7.739	19	.000	-2.8750	-3.653	-2.097

Based on the results of the above statistical tests obtained t calculated values -7,739, df = 19, and p-value $0.00 < 0.05$, which means there is a significant difference in the entry results of athletes before the treatment and after the treatment. Thus, it can be concluded that there is an influence of handstand exercises on the results of entry or, in other words, effective handstand exercises in improving the ability of entry.

Completely, accurately, and concisely point out the principles and their universality revealed by the results of investigations or experiments on the research subjects; whether there are any exceptions found in the research or problems that are difficult to explain and solve in this paper; The similarities and differences of research work (including others or authors themselves); the theoretical and practical significance and value of this paper; suggestions for further research on this topic.

4. Conclusion

Based on the results of research and data analysis, it can be concluded that this form of entry exercise is very effective in improving entry results in diving athletes. A handstand is a form of exercise that is indispensable because it requires a balance of the body, strengthening the arm muscles and abdominal muscles. Therefore, this handstand exercise is great for

improving entry results in diving athletes. 1) To improve entry results, coaches can use handstand exercises because the method significantly influences the results of entry athletes. 2) For coaches as a method in training to get the results of entry, and 3) Due to the limitations of researchers both in terms of time, material, and samples, it is necessary to conduct further research in a wider scope

References

- [1] BARRIS, C.S. (2013). An Examination of Learning Design in Elite Springboard Diving. QUT Ph.D. Thesis. Brisbane, Australia.
- [2] FINA Office. (2014). Diving Officials Manual. <https://cdn.revolutionise.com.au/site/phexkt28.pdf>
- [3] WANG, Q. (2008). The Springboard Diving Techniques Analysis. *International Journal of Sport Science and Engineering*, 2(3): 185-192.
- [4] RUBIN, B.D. (1999). The Basics of Competitive Diving and Its Injuries. *Clinics in Sports Medicine*, 18(2):293-303. doi: 10.1016/s0278-5919(05)70145-9.
- [5] SCHEMBRI, G. (1983). *Introductory Gymnastics: a guide for coaches and teachers*. Australian Gymnastic Federation.
- [6] SYAHARA, S. (2008). *Fundamentals of Basic Gymnastics. [Materi Pokok Senam Dasar]*. Jakarta: Open University Press.
- [7] SUGIYONO. (2011). *Educational research methods: (quantitative, qualitative and R&D approaches) [Metode*

penelitian pendidikan:(pendekatan kuantitatif, kualitatif dan R & D)]. Bandung: Alfabeta.

[8] FINA Diving Officials Manual (2021). <https://resources.fina.org/fina/document/2021/03/02/57dafac3-31f3-4935-927c-826dbbcd46e/2020-09-24-FINA-Diving-Officials-Manual-2017-2021.pdf>

[9] WIDIAYANTO, A. (2002). *Applied Statistics Concepts and Applications of SPSS. Statistika [Terapan Konsep dan Aplikasi SPSS]*. PT. Elex Media Komputindo: Kompas Gramedia.

参考文献:

[1] BARRIS, C.S. (2013)。精英跳板跳水学习设计研究。昆士兰大学博士论文。澳大利亚布里斯班。

[2] 国际泳联办公室。(2014)。潜水官员手册。<https://cdn.revolutionise.com.au/site/phexkt28.pdf>

[3] WANG, Q. (2008)。跳板潜水技巧分析。国际运动科学与工程杂志，2(3)：185-192。

[4] RUBIN, B.D. (1999)。竞技潜水的基础知识及其伤害。运动医学诊所，18(2)：293-303。土井：10.1016/s0278-5919(05)70145-9。

[5] SCHEMBRI, G. (1983)。入门体操：教练员和教师指南。澳大利亚体操联合会。

[6] SYAHARA, S. (2008)。基本体操的基础。[基础体操基础]。雅加达：开放大学出版社。

[7] SUGIYONO. (2011)。教育研究方法：(定量、定性和研发方法)[教育研究方法：(定量、定性和研发方法)]。万隆：阿尔法贝塔。

[8] 国际泳联潜水官员手册(2021)。<https://resources.fina.org/fina/document/2021/03/02/57dafac3-31f3-4935-927c-826dbbcd46e/2020-09-24-FINA-Diving-Officials-Manual-2017-2021.pdf>

[9] WIDIAYANTO, A. (2002)。应用统计概念和 SPSS 的应用。统计学 [应用 SPSS 概念和应用]。PT. 艾力克斯国际媒体：康帕斯·格拉梅迪亚。