

Cardiovascular Endurance Of Rowing Athletes' Performance: Study At South Sulawesi

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Abstract

This study aims to investigate the level of cardiovascular endurance of South Sulawesi Rowing Athletes. This research one of evidence the education of sports science research. The population in this study was South Sulawesi Rowing Athletes which joined the national competition. The sample in this study was 16 people using purposive sampling techniques with the consideration that the sample was chosen was a Rowing Athlete in South Sulawesi Province who competed at the National competition PON XX at Papua. The results reveal that the data analysis concluded that, 50% of athletes from the total sample were in the category of enough, and 31, 2 % of the total sample were in a good category. The other category 18.8% of the total sample were in the very good category. This study could be one of the description of the cause of rowing athletes in South Sulawesi province wined a gold medal at the Indonesia national competition.

Keywords: Cardiovascular Endurance, National Competition, Rowing Athletes.

INTRODUCTION

The 20th National Sports competition at Papua has just finished. The National Sports Competition, which is held for 4 years, was successfully organized by the host Papua who was the first to host the National Sports Week event. Sport National Competition PON XX at Papua, the overall champion was Provinsi West Java with 133 gold, 97 silver and 114 bronze. The second place was won by DKI Jakarta with 110 gold, 91 silver and 100 bronze. In third place was won by East Java with 110 gold, 89 silver and 88 bronze. The province of South Sulawesi managed to occupy the 11th position with 11 gold, 13 silver and 13 bronze. Although it experienced an increase in position from the previous PON, namely the 12th position, in terms of medals, it experienced a decrease in achievement. At pon XIX in West Java, South Sulawesi won 12 gold, 23 silver and 28 bronze. The Indonesian National Sports Week is the largest multi-sport event event in Indonesia.

National Sports Week was first held in Solo on September 8, 1948. Athletes from various provinces in Indonesia compete with each other carrying regional big names. In addition, National Sports Week can be a stepping stone for athletes to be able to compete to a higher level, namely nationally and internationally.

One of the sports that successfully made it to the PON XX Papua event was rowing, precisely on the Rowing number. This number became one of the mainstays of the Province of South Sulawesi to win gold. However, at the PON XX Papua, the rowing branch did not succeed in achieving the target of obtaining a gold medal. The South Sulawesi rowing team only won 2 silvers from this number.

Rowing itself is a sport that uses paddling and takes place over rivers, lakes, and seas. In the technique of rowing with alat paddle, only two kinds of paddles are known, namely forward paddles and backward oars. If you want the boat to move forward, the paddle is used forward while the oars are backward to stop the boat that

is moving forward or indeed want the boat to move backwards. If you want to turn the boat to the right then the left hand paddles forward and the right hand paddles backwards, and vice versa if you want to turn left (Wikipedia, 2022). Own rowing sport

In general, the history of the sport of rowing itself cannot be determined which nation first discovered the sport of rowing. This is because the history of rowing sports has existed since ancient times, where in ancient times humans were not familiar with writing, so it is very difficult for experts in the history of rowing to reveal the exact den gan from which country the sport of rowing originated. According to the records of Egyptian society in 1430 BC, the warriors of Amenhotep or Amenopsis II were famous in terms of rowing. In the Aeneas Islands, the girls performed one of the funeral events made by King Aeneas in honor of his father. Later in the 13th century, the Venetians held a Regata festival in which there was a boat rowing race between one another Hunsin dalam (Yusrizal et al., 2015).

The sport of rowing that is contested now consists of three numbers namely Olympic, Traditional and Machine numbers. Olympic numbers are of two types, namely Canoeing and Rowing. The type of Canoeing also includes two numbers, namely Kayak and Kano. Kano's own numbers include Polo canoeing, Canadian, Torrent and Slalom. Rowing numbers include Scull and Sweep numbers. The traditional number contested is the dragon boat. While the engine number is the Ergometer Rowing number. The sport of rowing of the canoeing type consists of a rich number and a canoe number. On the number the rower sits in the boat and faces forward, paddling using one paddling stalk that has two paddle leaves, left and right. In the canoe number, the position of the rower kneeling on the boat facing the front ke, rowing only on one side, left or right, therefore the paddling stalk used has only one paddle leaf (Jubi, 2015).

One of the dominant physical elements in the sport of rowing is endurance. According to (Yohanes & Nurkholis, 2013) The physical conditions that are very dominantly needed by rowing athletes are endurance, flexibility, and strength. The endurance that rowing athletes need is the general endurance and local endurance of the arm muscles and abdominal muscles (Helgerud et al. 2001) This component appears essential in assisting athletes

to remain steady during peak performance, where athletes must maintain their mental toughness while they lack good physical condition. Besides, these two components are important in sports, for based on physiology and psychology, athletes can develop or increase performance by heightening their cardiovascular endurance and improving their mental toughness (Gucciardi, Gordon & Dimmock, 2009). This is because athletes carry out continuous rowing movements with the rhythm needed during the race so that rowing athletes need to have good general and local endurance in order to be able to compete. Self-endurance (respiration – cardiovascular endurance) is the body's ability to carry out continuous activities that last long enough in aerobic conditions where muscle cell metabolism requires oxygen supply from the outside to get moving or contracting energy, Nala dalam (Santika, 2015). Furthermore, according to (Rahmawati et al., 2016) To increase VO₂max values or strengthen the performance of the heart and lungs, you can do types of aerobic exercises such as running exercises, cycling, swimming, aerobic gymnastics, rowing, brisk walking, etc.8 A number of achievements that are achieved by cannot be separated from the professional trainer, organizational strength in the field of rowing sports and of course cannot be separated from good aerobic endurance.

Therefore, the cardiovascular endurance is the ability of the heart, the blood vessels, and the respiratory system to supply oxygen to the working muscles (Cheng, Chiu & Su, 2019). Berahim and Kassim (2016) documented that cardiovascular endurance was the main ingredient or a key important element for maintaining good performance during exercise. A high performance athlete must have an excellent final result to their overall performance. Based on discussion above and the supporting theory regarding the importance of endurance in rowing sports, as well as seeing the less than optimal result obtained by the South Sulawesi Rowing athletes at National competition PON XX at Papua performance. This study briefly investigates the endurance condition of Rowing athletes in South Sulawesi Province who competed national sports the PON XX at Papua.

METHOD

This research uses a quantitative approach and the type of research used is descriptive research.

The population in this study was rowing athletes in South Sulawesi Province. The sample selection technique uses purposive sampling technique, where the n weighing used is a Rowing athlete from South Sulawesi Province who competed on Sports Competition PON XX at Papua with a total sample of 16 samples. The test was carried out in July 2021. Data collection techniques using the Multi Stage Fitness Test. (Halim & Anwar, 2018). Based on the theory proposed by the brother, the hypothesis proposed

in this study is "Excellent VO2Max results have a high chance of winning a medal at the PON XX Papua".

RESULTS AND DISCUSSION

The results of a study on the endurance of Rowing Athletes at South Sulawesi Province who competed at the PON XX Papua showed the following results:

Table 1 The Result of the endurance of Rowing Athletes at South Sulawesi

| | | Category | | | Cumulative |
|-------|------------------|-----------|---------|---------------|------------|
| | | Frequency | Percent | Valid Percent | Percent |
| Valid | Enough | 8 | 50.0 | 50.0 | 50.0 |
| | Good | 5 | 31.2 | 31.2 | 81.2 |
| | Very Well | 3 | 18.8 | 18.8 | 100.0 |
| Total | | 16 | 100.0 | 100.0 | |

Based on the Table 1 above, the results of the endurance of Rowing Athletes at South Sulawesi shown that the data analysis from category result 50% of eight athletes from the total sample were in the category of enough, and 31, 2 % or five athletes of the total sample were in a good category. The highly category analysis, 18.8% or three athletes of the total sample were in the very good category. It mean that the cardiovascular endurance ability have a significant rowing athletes category.

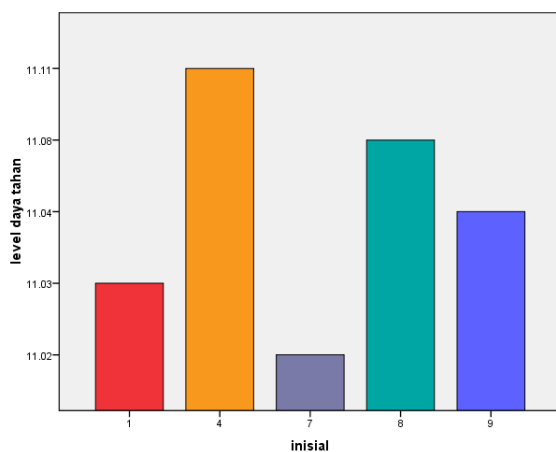


Figure 1. Graph of Endurance Level of Rowing Athletes in South Sulawesi Province Category Less and Enough

If the results in the table above are converted into graphic form, then we can see more clearly about the cardiovascular endurance ability of rowing athletes in South Sulawesi Province who competed in the PON XX at Papua. In the less and enough category, the number of athletes

who entered this category amounted to 8 people with details of 1 person entering the less category and 7 people entering the sufficient category. in more detail, we can see on the chart, there are 4 athletes

who in this category are still below the average level for the sufficient category and the other 4 are above the average for the sufficient

category. Considering that these athletes are not at national-level events, of course, cardiovascular endurance ability is one of the musts possessed by athletes. In the good category, as many as 5 athletes are in this category. If viewed in more detail, 2 athletes

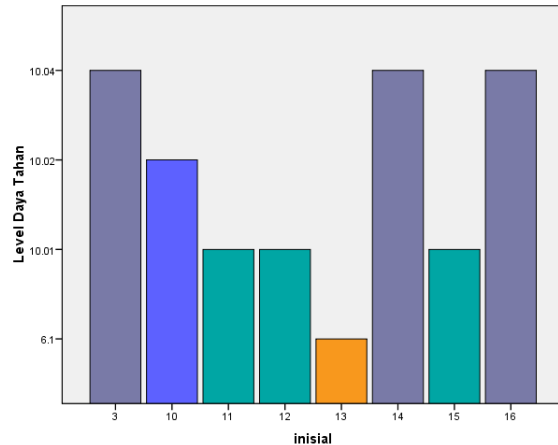
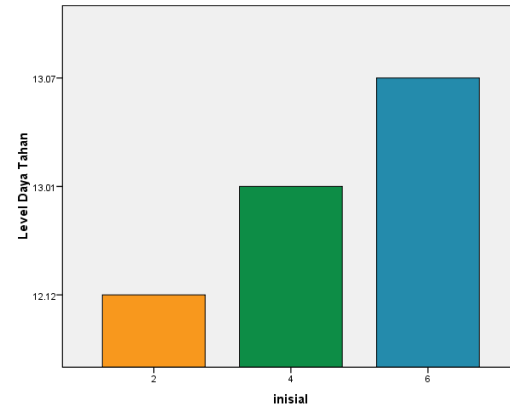


Figure 2. Graph of Endurance Level of Rowing Athletes of South Sulawesi Province in the Good Category

While in the very good category, there are only 3 athletes who are included in this category. With only 18 percent of the total rowing athletes of South Sulawesi Province competing in the PON XX Papua, it is natural that the target set by the organization cannot be realized. This should certainly be a serious concern for the organization and the coaching team. Doing truly programmatic training and the athlete's awareness of acting and maintaining conditions are important factors in the success of a team to achieve the targets that have been set (Baker et al. 2015)

The results showed that the average Rowing Athlete of South Sulawesi Province who competed at the PON XX Papua was at a sufficient level. In this regard, the hypothesis proposed earlier is accepted. This proves that one of the factors why South Sulawesi failed to gain gold in rowing was the cardiovascular endurance of athletes. As previously discussed by John & Nurkholis (2013) The components of physical condition that are very dominant in rowing athletes are endurance, flexibility, and strength. The endurance that rowing athletes need is the general endurance and local endurance of the arm muscles and abdominal muscles. This is because athletes perform rowing movements continuously with the rhythm needed during the race so that rowing

have a score that is below the average score for the good category and 3 athletes have a score that is above the average for the good category. Considering the sport of rowing is a general endurance and good local endurance.



athletes need to have good general and local endurance in order to win the race. This indicates that durability is one of the indicators that the athlete absolutely possesses. Endurance helps the body to be able to work optimally for a long time. Physical activity in the form of rowing repeatedly and for a long time certainly requires excellent endurance (Berahim and Kassim, 2016; Latif et al. 2022)

The results of this study certainly need to be an evaluation material for rowing athletes of South Sulawesi Province and all parties involved. Athletes who are able to pass the Pre-PON qualification to PON should be maintained and improved their physical condition, monitored regularly and evaluated so that when performing on the day of the match, can provide the expected results. The level of rowing athletes in South Sulawesi Province, which on average is only at a sufficient level, is certainly not the level expected to compete in events like PON. Other regions can win gold medals probably because one of the factors they pay attention to is the physical condition of their athletes. Based on the results of this study, the next question is how the performance of the ranks of coaches and organizations that overshadow the rowing athletes of South Sulawesi Province. Whether the coach adheres to a predetermined training program, whether the coaching staff is filled with competent people, as well as whether the organization is always concerned about the welfare of athlete. Because it is undeniable, the failure of athletes in achieving achievements is

not only due to the ability of the athletes themselves, but also external factors can contribute to the performance of athletes in the competition. (Guillén & Santana, 2018; Gucciardi, Gordon & Dimmock, 2009).

CONCLUSIONS

Based on the results of the research and discussion that has been put forward, a conclusion can be drawn level of cardiovascular endurance of Rowing Athletes in South Sulawesi Province is at a sufficient level so that rowing athletes in South Sulawesi province won a gold medal at the Indonesia national competition. The suggestions that can be given from this study are: 1) For the coaching team to always monitor athletes' activities so that physical and technical abilities are maintained during the preparation period. 2) For the management of the organization to always establish communication with the coaching team in order to help meet the needs of the coaching team. 3) For athletes to always maintain activities and lifestyles, so that conditions are maintained, especially during the preparation period before the game.

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