International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 07 Issue 05 May 2024
DOI: 10.47191/ijcsrr/V7-i5-04, Impact Factor: 7.943
IJCSRR @ 2024
www.ijcsrr.org

Biomotor Skills in Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor

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ABSTRACT: In the pencak silat sport, biomotors are really needed to support the required movements. This research aims to determine the biomotor skills of pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor. The type of research used is descriptive research with test and measurement methods. The sample used in this research was 22 students. The data collection technique in this research uses performance tests with biomotor test instruments used, namely 1) speed, 2) strength, 3) flexibility, 4) explosive power, 5) agility, and 6) endurance. The results of the study showed that overall biomotor skills were 1 student or 4.55% in the Very Good category, 5 students or 27.73% were in the Good category, there were 10 students or 45.45% in the Medium category, there were 4 students or 18.18% were in the Poor category, there were 2 students or 9.09% in the Very Poor category. So it can be concluded that the biomotor skills of pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor are in the Medium category, a percentage of 45.45% or 10 students

KEYWORDS: Biomotor, Extracurricular, Pencak Silat, Skills.

INTRODUCTION

In the pencak silat sport, it is divided into four competition categories, namely sparring, singles, doubles and team categories. The sparring category features two fighters from different camps facing each other. Both use elements of defense and attack, namely parrying, dodging, attacking targets and knocking down opponents, using tactics and fighting techniques, endurance, stamina, using rules and step patterns that utilize a wealth of techniques and moves, to get the most points.

The sparring category of pencak silat is a body contact sport, the possibility of injury is relatively large, for this reason good biomotor components are needed. The single category is a category of pencak silat competition which features a martial artist demonstrating his skills in a single standard stance correctly, precisely and steadily, full of soul with his bare hands and armed. The doubles category is a pencak silat competition which features two martial artists from the same camp demonstrating their skills and wealth of pencak silat martial arts techniques. Pencak silat is an Indonesian culture that has existed since prehistoric times with different names and styles, in Sumatra it is known as Silat, while in Java it is called Pencak (Diana et al., 2020).Pencak silat is one of the original cultures of the Indonesian nation where it is strongly believed by the warriors and pencak silat experts that the Malay people have created and used this martial art since prehistoric times.(Lubis, 2013). PencakSilat is the result of Indonesian human culture to defend or maintain its existence (independence) and integrity (unity) towards the environment or natural surroundings to achieve harmony in life in order to increase faith and devotion to God Almighty (Weda, 2014). Now pencak silat has become a martial sport that has been competed in various sporting events, at both levelsregional, national and international (Nurul Ihsan, Sepriadi, & Suwirman, 2018). In the sport of pencak silat, biomotors are really needed to support the required movements. The biomotor components needed in the sport of pencak silat are speed, endurance, flexibility, strength and coordination (Kuswanto, 2016).Biomotor components or biomotor elements are the basic abilities of physical movement or physical activity of the human body (Nala, 2015).

Biomotor ability will influence an athlete's physical condition to be able to compete from the start to the end of a match/competition. If an athlete's physical (biomotor) condition is in good condition then the athlete will perform various movements more quickly in sports and master the movement techniques being trained so that it will influence athlete's performance in competitionBurhanuddin et al., 2021). An athlete's ability to learn and master skills to improve performance and movement is highly dependent on structure, posture, genetically determined biomotor abilities and other biological systems (Manikandan, 2016; Wahyudhi & Iskandar, 2017). A coach needs to pay attention to the basic biomotor components, namely strength, speed and

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endurance, but in order for athletes to achieve the highest performance, a coach needs to pay attention to at least two dominant biomotor capacities.(Lasluisa, 2020). Therefore, excellent physical condition is needed in competitions to support endurance (aerobic and anaerobic), muscle strength (arms, stomach, back), speed, agility and coordination. Both individual and team, namely endogenous and exogenous factors or intrinsic (body) or extrinsic factors (from the surrounding environment) (Putra, 2014). Internal factors include physical and mental health, in addition athletes must have good and perfect technique, good physical (biomotor) condition, and have a good personality and have the maturity of a champion and a strong winning spirit, while exogenous factors include a reliable coach, large finances, sufficient training equipment, adequate training space, a healthy organization, and a supportive environment (Permadi, 2016).

A martial artist needs complete physical conditions to be able to achieve higher achievements in addition to mastery of technique, strategy and mentality. Components of physical condition include strength, endurance, muscle explosive power or power, speed, coordination, flexibility, agility, balance, accuracy and reaction. Some of these physical conditions include body mass, readiness of muscle joints, and body adjustments to be ready to moveactive (Putra, 2014).Physical activity is movement carried out by the body's muscles and supporting systems (Suryana and Fitri, 2017). Physical condition is a requirement that athletes must have in order to improve and develop optimal sports performance, so that physical condition must be developed and improved in accordance with the characteristics, characteristics and needs of each sport (Ridwan. M, 2020). Based on this background, the aim of this research is to determine the biomotor skills of pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor.

METHODS

This type of research is descriptive research, namely research that provides a description of the symptoms, the actual situation regarding the object being studied. The population in this study was 22 students. Population is a genetic area consisting of objects or subjects that have certain qualities and characteristics determined by research to study and then draw conclusions (Sugiyono, 2018). Population is the totality of each element to be studied which has the same characteristics, it can be individuals from a group, event, or something to be studied (Handayani 2020). Meanwhile, the sample used was 22 students. The sample is a portion or representative of the population to be studied (Arikunto, 2019).

The research instrument used in this research is the pencak silat biomotor test which consists of 1) Speed, 2) Strength, 3) Flexibility, 4) Explosive power, 5) Agility, and 6) Endurance. The data analysis technique used is quantitative descriptive. The data obtained for each test item is rough data from the results of each test achieved by students, then the rough results are converted into T-Scores with the following T-Score formula:

$$T = 10((X - M)/SD) + 50 \; dan \; T = ((M - X)/SD) + 50$$

Information:
Q = T Score Value
m = Average value of rough data
X = Rough data value
elementary school = Standard deviation of raw data (Sudijono, 2015)

SAfter the data is converted into a T-score, the data is interpreted, namely by categorizing the data, the categorization is grouped into 5 categories, namely very good, good, moderate, poor, very poor. Meanwhile, the categorization uses five norm limits as a reference, in the following table.

Table 1. Data Categorization

No	Intervals	Category
1	M + 1.5 S < X	Very good
2	M + 0.5 S < X ≤ M + 0.5 S	Good
3	M – 0.5 S < X ≤ M + 0.5 S	Currently
4	M – 1.5 S < X ≤ M – 0.5 S	Not enough
5	X ≤ M – 1.5 S	Very less

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(Azwar, 2016)

Information:

M = average value (mean)
X = Score
S = Standard Deviation

The next step is to analyze the data to draw conclusions from the research conducted. Analysis of the data used in this research uses quantitative descriptive analysis techniques with percentages (Arikunto, 2019) The formula used is as follows:

P= (F/N) x 100%

Information:

P = percentage sought
F = Frequency
N = Number of Respondents

RESULTS AND DISCUSSION

RESULTS

Based on the results of biomotor skills tests on students in the Pencak Silat extracurricular at SMP Negeri 5 Tanjung Selor obtained through surveys using test and measurement techniques consisting of Speed Test (30 meter run), Strength (60 second Push-Up), Explosive Power (standing board jump) , Flexibility (Split), Agility (4x10 meter Shuttle run), and Endurance (1000 meter run). From the data that has been collected, it will then be analyzed using statistical calculations as follows:

1. Analysis of Speed Test Results Description (30 meter run)

The results of calculating Speed test data (30 meter run) for Pencak Silat extracurricular students at SMP Negeri 5 Tanjung Selor after being converted to T-Scores showed that the mean was = 50.4580 and the standard deviation = 9.7226, the complete results can be seen in the following table:

Table 2. Frequency Distribution of Speed Tests (Run 30 meters) among Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor

No	Intervals	Category	Frequency (F)	Percentage (%)
1	$65.0419 < X$	Very good	3	13.64%
2	$55.3193 < X \leq 65.0419$	Good	3	13.64%
3	$45.5967 < X \leq 55.3193$	Currently	9	40.91%
4	$35.8742 < X \leq 45.5967$	Not enough	6	27.27%
5	$X \leq 35.8742$	Very less	1	4.54%

Based on the table above, it can be seen that the speed test (30 meter run) for pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor is that there are 3 students or 13.64% in the Very Good category, there are 3 students or 13.64% in the Good category , there are 9 students or 40.91% in the Medium category, there are 6 students or 27.27% in the Poor category and there is 1 student or 4.54% in the Very Poor category. When displayed in bar chart form, the speed test data (30 meter run) for pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor appears in the following picture

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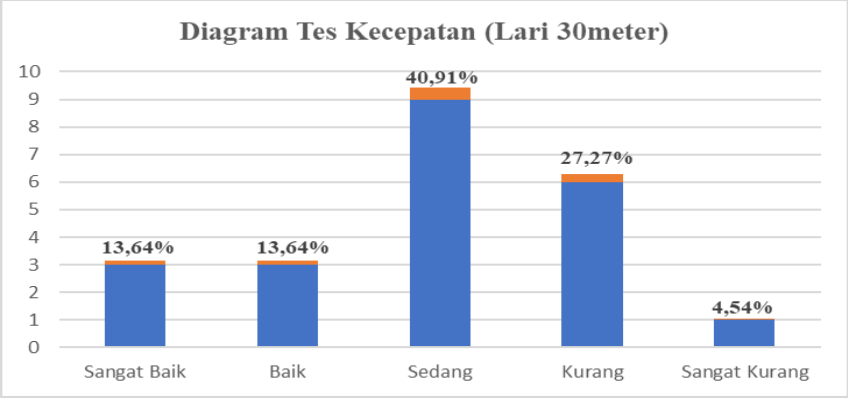

Figure 1. Bar diagram of speed test (30 meter run) for Pencak Silat extracurricular students at SMP Negeri 5 Tanjung Selor

2. Analyze the Description of Strength Test Results (60second Push-Ups)

The results of the calculation of strength test data (60 second push-ups) for Pencak Silat extracurricular students at SMP Negeri 5 Tanjung Selor after being converted to T-Scores showed that the mean was = 50.0004 and the Standard Deviation = 9.9998. Complete results can be seen in the following table:

Table 3. Frequency Distribution of Strength Tests (Push Up 60 seconds) among Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor

No	Intervals	Category	Frequency (F)	Percentage (%)
1	65,000 < X	Very good	1	4.55%
2	55,000 < X ≤ 65,000	Good	6	27.27%
3	45,001 < X ≤ 55,000	Currently	7	31.82%
4	35,001 < X ≤ 45,001	Not enough	8	36.36%
5	X ≤ 35.001	Very less	0	0.00%

Based on the table above, it can be seen that the Strength test (push up 60 seconds) for pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor is that there is 1 student or 4.55% in the Very Good category, there are 6 students or 27.27% in the good category , there are 7 students or 31.82% in the Medium category, there are 8 students or 36.36% in the poor category and there are no students in the Very Poor category. If displayed in bar chart form, the Strength test data (60 second push-ups) for pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor appears in the following picture:

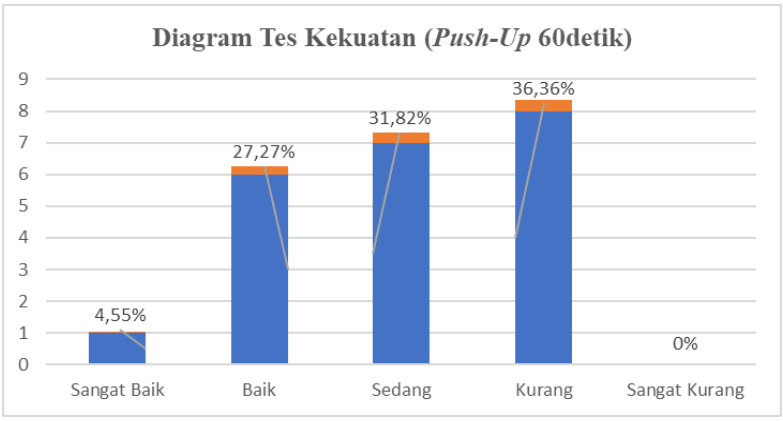

Figure 2. Bar Diagram of Strength Test (Push-Up 60 seconds) for Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor

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3. Analysis of Explosive Power Test Results Description (Standing Board Jump)

The results of the calculation of explosive power test data (standing board jump) for Pencak Silat extracurricular students at SMP Negeri 5 Tanjung Selor after being converted to T-Scores showed that the average was = 50 and the Standard Deviation = 10. Complete results can be seen in the following table:

Table 4. Frequency Distribution of Explosive Strength Tests (Standing board jump) among Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor

No	Intervals	Category	Frequency (F)	Percentage (%)
1	65,000 < X	Very good	2	9.09%
2	55,000 < X ≤ 65,000	Good	3	13.64%
3	45,000 < X ≤ 55,000	Currently	9	40.91%
4	35,000 < X ≤ 45,000	Not enough	7	31.82%
5	X ≤ 35,000	Very less	1	4.54%

Based on the table above, it can be seen that the explosive power test (standing board jump) for pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor is that there are 2 students or 9.09% in the Very Good category, there are 3 students or 13.64% in the In the Good category, there are 9 students or 40.91% in the Medium category, there are 7 students or 31.82% in the Poor category, there is 1 student or 4.54% in the Very Poor category. If displayed in bar chart form, the data on the explosive power test (standing board jump) of Pencak Silat extracurricular students at SMP Negeri 5 Tanjung Selor appears in the following picture:

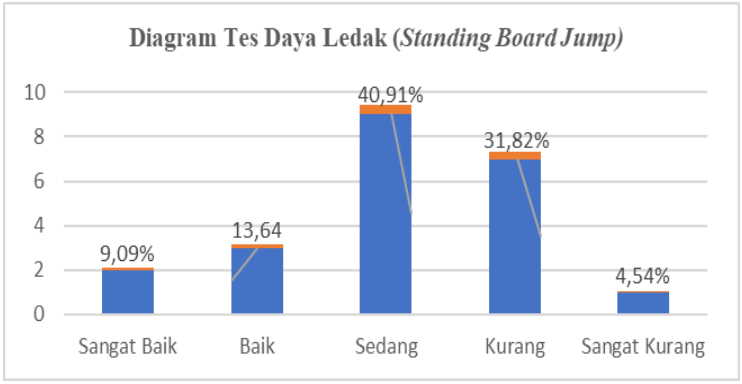

Figure 3. Bar diagram of the Explosive Power Test (Standing Board Jump) for Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor

4. Analysis of Flexibility Test Results Description (Side Split)

The results of calculating flexibility test data (side split) for Pencak Silat extracurricular students at SMP Negeri 5 Tanjung Selor after being converted to T-Score = 50.001 and Standard Deviation = 10.0001, the complete results can be seen in the following table:

Table 5. Frequency Distribution of Flexibility Tests (Side Split) for Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor

No	Intervals	Category	Frequency (F)	Percentage (%)
1	65,000 < X	Very good	1	4.55%
2	55,000 < X ≤ 65,000	Good	4	28.28%
3	45,000 < X ≤ 55,000	Currently	8	36.36%
4	35,000 < X ≤ 45,000	Not enough	8	36.36%
5	X ≤ 35,000	Very less	1	4.55%

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www.ijcsrr.org

Based on the table above, it can be seen that the flexibility test (side split) for pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor is that there is 1 student or 4.55% in the Very Good category, there are 4 students or 28.28% in the Good category , there are 8 students or 36.36% in the Medium category, there are 8 students or 36.36% in the Poor category, there is 1 student or 4.55% in the Very Poor category. If displayed in bar chart form, the flexibility test data (side split) of pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor appears in the following picture:

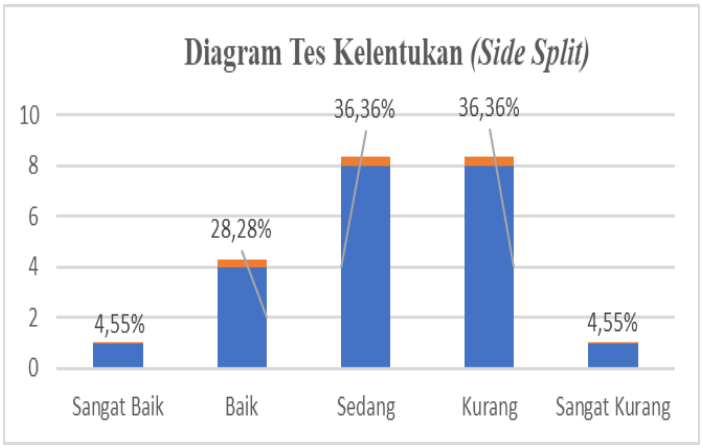

Figure 4. Bar Diagram of Flexibility Test (Side Split) for Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor

5. Analysis of the description of the agility test results (4x10m Shuttle Run)

The results of calculating agility test data (shuttle run 4x10m) for Pencak Silat extracurricular students at SMP Negeri 5 Tanjung Selor after being converted to T-Scores showed that the average = 49.9998 and the Standard Deviation = 10.0001. The complete results can be seen in the following table:

Table 6. Frequency Distribution of Agility Tests (4x10m Shuttle run) among Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor

No	Intervals	Category	Frequency (F)	Percentage (%)
1	65,000 < X	Very good	1	4.55%
2	55,000 < X ≤ 65,000	Good	6	27.27%
3	45,000 < X ≤ 55,000	Currently	9	40.91%
4	35,000 < X ≤ 45,000	Not enough	3	13.64%
5	X ≤ 35,000	Very less	3	13.64%

Based on the table above, it can be seen that the agility test (shuttle run 4x10m) for pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor is that there is 1 student or 4.55% in the Very Good category, there are 6 students or 27.27% in the category Good, there are 9 students or 40.91% in the Medium category, there are 3 students or 13.64 in the Poor category, there are 3 students or 13.64% in the Very Poor category. If displayed in the form of a landscape diagram, the agility test data (shuttle run 4x10m) of pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor appears in the following picture:

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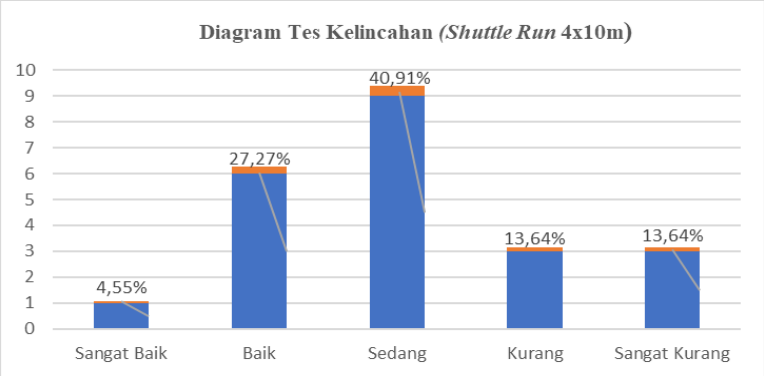

Figure 5. Bar diagram of the Agility Test (4x10m Shuttle Run) for Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor

6. Analysis of Endurance Test Results Description (1000m Run)

The results of calculating endurance test data (1000m run) for Pencak Silat extracurricular students at SMP Negeri 5 Tanjung Selor after being converted to T-Scores, it is known that the mean = 50.0001 and the Standard Deviation = 10.0001. The complete results can be seen in the following table:

Table 7. Frequency Distribution of Explosive Power Tests (1000m Run) among Pencak Silat Extracurricular Students at SMP 5 Tanjung Selor

No	Intervals	Category	Frequency (F)	Percentage (%)
1	65,000 < X	Very good	0	0%
2	55,000 < X ≤ 65,000	Good	10	45.45%
3	45,000 < X ≤ 55,000	Currently	7	31.82%
4	35,000 < X ≤ 45,000	Not enough	2	9.09%
5	X ≤ 35,000	Very less	3	13.64%

Based on the table above, it can be seen that the endurance test (1000m run) for pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor is that there are 0 students or 0% in the Very Good category, there are 10 students or 45.45% in the good category, it is found 7 students or 31.82% are in the Medium category, there are 2 students or 9.09% in the Poor category, there are 3 students or 13.64% in the Very Poor category. If displayed in bar chart form, the endurance test data (1000m run) of pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor appears in the following picture:

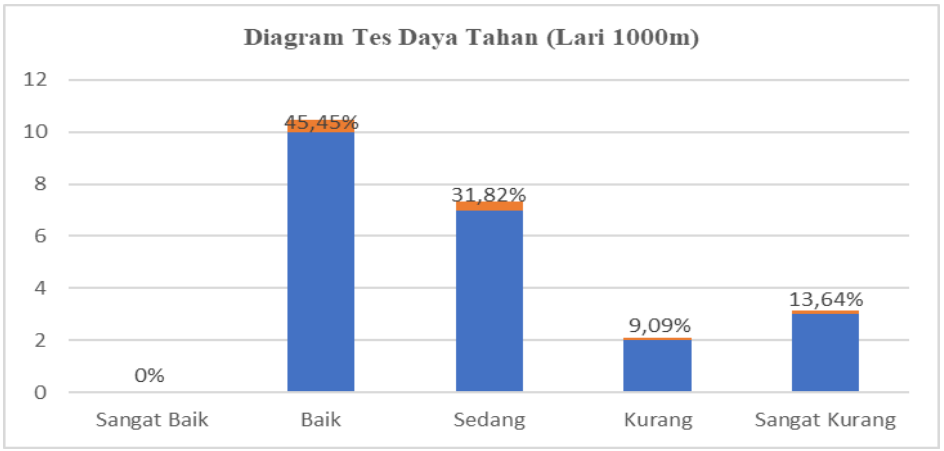

Figure 6. Bar diagram of the endurance test (1000m run) for Pencak Silat extracurricular students at SMP Negeri 5 Tanjung Selor

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7. Analysis of the Overall Test Result Description

The results of calculating the overall test data for Pencak Silat extracurricular students at SMP Negeri 5 Tanjung Selor after being converted to T-Scores showed that the mean = 50.0764 and the Standard Deviation = 5.3252. The complete results can be seen in the following table:

Table 8. Overall Frequency Distribution of Biomotor Tests among Pencak Silat Extracurricular Students at SMP 5 Tanjung Selor

No	Intervals	Category	Frequency (F)	Percentage (%)
1	58,064 < X	Very good	1	4.55%
2	52,739 < X ≤ 58,064	Good	5	22.73%
3	47,414 < X ≤ 52,739	Currently	10	45.45%
4	42,089 < X ≤ 47,414	Not enough	4	18.18%
5	X ≤ 42,089	Very less	2	9.09%

Based on the table above, it can be seen that the overall biomotor test data for pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor is that there is 1 student or 4.55% in the Very Good category, there are 5 students or 27.73% in the Good category, there are 10 students or 45.45% were in the Medium category, there were 4 students or 18.18% in the Poor category, there were 2 students or 9.09% in the Very Poor category. If displayed in the form of a bantang diagram, the overall biomotor test data for pencak silat extracurricular students at SMP Negeri 5 Tanjung Selor appears in the following picture:

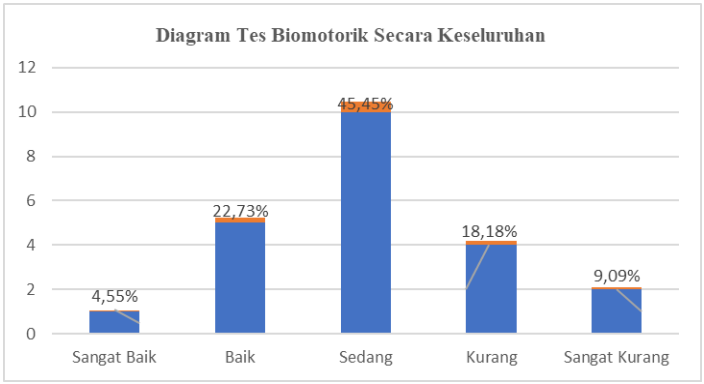

Figure 7. Bar Diagram of Overall Biomotor Test Data for Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor

DISCUSSION

This research aims to determine the results of students' biomotor skills in the Pencak Silat extracurricular at SMP Negeri 5 Tanjung Selor. From the results of the research, which can be described using the percentage formula in the previous chapter, it can be concluded that the Biomotor Skills of Students in the Pencak Silat Extracurricular at SMP Negeri 5 Tanjung Selor. This can be seen from the percentage obtained above with a sample size of 22 students. It can be seen that there is 1 student or 4.55% in the very good category, there are 5 students or 22.73% in the good category, there are 10 students or 45.45% in the moderate category, there are 4 students or 18.18% in the poor category and there are 2 students or 9.09% in the very poor category.

According to(Edy Mintarto, 2019) A person's ability to perform movements is supported by the biomotor abilities possessed by each individual. Each sport has biomotor characteristics that are different from one another. Based on the different characteristics of each particular sport, not all of them have to be mastered, whichever is the priority scale is what must be paid attention to and improved. This is confirmed by research conducted by (Humaedi, 2023) said that biomotors are very important in determining athletes' achievements because by having good (prime) biomotor skills, achievements can be measured and predicted accurately during training and also have an impact during competitions.

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CONCLUSION

Based on the results of the research and discussion, it can be concluded that the Biomotor Skills of Students in the Pencak Silat Extracurricular at SMP Negeri 5 Tanjung Selor can be seen that there is 1 student or 4.55% in the Very Good category, there are 5 students or 27.73% in the in the Good category, there are 10 students or 45.45% in the Medium category, there are 4 students or 18.18% in the Poor category, there are 2 students or 9.09% in the Very Poor category. From the data above, it can be concluded that the Biomotor Skills of Students in the Pencak Silat Extracurricular at SMP Negeri 5 Tanjung Selor are in the medium category.

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Cite this Article: Addriana Bulu Baan, Tri Murtono, Mala Fadila Larasati, Didik Purwanto, Nyoman Sukrawan, Christian Kungku (2024). Biomotor Skills in Pencak Silat Extracurricular Students at SMP Negeri 5 Tanjung Selor.International Journal of Current Science Research and Review, 7(5), 2444-2452