

Review of Physical Conditions and Techniques of Karate Athletes

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Abstract

The problem in this study is to determine the factors that cause the suboptimal performance of Karate Dojo Street Fighter Athletes in Bukittingi City. This study aims to determine the physical condition and technique of Karate Dojo Street Fighter Athletes in Bukittingi City. This type of research is descriptive statistics. The population in this study consisted of 15 male and 5 female Karate Dojo Street Fighter athletes in Bukittingi City. Sampling in this study used the census method, where all athletes were used as samples, with a total of 20 athletes. The research instrument used a test consisting of aerobic endurance with a 15-minute Balke Test run test, leg muscle explosive power measured by the standing board jump test, speed measured by a 20m sprint, agility measured by side step, punching technique measured by gyaku tsuki. The data obtained were then analyzed using descriptive statistical methods (frequency tabulation), with the formula $P = F / N \times 100\%$. The results of this study show that the abilities of Karate Dojo Street Fighter Athletes in Bukittingi City on all assessment indicators can be categorized as good / very good. Based on this, it can be suggested for other dojos in Bukittingi city to improve their physical condition, improve their aerobic endurance through long-distance running and long-distance walking, improve their speed through speed play training, improve their punching ability through gyaku tsuki combination training, and be more active in training both during training and outside of training hours.

Keyword : Physical Conditions, Techniques, Karate Athletes

1.Introduction

Exercise is essential for daily human

activities, essential for building a strong body and mind (Barlian, 2019). According to Finlay et al. (2022), exercise is any activity that enhances an individual's physical strength to complete daily tasks. Exercise is a tangible activity that can prevent degenerative diseases such as diabetes, osteoporosis, and hypertension (Kanaley et al., 2022). Dynamic activities are generally praised for their daily needs, such as exercise (Marpaung and Manihuruk, 2022).

(Goodyear et al., 2023) describes exercise as a tangible activity performed regularly to improve cardiovascular well-being. As this definition suggests, "exercise" refers to "dynamic activity performed consistently to improve cardiovascular well-being." Exercise is a tangible activity that further fosters physical well-being; however, it can also improve performance (Lochbaum et al., 2022). Many supporting factors influence achievement in sports activities, such as physical condition, technique, tactics, and mental state (Irawan, 2019).

Sports are a way to achieve and do what is right for the nation (Padli, 2021). Training is a real-life endeavor that can support profound physical, mental, and emotional development throughout daily life (Haryanto, 2019). Sports are believed to shape a person's personality because the diversity and complexity of social interactions influence adolescent progress (Purnomo, 2020). Sports achievement is defined as a sport that fosters and develops athletes in a planned, tiered, and sustainable manner through competitions to achieve success, supported by science and technology (Setiawan, 2019). Sport is an activity aimed at maintaining and improving health and fitness, and can also serve as a means to foster national unity (Umar, 2020).

Sports are a viable means of developing

physical and mental qualities, especially for younger ages (Arsita et al., 2021). Exercise is a form of actual work that is often physically demanding (Mulya, 2020). Exercise is active work that improves and works on essential capacities, limits, and abilities (Jamudin et al., 2021). Exercise is an activity that everyone needs to maintain their health and fitness (Weda, 2021). Exercise is an individual's regular and systematic approach to preparing the body, which involves slow development to achieve fitness (Prima and Kartiko, 2021). Exercise is a movement that is continuously filled by local communities; its existence is currently not generally underestimated but has become a part of individual lives (Hidayat et al., 2020). Exercise is a form of organized and regular work that involves repetitive physical development that leads to improved health (Akbar et al., 2021). Exercise is a regular, long-term, logistically intensive, and discrete activity that encourages the quality of human mental and physiological abilities to achieve predetermined goals (Okilanda, 2020).

Physical condition is an integral component of physical fitness. Physical fitness is a crucial factor in achieving athletic achievement. Good physical fitness facilitates achievement. Furthermore, developing technique, tactics, and mental skills is essential for every athlete. Sports have several components of physical fitness, such as endurance, speed, agility, and explosive power. Each component is interrelated, and each sport requires several components of physical fitness.

According to Hotchkiss (2011), physical fitness, technique, tactics, and mental (psychological) factors contribute to athletic performance. The collaboration of these four factors determines training for athletic performance. This is in line with research by Norm (2014), who stated that for high performance, training and development should begin at an early age to effectively achieve the desired goals. Biondi et al. (2003) added that the impact of exercise on

the immune system is a significant public health issue, encompassing a wide range of activities, from recreational jogging to the performance of athletes undergoing training programs. A person's success or achievement in sports is highly dependent on the quality of their physical abilities (physical condition)" (Julien, 2017). The better a person's physical condition or ability, the greater their chances of achieving success. Conversely, the lower their physical condition, the more difficult it is to achieve success. The ability of the arm muscles to direct force quickly in a short time for us.

2. Method

This type of research is descriptive statistics. The population in this study consisted of 15 male and 5 female Karate Dojo Street Fighter Bukittinggi City. Sampling in this study used the census method, where all athletes were used as samples, with a total of 20 athletes. The research instrument used tests consisting of aerobic endurance with a 15-minute Balke Test run test, leg muscle explosive power measured by a standing board jump test, speed measured by a 20m sprint, agility measured by a side step, punching techniques measured by gyaku tsuki. The data obtained were then analyzed using descriptive statistical methods (frequency tabulation), with the formula $P = F / N \times 100\%$.

3. Result and Discussion

Aerobic endurance ability was measured using the Balke test. Based on the table of aerobic endurance test measurement results for male street fighter karate athletes in Bukittinggi City, the following frequency distribution data can be obtained:

Table 1. Distribution Frequency Endurance Man

No	Vo2Max	F. Absolute	F. Relatif	Category
1	≥ 61	0	0%	Excellent
2	60.90 - 55.10	3	20%	Very Good
3	55.00 - 49.20	6	40%	Good
4	49.10 - 43.30	6	40%	Mean
5	≤ 43	0	0%	Poor

The table above shows the aerobic endurance measurements of male street fighter karate athletes in Bukittinggi City using the Balke test. The test and measurements yielded a maximum score of 56.290 and a minimum score of 47.117. The average aerobic endurance level of male street fighter karate athletes in Bukittinggi City was 49.257. The table above shows that three male athletes (20%) had a Vo2max in the excellent category. Six athletes (40%) had a Vo2max in the good category, and six athletes (40%) had a Vo2max in the adequate category.

The table below shows the aerobic endurance test results for female street fighter karate athletes in Bukittinggi City. The frequency distribution data is as follows:

Table 2. Distribution Frequency Endurance

The table above shows the results of the leg muscle explosive power measurements of female Street Fighter Karate athletes in Bukittinggi City using the standing broad jump. The test and measurements obtained a maximum score of 235 cm and a minimum score of 170 cm. The average leg muscle explosive power level of the Bukittinggi Street Fighter Karate athletes was 210 cm. The table above shows that 6 athletes (40%) had Perfect explosive power, 7 athletes (13.33%) had Very Good explosive power, and 2 athletes (46.66%) had Fair explosive power.

The table below shows the results of the leg muscle explosive power measurements of male Street Fighter Karate athletes in Bukittinggi City. The frequency distribution data is as follows:

Tabel 4. Distribution Frequency Leg Power Woman

No	Range (cm)	F.absolute	F.relatif	Category
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Table 5. Distribution Frequency Speed

No	Waktu (detik)	F.absolute	F.relatif	Kategori
1	< 3	5	33,33%	Excellent
2	3	4	26,66%	Very Good
3	3,1	2	13,33%	Good

The table above shows the aerobic endurance measurements of female Street Fighter Karate athletes in Bukittinggi City using the Balke test. The test and measurements yielded a maximum score of 49.410 and a minimum score of 42.530. The average aerobic endurance level of female Street Fighter Karate athletes in Bukittinggi City was 46.119. The table above shows that two male athletes (40%) had a Vo2max in the excellent category, and three (60%) had a Vo2max in the good category.

Speed was measured using the standing broad jump. The table below shows the results of the leg muscle explosiveness test for the Street Fighter Karate athletes in Bukittinggi City:

Table 3. Distribution Frequency Power Leg Man

1	≥ 178	0	0%	Excellent
2	153 – 177	0	0%	Very Good
3	129 – 152	5	100%	Good
4	104 – 128	0	0%	Mean
5	≤ 103	0	0%	Poor
Jumlah		5	100%	

The table above shows the results of the leg muscle explosive power measurements of female Street Fighter Karate athletes in Bukittinggi City using the standing broad jump. The test and measurements yielded a maximum score of 147 cm and a minimum score of 131 cm. The average leg muscle explosive power level for the Bukittinggi City Street Fighter Karate athletes was 136 cm. The table above shows that five athletes (100%) had good explosive power.

Speed ability was measured using a 30m sprint. Based on the table of speed test results for male Street Fighter Karate athletes in Bukittinggi City, the following frequency distribution data is obtained:

Sprint 20m Man

4	3,2	1	6,66%	Mean
5	3,3	3	20%	Poor
Jumlah		15	100%	

The table above shows the speed measurements of male street fighter karate athletes in Bukittinggi City using the 20-meter sprint. The test and measurements yielded a maximum score of 3.6 seconds and a minimum score of 2.7 seconds. The average speed of female street fighter karate athletes in Bukittinggi City was 3.1 seconds. The table above shows that five athletes (33.33%) achieved excellent speed, four (26.66%) achieved excellent speed, two (13.33%) achieved good speed, and one (6.66%) achieved adequate speed.

The following frequency distribution data is obtained from the table below:

Table 6. Distribution Frequency Speed *Sprint 20m Woman*

No	Waktu (detik)	F.absolute	F.relatif	Kategori
1	< 3,1	2	40%	Excellent
2	3,2	1	20%	Very Good
3	3,4	2	40%	Good
4	3,5	0	0%	Mean
5	3,6	0	0%	Poor
Jumlah		5	100%	

Based on the table above, the results of speed measurements of the female Karate Street Fighter athletes of Bukittinggi City with a 20m sprint were obtained. From the test and measurements, a maximum score of 3.4 seconds and a minimum score of 2.8 seconds were obtained. The average speed level of the female Karate Street Fighter athletes of Bukittinggi City was 3.14. From the table above, it can be seen that the athletes who had speeds in the Perfect category were 2 athletes (40%), and the athlete who had speeds in the Very Good category was 1 person. athletes (20%), and two athletes (40%) with good speed.

Agility was measured using the Side Step. Based on the agility test results table for the Bukittinggi City Street Fighter. Karate Male Athletes, the following frequency distribution data is obtained:

Table 7. Distribution Frequency Agility *Side Step Man*

No	Kelas Interval	F.absolute	F.relatif	Kategori
1	>26	12	80%	Excellent
2	25-26	3	20%	Very Good
3	23-24	0	0%	Good
4	21-22	0	0%	Mean
5	<20	0	0%	Poor
Jumlah		15	100%	

Based on the table above, the results of the agility measurement of the Male Karate Street Fighter athletes in Bukittinggi City with Side Step were obtained. From the test and measurement, the maximum score was 31 points and the minimum score was 24 points. The average agility level of Karate Street Fighter athletes in Bukittinggi City was 28.30. From the table above, it can be seen that 12 athletes (80%) had agility in the very good category, and 3 athletes (20%) had agility in the good category.

Based on the table of results of the agility test measurements of the Female Karate Street Fighter Athletes in Bukittinggi City, the following frequency distribution data can be obtained:

Tabel 8. Distribution Frequency Agility *Side Step Woman*

No	Kelas Interval	F.absolute	F.relatif	category
1	>25	2	40%	Excellent
2	23-25	1	20%	Very Good
3	22-23	2	40%	Good
4	17-20	0	0%	Mean
5	<17	0	0%	Poor
Jumlah		5	100%	

The table above shows the results of the agility measurements of female Street Fighter Karate athletes in Bukittinggi City using the Side Step. The test and measurements yielded a maximum score of 27 points and a minimum score of 22 points. The average agility level of the Street Fighter Karate athletes in Bukittinggi City was 24.2. The table above shows that two athletes (40%) had excellent agility, one (20%) had

good agility, and two (40%) had fair agility.

Punching ability was measured using Gyaku-tsuki. The following frequency distribution data is obtained from the table of kick test measurements of male Street Fighter Karate athletes in Bukittinggi City:

Tabel 9. Distribution Frequency *Gyaku-Tsuki* Kick Man

No	Kelas Interval	F.absolute	F.relatif	category
1	>25	9	60%	Excellent
2	20-24	5	33,33%	Very Good
3	17-19	1	6,66%	Good
4	15-16	0	0%	Mean
5	<14	0	0%	Poor
Jumlah		15	100%	

The table above shows the results of the punch measurements of the male Street Fighter Karate athletes in Bukittinggi City using Gyaku-tsuki. The test and measurements yielded a maximum score of 29 and a minimum score of 19. The average punching rate for the Bukittinggi Street Fighter Karate athletes was 24.67. The table above shows that 9 athletes (60%) had punches rated as excellent, 5 (33.33%) had punches rated as good, and 1 (6.66%) had punches rated as fair.

The following frequency distribution data is obtained from the punch test measurement table for the female Street Fighter Karate athletes in Bukittinggi City:

Table 10. Distribution Frequency Punch *Gyaku-Tsuki* Woman

No	Kelas Interval	F.absolute	F.relatif	Category
1	>23	4	80%	Excellent
2	18-22	0	0	Very Good
3	15-17	1	20%	Good
4	13-14	0	0%	Mean
5	<12	0	0%	Poor
jumlah		5	100%	

Based on the table above, the results of the measurement of punches of the Female Karate Street Fighter Athletes of Bukittinggi City with Gyaku-tsuki were obtained. From the tests and measurements, the maximum score was 25 times and the minimum score was 18 times. The average punch level of the Female Karate Street Fighter Athletes of Bukittinggi City was 23.0. From the table above, it can be seen that there were 4

athletes (80%) who had punches in the excellent category, and 1 athlete (20%) who had punches in the adequate category.

Discussion

Based on the research results, it can be concluded that the average aerobic endurance level of male Street Fighter athletes in Bukittinggi City is 49.25 ml/kg/min, categorized as good, and the average endurance level for female Street Fighter athletes in Bukittinggi City is 46.11 ml/kg/min, categorized as good. This means that the Street Fighter athletes in Bukittinggi City already possess good aerobic endurance. It is hoped that players can improve their current aerobic endurance. Good aerobic endurance can improve a player's physical fitness and improve their physical condition, allowing them to last longer in matches. Even if other elements of physical condition are good, a lack of good aerobic endurance will significantly impact the performance of Street Fighter athletes in Bukittinggi City.

Based on the research results, it can be concluded that the average explosive leg muscle power level of male Street Fighter athletes in Bukittinggi City is 210 cm, categorized as excellent, and the average explosive leg muscle power level of female Street Fighter athletes in Bukittinggi City is 136 cm, categorized as good. This means that the explosive leg muscle power of Street Fighter athletes in Bukittinggi City is at its maximum.

Based on the research results, it can be concluded that the average speed of the male Street Fighter athletes in Bukittinggi City is 3.1 seconds, which is considered good, and the average speed of the female Street Fighter athletes in Bukittinggi City is 3.1 seconds, which is considered excellent. In karate, a player with good speed is able to execute attacks quickly and control the tempo of the match. Speed is the ability to execute movements in a very short time to achieve the best possible results. Speed is a fundamental element of movement useful for achieving maximum performance.

Based on the research results, it can be concluded that the average agility of the male Street Fighter athletes in Bukittinggi City is 28.2 seconds, which is considered excellent,

and the average agility of the female Street Fighter athletes in Bukittinggi City is 24.2 seconds, which is considered good. Agility is essential in competition, especially when executing attacks, changing steps, and countering to avoid attacks from opponents. If the Street Fighter athletes in Bukittinggi City lack agility, they will have difficulty anticipating their opponents' attacks. Based on the results of the study, it can be concluded that the average level of gyaku tsuki punches owned by Male Street Fighter Athletes in Bukittinggi City is 24.6 which is categorized as good and the average level of gyaku tsuki punches owned by Street Fighter Athletes in Bukittinggi City is 23 which is categorized as very good. This punch is the most frequently used punch by athletes when competing. The ease of movement, the power generated, and the speed of this kick are the reasons why this kick is often used.

4. Conclusion

Based on the results of the research that have been described in the previous chapter, it can be concluded that: The Aerobic Endurance Ability of the Male Street Fighter athletes of Bukittinggi City is classified as good with an average score of 49.257 and the Female Street Fighter athletes of Bukittinggi City are classified as good with an average score of 46.119. The Explosive Power Ability of the Leg Muscles of the Male Street Fighter athletes of Bukittinggi City is classified as very good with an average score of 210 cm and the Female Street Fighter athletes of Bukittinggi City are classified as good with an average score of 136 cm. The Speed Ability of the Male Street Fighter athletes of Bukittinggi City is classified as good with an average score of 3.1 seconds and the Female Street Fighter athletes of Bukittinggi City are classified as very good with an average score of 3.1 seconds. The Agility Ability of the Male Street Fighter athletes of Bukittinggi City is classified as very good with an average score of 28.20 and the Female Street Fighter athletes of Bukittinggi City are classified as good with an average score of 24.2. The punching ability of the male Street Fighter athletes from Bukittinggi City is classified as good with an average score of 24.67, and the female Street Fighter athletes from Bukittinggi City are classified as very good

with an average score of 23.

Based on the conclusions, the author can provide the following suggestions that will hopefully address the issues encountered in the physical condition of the Street Fighter athletes from Bukittinggi City: Coaches are expected to pay attention to their current physical condition and further improve it. Athletes are expected to improve their aerobic endurance through long-distance running and walking, speed through speed play, and kicking through mawashi geri combination training.

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