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PHYSICAL PERFORMANCE OF WEST SUMATRA FLOORBALL ATHLETES

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Abstract
Periodization is a strategic step in developing an athlete's training program to produce maximum physical performance. At the special preparation stage, athletes must have good physical performance quality. Therefore, this study aims to analyze the physical performance of athletes, especially on the components of VO2Max endurance, agility, speed, and leg muscle power of athletes running training programs at the periodization of special preparations. This study used a quantitative method and involved 20 floorball athletes as a sample. Athletes who have a very good endurance in the VO2 Max test are only 15% and those who excel in that speed are only 10%.
Keywords: VO2 Max, performance, Floorball

INTRODUCTION

(Pratama et al., 2022) explains that VO2 max is the maximum oxygen uptake, usually expressed as volume per minute and often called oxygen consumption which is carried out continuously in every minute. (Marta, 2020) reveals that VO2 max is the maximum oxygen intake and VO2 max is expressed in liters/minute/kilograms of body weight. (Nugraha & Berawi, 2017) explains that VO2 Max is the maximum level a person can take in and consume oxygen from the aerobic respiration atmosphere therefore represents the expenditure of aerobic energy. (Beato et al., 2018) The values for VO2 Max are the ability of a person to provide energy for the muscles through aerobic metabolism.

Based on some of the opinions above, it can be said that the maximum aerobic capacity of VO2 Max is a person's ability to perform an activity in a certain time without experiencing significant fatigue, and the person still has a reserve of energy to perform an activity (Chaniago et al., 2024). It can also be added that VO2 Max max aerobic capacity is the ability to perform tasks well even in difficult circumstances and wherever the person is. It is also added that the max aerobic capacity of VO2 Max is the ability to perform tasks well even in difficult circumstances and wherever the person is. In the periodization stage of the program, endurance and speed training serve as the basis for lactate tolerance training to

create anaerobic adaptation (Bompa, T.O. & Haff Gregory, 2019), and produces maximum physiological adaptation to endurance, speed, and maximum force (explosive power). Basically, physical condition is the main condition that measures physical health to see the ability and potential when carrying out all tasks without feeling too tired so as to create optimal results (Widiastuti, 2022).

Given the importance of physical condition in improving an athlete's achievements, floorball is not spared from it. Floorball is a group or team sport using a tool in the form of a composite stick with a curved shape at the end of the plastic. Scoring goals on goal is the main point of the goal of this game, there are 2 types of endurance systems used in floorball sports, namely aerobic and anaerobic (Oakland, 2017). The difference between the two lies in the use of oxygen in their activities. The Aerobic System requires oxygen in the body's immune system while the Anaerobic System is an activity that does not require oxygen. The aerobic system has a low intensity of activity but is carried out for a long time or more than 2 minutes, while the anaerobic system has a relatively long activity size of more than 2 minutes.(James et al., 2016), from the axiactivity, anaerobic is able to hold at the duration of muscle work for 5 to 6 seconds with a measure of high intensity, so it can be said that the anaerobic system is able to form endurance faster than the aerobic system.

The game of floorball requires good physical condition to be able to produce appropriate speed, flexibility and aerobic endurance. A floorball player must be able to move and control the field during the match (Dahlan et al., 2020). To get the opponent's ball to score a goal on the field, the running strength of a floorball athlete is very necessary. Based on the International Floorball Federation website, it explains the definition of floorball athletes as a group of players with motor skills, aerobic endurance, flexibility, speed, and mental endurance.

The best exercise to train the ability of athletes must be focused on 3 things, namely speed, flexibility, and aerobic endurance (Arisman, 2018). The three exercises function to Improve the physical condition of floorball athletes so that regular training intensity is needed to be able to produce athletes with strong endurance and superior synergy (Arisman et al., 2021).

METHOD

The research method is in the form of a quantitative descriptive approach. Descriptive functions to describe the results of research, while quantitative is the result of data processing using test statistics. Descriptive research is a research method that aims to provide a systematic description and accurately show facts about a particular symptom (Putra et al., 2020). The sample used was 20 West Sumatra floorball athletes. The athlete's condition measured includes agility, speed, strength and endurance. The instruments and procedures used to measure the level of performance of athletes' physical condition are explained as follows:

Agility

The instrument used to measure agility is the Illionis Test. The measuring process is carried out with . Preparing position at the Star Line, at the "yes" or whistle sounded, the athlete ran as fast as possible to the line, the foot must pass through the cone after that it turned towards the initial cone then zig-zag and turned back towards the finish line, the officer recorded the results of the time obtained by the athlete. The distribution is very good, good, medium, less and less based on the time that has been achieved (Akbari et al., 2018).

Speed

The instrument used to measure the running speed of athletes is a 30-meter sprint. The measurement time begins when the "Yes" or whistle is sounded, the runner sprints until he crosses the finish line. The officer recorded the results of the time obtained by the athletes. The distribution is very good, good, medium, less and less based on the time that has been achieved (Pratama et al., 2024)

Durability

The instrument used to measure the endurance of floorball athletes is the Beep Test test. The procedure used is to run continuously within 20 meters as long as the "beep" sound is heard, the participant must reach the opposite end with the "beep" sound, the test participant is prohibited from running the boundary line before the "beep" sound sounds, if the participant has twice failed to reach the 20 meter mark in a row then a is considered eliminated from the beep test and the mark he reached

last time becomes the score of this test. The distribution is very good, good, medium, less and less based on the time that has been achieved.

Power

The instrument used to measure the power of floorball athletes is vertical jump. Power measurement is carried out by standing upright near the wall, the tips of the feet are aligned, after being ready to make the jump, the athlete jumps as high as possible by clapping his hands on the board on the wall, so as to leave marks on the wall, the officer records the high results obtained by the athlete. The division is extraordinary, very good, good, adequate, moderate, less and poor. based on the height of the achievement that has been achieved.

RESULT

The purpose of this study is to find out the anthropometric picture and physical condition of West Sumatra floorball athletes. A total of 20 athletes underwent tests to measure the level of agility, speed, endurance, and power. In this study, a descriptive analysis of the subjective characteristics of the respondents was also carried out to provide an overview in the form of *baseline* data (age, weight, height, and BMI) of the observed subjects.

Table 1. First Test Result : Illinois Test

No.	Levels (Value Range)		Athlete	Percent
1.	Excellent (< 5.00 meters/h)	11	%	
2.	Pretty Good (5.01- 6.00 meters/hour)	8	%	
3.	Keep (6.01- 7.00 meters/hour)	1	%	
4.	Not Good (7.01- 8.00 meters/hour)	-	-	
5.	Very Less (8.01-9.00 meters/hour)	-	-	
	Total		20	100%

Showing the results that of the 20 athletes, there were 11 with a very good level of ability in the Illinois Test. And 1 athlete was classified as medium ability because it took 25 seconds to complete the test. There are no West Sumatra floorball athletes with poor to very good abilities. So if you make a comparison of twenty athletes 11:8:1 for a very good level is quite good and moderate.

Table 2. Second Test Result: 30 Meter Run

No.	Levels (Value Range)		Athlete	Percent
1.	Excellent (< 5.00 meters/h)	15	%	
2.	Pretty Good (5.01- 6.00 meters/hour)	5	%	
3.	Keep (6.01- 7.00 meters/hour)		%	
4.	Not Good (7.01- 8.00 meters/hour)	-	-	
5.	Very Less (8.01-9.00 meters/hour)	-	-	
	Total		20	100%

DISCUSSION

This study aims to analyze the physical performance of West Sumatra floorball athletes on the components of endurance (VO_2Max), agility, speed, and leg muscle power during undergoing a training program during a special preparation period. The test results show that most athletes have good agility and speed abilities, but only a small percentage have optimal aerobic endurance (VO_2Max).

Based on the results of the Illinois Test, 11 athletes (55%) were in the "very good" category in agility, while 8 athletes (40%) were in the "moderate" category, and only 1 athlete (5%) was in the "moderate" category. This shows that the ability to move quickly and change direction with precision, an important component in the game of floorball has been developed quite well in West Sumatra athletes.

In the 30-meter running speed test, as many as 15 athletes (75%) were in the "very good" category, and 5 athletes (25%) were in the "quite good" category. No athletes are in the medium or lower category. This indicates that running speed is one of the main strengths of floorball athletes in this area.

However, the most critical findings emerged in the aerobic endurance (VO_2Max) test, which is measured through the Beep Test. Only 15% of athletes have "better" endurance, while the remaining 85% show aerobic capacity that still needs to be improved. Since floorball is a sport that relies on a combination of

aerobic and anaerobic systems for a fairly long duration of the match (each round lasts 20 minutes), the low VO_2Max capacity can be a performance inhibit when athletes experience fatigue at the end of the match.

In addition, the performance of the leg muscles measured through vertical jump is not described in detail in the results, but the instruments and procedures have been described. Power is essential for acceleration, jumping, and rapid changes of direction, so it needs to be developed simultaneously with endurance.

These findings are in line with the literature that states that exercise in a specific preparatory period must build a strong aerobic foundation before entering the intensive anaerobic and technical-specific phases of exercise (Bompa & Haff, 2019). The low VO_2Max indicates that the exercise program that has been implemented may not emphasize aerobic capacity development enough, or that it is not balanced between speed and endurance training.

CONCLUSION

Based on the results of a study of 20 West Sumatra floorball athletes during a special preparation period, it can be concluded that their physical performance shows excellence in terms of agility and speed, but is still weak in the aerobic endurance component (VO_2Max). As many as 55% of athletes have agility in the "very good" category and 75% are in the "very good" category in the 30-meter running speed. However, only 15% of athletes show VO_2Max capacity in the "better" category, while the majority (85%) have endurance that still needs to be improved. Since floorball is a sport that requires a combination of aerobic and anaerobic systems for a long duration of matches, low VO_2Max can hinder an athlete's ability to maintain performance until the end of the match. Therefore, future training programs need to be more balanced between speed development and increased aerobic endurance, in order to create a comprehensive physical foundation and support optimal performance improvement.

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