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Physical Condition and Achievements of the 31st SEA Games Philippines Taekwondo Athletes in the Poomsae Category

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ABSTRACT

The relationship between physical condition and achievement refers to the relationship or correlation between a person's physical ability and the performance or achievement produced in sports activities or other physical activities. Meanwhile, achievement can include various indicators such as travel time, distance, number of repetitions, or scores obtained in a sport or other physical activity. Physical condition can include various factors such as muscle strength, speed, endurance, flexibility, and balance. The purpose of this study was to examine the significant relationship between physical condition and the achievement of SEA GAMES 31 athletes in the Poomsae event. The research method in this study was a quantitative method of the correlational type. The population in the study were all Taekwondo athletes from the National Training Center at the 31st SEA GAMES Vietnam, totaling 17 people, with the sampling technique using the total sampling technique so that the research sample included in the specified sample criteria was 4 athletes. The results of the study showed that there was a significant relationship between physical condition and athlete achievement.

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1. INTRODUCTION

The relationship between physical condition and sports performance is the relationship between good physical condition and a person's ability to achieve better sports performance (Erciş, 2018). The relationship between physical condition and performance refers to the relationship or correlation between a person's physical ability and the performance or achievement produced in sports activities or other physical activities (Bailey, 2017). Physical condition can include various factors such as muscle strength, speed, endurance, flexibility, and balance (Kell et al., 2001). Meanwhile, performance can include various indicators such as travel time, distance, number of repetitions, or scores obtained in a sport or other physical activity. For example, a showed that better leg muscle strength and cardiovascular endurance correlated with better long-distance running performance in long-distance runners (Lepers & Stapley, 2010).

Taekwondo is a traditional martial art originating from South Korea which is centered in Seoul. Taekwondo can be interpreted as follows; Tae which means attacking using the feet, Kwon which means hitting or attacking using the hands, Do which means discipline or art (Code, 2021). So it can be concluded that taekwondo is a martial art that uses hand and foot techniques to defend and attack and high discipline (Rizkiyanto et al., 2019). In taekwondo kyourugi and poomsae, good endurance is required to face matches with a long time and drain energy, when a taekwondoin has good endurance, he can maintain his performance during the match (Feltt, 2002).

A taekwondo athlete must be able to kick high or towards the opponent's head to get a high score (Kazemi et al., 2006), for that flexibility is needed to perform wide movements through the joints optimally (Asakura, 2019). There are several basic techniques to become a reliable taekwondoin, namely: (1) The target body part (Keop So), (2) The body part used to attack or defend, (3) Horse stance (Seogi), (4) Defense/parrying technique (Makki), (5) Attack technique (Kyongkyok Kisul) consisting of: punching/jierugi (punching), slashing/chigi (striking), thrusting/chierugi (thrusting) and kicking/chagi (kicking) (Suryadi, 2002). Poomsae training can increase muscle strength, flexibility, and speed, as well as improve balance and postural stability in taekwondo athletes (Yoo et al., 2018). This study shows that poomsae training can be an effective strategy to improve the physical abilities and skills of taekwondo athletes (Fajrika & Aulia, 2020).

2. METHODS

The research method in this study is a quantitative method of the correlational type (Sugiyono, 2015). The population in the study were all Taekwondo athletes of Pelatnas at the 31st SEA GAMES Vietnam totaling 17 people. The sample taken in this study were taekwondo athletes who competed in the 31st SEA Games in Vietnam in the Poomsae category totaling 4 athletes. The instrument used in this study was a blank for selecting physical test data for Taekwondo athletes Pelatnas 16th ASEAN Taekwondo Championship in Vietnam. Correlational Design in research is a research design that aims to explore the relationship between two or more variables. According to different references and authors. Correlational Design is a research design that measures the relationship between two or more variables without manipulating the variables (Creswell, 2014).

3. RESULTS AND DISCUSSION

Based on the data obtained, there are characteristics of the physical condition of respondents after undergoing physical tests such as endurance (bleep test), arm muscle strength (power chest medicine ball), leg muscle strength (vertical jump), body reaction speed

(whole body reaction), leg muscle endurance (hurdle jump test), hip and back flexibility (sit and reach test & trunk and neck flexibility test), and agility (agility side step test).

Results

Physical Condition of Taekwondo Athletes in National Training Center Poomsae Category

Table 1. Results of Endurance Test of Taekwondo Athletes in National Training Center Poomsae Category

No	Name	Gender	Test results	Test results	Category
1	D	Female	49.3	50	Good
2	A	Male	55.7	55	Very Good
3	R	Male	54.0	55	Good
4	H	Male	48.4	55	Good
Average			52	54	Good

Based on Table 1. it shows that the results of the endurance test of athletes with the bleep test have the highest results owned by athlete A at 55.7 with a very good category while the lowest results are owned by athlete H at 48.4 with a good category. Thus, it can be seen that the average endurance of Taekwondo athletes in the National Training Center Poomsae category is in the good category.

Table 2 Results of Arm Muscle Strength Tests for Taekwondo Athletes in the National Training Center Poomsae Category Poomsae

No	Name	Gender	Test results	Test results	Category
1	D	Female	40	60	Good Enough
2	A	Male	72	85	Good
3	R	Male	64	85	Good Enough
4	H	Male	79	85	Good
Average			64	79	Good

Based on Table 2, it shows that the results of the athlete's arm muscle strength test with the power chest medicine ball test have the highest results owned by athlete H at 79 with a good category while the lowest results are owned by athlete D at 40 with a fairly good category. Thus, it can be seen that the average arm muscle strength of taekwondo athletes in the National Training Center Poomsae category is in the good category.

Table 3. Results of the Leg Muscle Strength Test of Taekwondo Athletes in the National Training Center Poomsae Category

No	Name	Gender	Test results	Test results	Category
1	D	Female	42	60	Good Enough
2	A	Male	64	75	Good
3	R	Male	50	75	Good Enough
4	H	Male	56	75	Good Enough
Average			53	71	Good Enough

Based on Table 3. shows that the results of the athlete's leg muscle strength test with a vertical jump test have the highest results owned by athlete A at 64 with a good category while the lowest results are owned by athlete D at 42 with a fairly good category. Thus, it can be seen that the average leg muscle strength of taekwondo athletes in the National Training Center Poomsae category is in the fairly good category.

Table 4. Results of the Body Reaction Speed Test of Taekwondo Athletes in the National Training Center Poomsae Category

No	Name	Name	Test results	Test results	Category
1	D	Female	3.22	3.3	Very Good
2	A	Male	2.87	2.86	Good
3	R	Male	2.78	2.86	Very Good
4	H	Male	3.03	2.86	Good
Average			2.98	2.97	Good

Based on Table 4. shows that the results of the athlete's body reaction speed test with the whole body reaction test have the fastest results owned by athlete A at 2.78 with a very good category while the slowest results are owned by athlete D at 3.22 with a very good category. Thus, it can be seen that the average body reaction speed of taekwondo athletes in the National Training Center Poomsae category is in the good category.

Table 5. Results of the Leg Muscle Endurance Test of Taekwondo Athletes in the National Training Center, Poomsae Category

No	Name	Gender	Test results	Test results	Category
1	D	Female	55	50	Very Good
2	A	Male	60	60	Very Good
3	R	Male	62	60	Very Good
4	H	Male	57	60	Good
Average			59	58	Very Good

Based on Table 5, it shows that the results of the athlete's leg muscle endurance test with the hurdle jump test have the highest results owned by athlete R at 62 with a very good category while the lowest results are owned by athlete D at 55 with a very good category. Thus, it can be seen that the average leg muscle endurance of taekwondo athletes in the National Training Center Poomsae category is in the very good category.

Table 6. Results of Hip and Back Flexibility Tests for Taekwondo Athletes in the National Training Center, Poomsae Category

No	Name	Gender	Test results	Test results	Category
1	D	Female	381,21	500	Good
2	A	Male	651,6	700	Good
3	R	Male	556,83	700	Good
4	H	Male	655,64	700	Good
Average			561	650	Good

Based on Table 6, it shows that the results of the athlete's hip and back flexibility test with the sit and reach test & trunk and neck flexibility test have the highest results owned by athlete H at 655.64 with a good category while the lowest results are owned by athlete D at 381.21 with a good category. Thus, it can be seen that the average hip and back flexibility of taekwondo athletes in the National Training Center Poomsae category is in the good category.

Table 7. Hasil Tes Kelincahan Atlet Taekwondo Pelatnas Kategori Poomsae

No	Name	Gender	Test results	Test results	Category
1	D	Female	6.10	6.3	Very Good
2	A	Male	5.56	5.0	Good
3	R	Male	5.76	5.0	Good
4	H	Male	5.26	5.0	Good
Average			5.7	5.3	Good

Based on Table 7, it shows that the results of the athlete's agility test with the agility side step test have an agility result owned by athlete H of 5.26 with a very good category while the late result is owned by athlete R of 5.76 with a good category. Thus, it can be seen that the average agility of taekwondo athletes in the National Training Center in the Poomsae category is in the good category.

Table 8. Recapitulation of Physical Condition of Taekwondo Athletes in the National Training Center, Poomsae Category

No	Name	Gender	Rank	Physical Condition	Category
1	D	Female	3	8	Very Good
2	A	Male	1	8	Very Good
3	R	Male	4	8	Very Good
4	H	Male	2	9	Very Good
Average				8.25	Very Good

Based on Table 8, it shows that the results of the athlete's physical condition have the highest condition owned by athlete H with a score of 9 in the first ranking with a very good category while other athletes have a physical condition with a score of 8 and are still included in the very good category. Thus, it can be seen that the average physical condition of taekwondo athletes in the National Training Center in the Poomsae category is in the very good category.

Achievements of Taekwondo Athletes in the National Training Center in the Poomsae Category

Based on the data obtained, there are characteristics of respondents' achievements after participating in the championship match at the 31st SEA GAMES in Vietnam in 2021. The following are the characteristics of respondents' achievements.

Table 9. Achievements of Taekwondo Athletes in the National Training Center in the Poomsae Category

No	Name	Competition	Rank	Poin
1	D	World Championship Taekwondo Poomsae - Goyang, South Korea	3	28.8
		SEA Games 31, Vietnam	3	3.6
		Asean University Games, Ubon Ratchathani, Thailand	3	7.2
		Porprov Jawa Barat, Subang	3	5.5
		Kejuaraan Nasional, Tangerang, Banten	1	9.5
		Total Poin		54.60
		Rata-Rata		10.92
2	A	World Championship Taekwondo Poomsae - Goyang, South Korea	3	28.8
		SEA Games, Vietnam	3	3.6
		Asean University Games, Ubon Ratchathani, Thailand	3	7.2
		Porprov Jawa Barat, Subang	1	8
		Kejuaraan Nasional, Tangerang, Banten	1	9.5
		Total Poin		57.10
		Rata-Rata		11.42
3	R	World Championship Taekwondo Poomsae - Goyang, South Korea	3	28.8
		SEA Games, Vietnam	3	3.6
		Asean University Games, Ubon Ratchathani, Thailand	3	7.2
		Porprov Jawa Barat, Subang	2	6.5
		Kejuaraan Nasional, Tangerang, Banten	1	8
		Total Poin		54.10
		Rata-Rata		10.82
4	H	World Championship Taekwondo Poomsae - Goyang, South Korea	3	28.8
		SEA Games, Vietnam	3	3.6
		Asean University Games, Ubon Ratchathani, Thailand	3	14.4
		Porprov Jawa Tengah	1	8
		Kejuaraan Nasional, Tangerang, Banten	2	7.5
		Total		62.30
		Average		12.46

Based on Table 9, it shows that the athlete's achievement results have the highest points owned by athlete H at 62.30 with an average of 12.46 while the lowest ranking is owned by athlete R at 54.10 with an average of 10.82. Thus, it can be seen that the achievements of taekwondo athletes have varied achievements in the past year.

Hypothesis Test Results

The hypothesis tested is that there is a relationship between the physical condition of athletes and their achievements in the Poomsae event at the 31st Vietnam SEA Games. In this context, the Spearman rank correlation test is used to determine the extent to which the relationship is correlated. The following are the results of the Spearman rank correlation test in Table 10.

Table 10. Hypothesis Test Results

			Achievements	Physical Condition
Spearman's rho	Achievements	Correlation Coefficient	1.000	.737
		Sig. (2-tailed)	.	.035
		N	4	8
	Physical Condition	Correlation Coefficient	.737	1.000
		Sig. (2-tailed)	.035	.
		N	4	8

Based on Table 10, the significance value is $.035 < .05$, so it can be concluded that there is a significant relationship between physical condition and athlete achievement. The presence or absence of correlation is stated in the numbers on the correlation index. The interpretation of high-low correlation can also be seen from the size of the correlation index number. The larger the number in the correlation index, the higher the correlation of the two correlated variables (Arikunto, 2019). The Spearman correlation between physical condition values and achievement is .737, because the correlation coefficient value is between .60 - .799, it can be concluded that there is a strong relationship between physical condition and athlete achievement.

4. DISCUSSION

Referring to the data obtained from the nine athletes, the following findings were obtained that physical condition has a significant effect on athlete performance in sports, especially in Poomsae. Good physical condition involves strength, endurance, flexibility, and balance. Endurance is the body's ability to maintain consistent performance over a period of time. In Poomsae, endurance plays a crucial role because each stage of movement requires concentration and energy. Arm muscle strength supports the accuracy and intensity of movement, especially in punches, blocks, and body positioning. Leg muscle strength is important for carrying out movements with the required intensity and speed, especially in kicks, low positions, and shifting positions. The body's reaction speed plays an important role in maintaining the smoothness and accuracy of movements in Poomsae, helping athletes adapt to changing situations or opponent tactics. Flexibility of the pelvis and back affects accuracy, balance, and agility in carrying out movements that involve changes in position, rotational movements, and body torque. Agility helps athletes carry out movements with efficiency, accuracy, and provides an advantage in responding to changing situations in the match. There is a significant relationship between physical condition and athlete achievement in SEA GAMES 31 Poomsae event. Physical condition such as endurance, muscle strength, reaction speed, and others have a strong relationship with athlete achievement.

5. CONCLUSION

Based on the results of the analysis and discussion regarding the Relationship between Physical Condition and the Achievements of Vietnam Taekwondo Sea Games 31st Poomsae Athletes, the conclusion in this study is that there is a significant relationship between physical condition and athlete achievement.

6. AUTHORS' NOTE

This article has no conflict of interest.

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