THE EFFECT OF BALANCE TRAINING OF 200-M KAYAKING ATHLETE PERFORMANCE

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Article Info

Abstract

The purpose of this study was to find out the impact of balance exercises on the achievements of kayaking athletes 200 meters. The method used in this study is a survey using correlational. The sample selected was by criteria of the number of kayakers participating in the National Training Center for rowing in 2019, as many as 28 male athletes. Data analysis using a simple correlation with a significant level of 0.05, overall analysis of this data uses the help of SPSS program version 20.00. The finding is that the R Square value (determination coefficient) is 0.712, which means 71.2% of the total performance variation of 200m kayakers is caused by a simple correlate relationship with variable balance. This means that 71.2% of balance data has a direct influence on the performance of kayakers 200m in 2019 and the remaining 28.8% or (100% - 71.2% = 28.8%) caused by other factors such as weather conditions, mental condition, boat conditions, nutrition, recovery, athlete health conditions, and others

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INTRODUCTION

Skill in the sport of kayaking 200 meters is the ability of a kayaking athlete to reach a distance of 200 meters in a certain time. Becoming a champion in the paddle sport is so that it is said to have better skills than other athletes. Many questions that have not been able to be scientifically resolved are related to technical factors such as the choice of paddle size, size and type of boat, balance, muscle strength, and the achievement of the athletes' performance.

Achievement in paddle sport is not only determined by good deployment and breeding but at the athlete's elite level to be able to compete with other countries requires a technological approach to achieve achievements in rowing. The branch of paddle sport is a measured sport, each supporting component of achievement, such as body structure, equipment used, physical components, etc., greatly determines the achievement of an athlete (Csonková & Kutlík, 2017; López-Plaza et al., 2017; Ochi et al., 2015; Zwingmann et al., 2020).

For example, the equipment used by athletes, both rowing and boat, greatly influences achievement in rowing. The technology used today is developing very fast, in terms of the shape of the competition boat which is getting slimmer to reduce resistance, and is lighter but very strong, because it is made of carbon fiber which is also commonly used for materials for aircraft or vehicles such as high-tech mohol using carbon fiber material.

Technical factors, such as height will influence other factors such as the choice of paddle size, boat size and type, balance, muscle strength, and achievement of the athletes' own performance. A person's height will be a major consideration in choosing the length and size of the paddle to use because it involves mechanical calculations, especially the application of lever systems such as the amount of force that will be exerted to overcome the load from the length of the load arm that rests on the axis on the hand holding the paddle. The length of the oar and the width of the paddle will affect the work of the muscles that contract when a kayaking athlete pulls the oar in the water (Hopkins et al., 2011; Paquette et al., 2018). So that the strength of muscle contraction (maximal strength) of a kayaking athlete will make a positive contribution to the speed of the boat being rowed.

High posture can result in a further paddle range, with the maximum quality of muscle strength, the boat slide can produce a better horizontal distance or velocity when compared to our kayaking rowers who are under 175cm on average. Indonesian rowing athletes, both men, have a height below 175 cm, even female athletes have an average height of less than 170 cm. The height that is not ideal will greatly affect the performance of national kayaking athletes who have not been maximal at the Sea Games, Asian Games, and even the Olympic level (Akca & Muniroglu, 2008; Hamacher et al., 2018; López-Plaza et al., 2019; McKean & Burkett, 2014; Pickett et al., 2018).

Many questions that have not been able be scientifically resolved are related to technical factors such as the choice of paddle size, size and type of boat, balance, muscle strength, and the achievement of the athletes' performance. Therefore this study will analyze the effect of balance training of 200-m kayaking athletes performance in 2019.

METHODS

This research is an associative quantitative study using simple correlation analysis techniques. Based on

the formulation of the problem, this study aims to find scientifically accurate answers about whether or not the balancing effect on Kayak Paddle 200-Meter National Training Camp Rowing Athletes in 2019. This research will be conducted in several places, for research trials conducted at the FIK-UNJ Campus and the West Java Regional Training Center in Bandung. The last research location will be conducted at Paddle Athletes of the National Training Camp for rowing in 2019, in Jatiluhur Reservoir, West Java Province with time from January-May 2019

Participants

Appropriate identification of research participants is critical to the science and practice of psychology and/or social sciences, particularly for generalizing the findings, making comparisons across replications, and using the evidence in research synthesis and secondary data analysis. Identification the samples of participants major demographic characteristic for human, such as age; sex; ethnics and/or racial group; level of education; socioeconomic; generational, or immigrant status; disability status; sexual orientation; gender identity; and language preference as well as important topic-specific characteristic.

Sampling Procedures

Describe the procedures for selecting participants, including (a) the sampling methods if a systematics sampling plan was used; (b) the percentage the sample approached that participated; and (c) the number of participants selected themselves into the sample. Describe the settings and locations in which data were collected as well as any agreement and payment made to participants. When applying inferential statistics, take seriously the statistical power consideration associated with the test of hypothesis.

Materials and Apparatus

Nasir said that data collection techniques are measuring tools needed to carry out research. The data to be collected can be in the form of figures, written statements, oral information and various facts related to the research focus under study. This study using tools (instruments) to collect data. The research instrument made includes a balance test and paddle achievement at 200-m.

Procedures

The data collection technique for the achievements of 200-meter kayak rowing athletes is that athletes do sprints pedaling kayaking by traveling 200 meters. As for balance using the development of balance tools developed by Iwan. Developed a special balance test for kayaking, which is called "Iwan Kayak Balance Test (IKBT)".

Purpose: To measure the specific balance of the kayaking paddle. Tools and Facilities: IKBT tools, metronome, stopwatch and recording devices. Implementation of the test: (1) Place the IKBT tool on a flat surface and make sure the water pass tool shows a balanced position; (2) If the IKBT tool is already in a balanced position, the athlete is instructed to sit in a boat tie with the length of the footrest and the seat that can be adjusted as the size of the boat; (3) Prepare the metronome by setting the rhythm to 80 beats/minute, and turn on the metronome when the testee feels ready to perform the test; (4) When ready and the metronome is turned on, after the signal is "ready" the athlete performs the kayaking technique for 1 (one) minute with a rhythm (stroke) of 80 beats/minute on the metronome; (5) Count the number of strokes that can be done in one minute

with the correct rhythm according to the metronome; dan (6) Perform 2 attempts, and record the greatest number of strokes that can be done for 1 (one) minute.
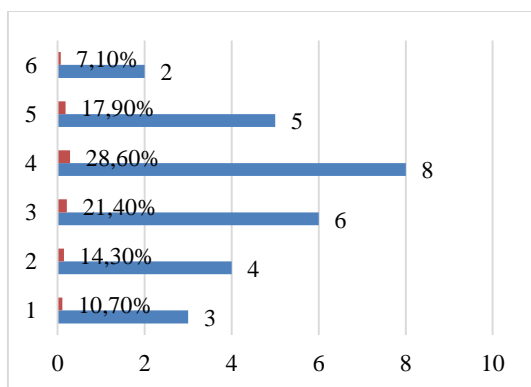

Figure 1. Implementation of the Balance Test

RESULT

1. Data description

The results of research on the effect of balance exercises on the achievement of paddle kayaks distance of 200 meters can be disseminated in the form of histograms as follows:

Figur 2. Histogram balance and achievement paddle kayak distance of 200 meters

Based on figure 1 above, it is known that 3 samples are in the interval (10.7%) who score below the average, and 2 samples are in the (7.1%) above the average. To clarify the results in the figure above, the following is the data on the balance scores of 200-m kayaking

2. Test data normality

The first requirement that must be met in path analysis is that the sample must come from a normally distributed population. The data error normality test is conducted to determine whether the observed sample comes from a population with a normal distribution or not. The statistical test conducted to test the normality of the error distribution in this study is the Lilliefors test. The hypothesis proposed in the normality test is:

H_0: Data comes from populations that are normally distributed;

H_1: Data comes from a population that is not normally distributed.

The provisions in this test are if $L_O < L_t$ ($\alpha = 0.05$) then the data is normally distributed. Conversely, if $L_O < L_t$ ($\alpha = 0.05$) then the data are not normally distributed.

The results of the calculation of the normality test of research data are shown in table 1 below:

Table 1. The results of the normality test of the distribution of data population

Statistics	variable	
	Balance	**Kayaking paddle skills**
L_count	0.155	0.154
L_table	1.173	0.173
Sig.	0.085	0.086
Conclusion	Normal	Normal

Based on table 1, it can be seen that the calculated liliefors price (L_{cout}) in all data groups is actually smaller than the calculated liliefors price (L_{table}). Thus it can be concluded that the sample of this study came from a population with a normal distribution. This conclusion implies that parametric statistical

analysis can be used to test the hypotheses proposed in this study so that the first conditions for hypothesis testing have been fulfilled, for more details can be seen in the explanation

3. Hypothetical test

Table 2. Correlation coefficient

Model	R	R_Square	Sig
Coeffisient	0.844	0.712	0.00

The multiple correlation coefficient (R) in table 4 is obtained a value of 0.844 after being consulted with table R at df 27 and $\alpha = 0.05$ is 0.381, so the balance of kayaking skills has a significant positive correlation.

R Square (coefficient of determination) is 0.712, which means 71.2% of the total variation of paddle skills of 200-m kayaking athletes performance is caused by the multiple regression relationship with the balance variable. This means that 71.2% of the balance data has a direct influence on the skills of paddle kayaking at a distance of 200 meters for rowing national athletes in 2015 and the remaining 28.8% or (100% - 71.2% = 28.8%) is caused by factors- other factors such as: weather conditions, mental state, boat condition, nutrition, recovery, athlete's health condition, and others.

The analysis results prove that there is a significant path coefficient. Based on the results of data analysis, the coefficient value of the balance path to rowing skills such as a distance of 200 meters is $\rho_{54} = 0.844$ with the coefficient of reflection (R_{squere}) obtained by a value of $R_{5.4} = 0.712$ and a large $\varepsilon = 0.288$ or 1 - 0.712, the remaining is 0.288. The coefficient of determination is significant because the value of $t_{count} = 8.010$ while the value of

t_{table} (0.05: 28) = 1.706 at a significant level of 0.000.

DISCUSSION

The results showed that from descriptive data analysis results to research hypothesis testing, the effect of balance training of 200-m kayaking athlete performance. R Square (coefficient of determination) value is 0.712, which means 71.2% of the total variation of 200-m kayaking athletes' performance is caused by the multiple regression relationship with the balance variable. This means that 71.2% of the balance data has a direct influence on 200-m kayaking athletes performance in 2019 and the remaining 28.8% or (100% - 71.2% = 28.8%) is caused by factors-other factors such as: weather conditions, mental state, boat condition, nutrition, recovery, athlete's health condition, and others.

The findings in this study are in line with the theoretical studies put forward earlier that the effect of good balance skills will be able to show good paddle skills as well (Rawe et al., 2017) (Grigorenko et al., 2004; Mhatre et al., 2013; Yaggie & Campbell, 2006). Thus it can be said that the skills of 200-m kayaking athletes' performance in 2019 can increase when the size of the oars increases so that employee trust in the leadership will be high

From the primary mechanics purpose described above, kayaking rowing is a sport that moves the body from one point to another as quickly as possible, it can be said that the achievement of the shortest possible time is the main goal to become a winner in this sport. there is no other way to win a match in rowing in general including rowing numbers kayaking is how the same distance can create the shortest possible time.

Many factors influence time attainment in rowing such as average speed, environmental conditions such as wind, water currents, water types, and many more. however, technical factors related to the best timing are very dominant and must be taken into account beforehand to maximize athletes' achievements in rowing, especially numbers like 200 meters distance.

Nolte (2005) & (Jariono et al., 2020; Jariono & Subekti, 2020) describes the basic factors that influence the achievement of achievement or achievement of the best time in the sport of. the above clearly describes the factors that influence rowing achievement, namely "final time" or it can be interpreted that the achievement of the end time (time record) is obtained from the average velocity factor and the distance factor.

Paddle sport in the world under two-parent international sports organizations (international federation), for rowing under the fisa (fédération internationale des sociétés d'aviron) and for rowing for the canoeing type under the icf (international canoeing federation).

Canoeing type under the ICF (international canoeing federation) has several disciplines, including 1) paracanoe, 2) canoe sprint, 3) canoe slalom, 4) wildwater canoeing, 5) canoe marathon, 6) canoe polo, 7) dragon boat, 8) canoe freestyle, 9) canoe ocean racing dan 10) other discipline: a) va-a, b) canoe sailing, c) waveski, d) live saving dan d) rafting (www.canoeicf.com,). From many disciplines covered by the ICF (international canoeing federation), there are only 2 (two) disciplines that have been officially competed in the olympics to date, namely flatwater canoeing and canoe slalom.

Flatwater canoeing rowing has two types of competition, namely kayaking and canoe canoeing, which are fundamentally differentiated based on the shape of the boat and the paddle used (Driller et al., 2009; Ross et al., 2016; Stöggl & Sperlich, 2014; Yang et al., 2017). The difficulty level of a canoe paddle is higher than that of a kayak because the canoe athlete has to be in a kneeling position so that the body mass center (pbm) or central of gravity (cg) of the body is higher than the sitting position of the kayak paddle affects the balance level of the body while on the boat.

Balance is the ability to master the movements of his body organs (Khairul Iqbal, Abdurrahman, 2015; Kurniawan, 2018; Pratama, 2019; Tang, 2014). In another opinion, balance is an activity to hold all the forces that affect the composition of the human body to remain balanced. Balance can be in the form of balance (static balanced) when standing or dynamic (dynamic balanced) when doing certain movements (Pedlar et al., 2018; Ricotti, 2011; Rogers et al., 2013; Wang et al., 2016).

Balance is a person's ability to maintain balance during movements such as walking, running, kicking and so on. According to Dadang Masnun, the power of balance consists of: (i) The power of balance, namely when the perpetrator does it on a relatively stationary object; (2) The power of balance in motion (dynamic) when the perpetrator is in motion (when running, riding and cycling). The balance of his body is constant as long as he moves (Aligene & Lin, 2013; McGuine & Keene, 2006; Rogers et al., 2013; Wang et al., 2016).

Balance based on the work of proprioceptive nerves is a mechanism for sensing posture and movement so that we can adjust muscle movements appropriately and maintain balance.The findings in this study that balance in kayaking is very important, because balance is more dominant in maintaining

the body and kayaking from reversing and the impact of physical ability training in supporting athlete performance in kayaking.

CONCLUSION

From the results of hypothesis testing and discussion of the results of the study, it can be concluded that balance has a positive effect on 200-m kayaking athlete's performance in 2019. this positive direct effect also provides direction on an implication that in applying the level of balance to improve 200-m kayaking athletes' performance in 2019

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