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## The Effectiveness of Entry Movement Exercise Model in Diving

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### ABSTRACT

Entry is one of the techniques in diving that is important in the final completion of the dive. Indonesian diving athletes have weaknesses in this technique, so entry movement exercise is needed to improve the ability of the entry technique. This study aims to determine the effectiveness of the entry movement exercise model in diving. The study population was Indonesian diving athletes with the determination of 20 purposive samples using the true experimental method with one group pre-test and post-test design. The result of this study indicated that the entry movement exercise model is effective to improve the ability of entry techniques in diving.

**Keywords:** entry; movement exercise model; diving.

### INTRODUCTION

The decline in the performance of the Indonesian diving team at the South East Asia level is seen that Indonesian diving athletes cannot offer a gold medal at the South East Asia Games (Vinka, 2012). Along with the times, in addition to changes in rules in the match, the number of matches and gold medals up for grabs have also increased. But even though the match numbers keep on increasing and should make the medal chances also increase, Indonesia is only able to get a silver and bronze medal in the event. This decline in achievement does not mean that the technical quality of Indonesian diving athletes has also declined or under other countries in Southeast Asia. This is indicated by the level of dive difficulty for Indonesian diving athlete which is equivalent to athletes from other countries at Southeast Asia level and even at the world level. The difference lies in the score or execution value obtained by Indonesian athletes in every dive made especially in the final assessment

component, namely entry, thus affecting the overall final results of each dive.

Based on the results of an interview with one of the international judges it was explained that in general the Indonesian diving athlete's technique was already good and on par with athletes from other countries, but the Indonesian diving athlete still had a weakness that lay in the final technique namely entry. The effort to equalize the springboard elements that are equivalent to world level athletes has of course gone through various types of exercise to strengthen the foundation which means to strengthen basic techniques. The basic technique in diving sports is a very important factor for the process of achieving long-term achievement, because dives in diving will continue to develop in the form of levels of dive which are increasingly difficult to do. If the foundation that is built is not solid, in this case it is a basic technique, it will be certain that athletes will not be able to penetrate more highly level dives.

The basic technique in diving generally consists of three parts, namely: take-off, flight, and entry. The three basic engineering parts are then divided into five elements which are assessed in sequence, namely starting position, approach, take-off, flying, and entry into the water (*FINA Diving Officials Manual*, 2018). The diving movement is contested based on the judgments given by the judge is often considered to have a high level of subjectivity. Although the chief of diving organization, Federation Internationale de Natation (FINA), seeks to minimize the risk of injustice in the assessment by ensuring the use of at least three judges, who understand the diving techniques assessed during the match (Emerson, Seltzer, & Lin, 2009). As time goes by, there are no changes in the elements or components that are assessed in diving, this is mentioned in The Diving Official Manual which recommends that dives will be assessed based on five components, namely (1) starting position, (2) approach, (3) take- off, (4) flight and (5) entry (Driscoll, Gaviria, & Goodwill, 2014).

Entry into the water is the last order in the technical component and also the last component in the assessment, so that it becomes one of the determining factors of the five components of the overall stepping assessment (Huber, 2016), which is also the determining factor for the assessment of the entire set of movements to be given by the judge. Mastering this entry technique requires a fairly lengthy process that is consistent and continuous, because it deals with posture, both building and also maintaining the right attitude. Body posture during entry is divided into two parts, namely entry with head first and entry with foot first (McCormick, Subbaiah, & Arnold, 1982). In general, the first head entry is used in matches (O'Brien, 1992) because it is considered more profitable in the evaluation of the competition. Entry that is almost without splashes of water can be produced as long as the body is in a reasonable attitude. The entry technique of Indonesian national diving athletes as a whole is still weak, which is caused by the lack of support from the formation of athletes' basic foundations or abilities in conducting entry techniques so that it becomes one of the obstacles to achieving an automatic vertical entry technique automation movement as expected in the assessment. For this reason, entry movement exercise is needed which closely resembles the actual technique in supporting this entry technique based, then we will be know how much the effectiveness of entry movement exercise to improve the entry technique.

## **METHODS**

Research on the model of entry exercise in diving is aimed at finding out whether the model of entry exercise is effective in diving. Testing the effectiveness of the exercise model is done using the true experimental method (Sugiyono, 2011), namely by analyzing the effectiveness of the entry movement exercise model in diving sports, by comparing conditions before and after being treated with an entry movement exercise model with a research design in the form of one group pre-test and post-test design through statistical calculations with t test using IBM SPSS 21.0 for Windows. This research was conducted in DKI Jakarta, South of Kalimantan, and West Java provinces with 20 athletes with an age range between 12 years to 21 years. The research subject is limited because the population of Indonesian diving athletes are very limited both from open and age groups. The treatment was given as many as 44 types of entry movement exercise model during 24 training schedules, then compared

before and after treatment to the research subjects, to find out whether the exercise model used has been effective in increasing the ability of entry techniques.

Data on the effectiveness of the entry exercise model in the diving sports branch was obtained by conducting an entry skills test using a test instrument. The test instrument used was an instrument made by researchers from the adoption results in the FINA rulebook and validated by diving supervisors to get a high level of validity and reliability in test and measurement efforts. The test instrument containing the assessment given by the judge with the classification has been certified by following the standard rules on the diving rating scale. Award scores range from zero (0) to ten (10) points (Fédération de Natation Internationale, 2017) with the following rating scale:

<b>Table. 1. Rating Scale</b>	
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

Source: FINA Diving Official Manual 2017 – 2021

### **Entry Test**

**Implementation:** each athlete is given twice each opportunity to make a front entry with tuck position, front entry with pike position, front entry with straight position and back entry with straight position. From the two opportunities was given, the highest score will be taken.

**Rating:** score or value given by the judge based on a scale of values from zero (0) to ten (10) points, divided into four (4) elements assessed, with the maximum value of each element being 2.5 points. So, the maximum total value that will be obtained is 10 points if each element gets a maximum value of 2.5 points. The elements assessed are angle of entry, body alignment of entry, twist of entry and amount of splash, by adding up the overall value of the element.

#### **a. Angle of Entry**

The angle of entry must be straight vertical or close to the maximum point value of 2.5 points. When the entry is not vertically straight, then there are two (2) things that must be assessed when giving points, i.e.:

- 1) Degree off vertical,
- 2) Reason for being off vertical

#### **b. Body Alignment of Entry**

The position of the body must be straight when it's starting to enter the surface of the water, will be get a maximum value of 2.5 points. The most common mistake is not having much time to complete the movement before touching the surface of the water.

#### **c. Twist of Entry**

Twist of entry occurs when the judge sees the front or back of the diver (Yeadon & Hiley, 2014). In general, the twist of entry that occurs is more than 5 degrees, 15 degrees, 35 degrees, and 90 degrees. The highest point of 2.5 points will be awarded if there is no twist of entry.

#### **d. Amount of Splash**

A maximum point of 2.5 points will be given if the water splashes are very small.

## RESULTS AND DISCUSSION

### Description of Research Results

The description of the results in this study discusses the average, standard deviation, variance, minimum and maximum values, and also the average increase obtained from the entry test results that have been given. Test results are recorded and calculated, then analyzed based on research data using the IBM SPSS for Windows21 program which will be described in the table below.

Table. 2. Description of Entry Exercise Results

	<i>Entry Score</i>		
	<i>Pre-Test</i>	<i>Post-Test</i>	<i>Difference</i>
Average	68,67	109,38	40,71
standard deviation	13,52	8,96	4,56
Variant	182,94	80,35	-102,59
Maximum	88	131	43
Minimum	47	100	53

From the table above, it is known that:

- 1) The results of the entry measurements before being given a model of movement exercise entry (pre-test) have an average of 68.67 with a standard deviation of 13.52, a variant of 182.94, a maximum score of 88 and a minimum score of 47.
- 2) The results of the measurement of entry after being given a model of movement exercise entry (post-test) has an average of 109.38 with a standard deviation of 8.96, a variance of 80.35, a maximum score of 131 and a minimum score of 100.

Changes in entry after being given a model of movement exercise entry (post-test) has an average change of 40.71 with a standard deviation of 4.56, a variance of -102.59, a maximum score of 43 and a minimum score of 53. These results indicate that the entry movement exercise model can provide an entry change of 40.71. From the results of the description above it can be seen that there are differences in the results of the test entry which can be seen from the difference in the pre-test average values which indicate lower values than the post-test. This means that the exercise carried out an effect on increasing the ability of entry techniques by 39.68%.

### Effectiveness Testing

After the population is declared to be normally distributed through normality and homogeneity tests through homogeneity test, then it is continued with t test with the aim to find out the effectiveness of the entry exercise model based on data obtained from the given entry tests. The average difference test (mean difference test) used for analysis in this study was the t test (paired t-test). The values used in the calculation of the t-test are pre-test and post-test values.

Table. 3. Average Difference Test Results

<i>Mean</i>	<i>Mean Differences</i>	<i>T</i>	<i>df</i>	<i>Sig (2-tailed)</i>
34,41	29,14	13,67	19	0,000

Based on the results of the statistical test above, the value of  $t$  arithmetic is 13.67 and  $t$  table is 2.09, so it can be said that  $H_0$  is rejected  $H_a$  is accepted because the value of  $t$  is  $13.67 > t$  table 2.09. Thus, it can be concluded that there is an effect of entry movement exercise on increasing entry ability or in other words the model of entry movement exercise is effective in increasing the ability of entry technique.

## CONCLUSION

Based on the problems raised and supported by the description of the results of research and data analysis, it can be concluded that the entry movement exercise model is effective to improve the ability of entry techniques in diving sports.

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