



The Effect of Exercise Discipline, Nutritional Status, Physical Fitness, and Parenting Patterns on the Basic Technical Skills of Tennis Athletes

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Abstract:

The problem in this study is the low level of basic skills in West Sumatran Province - Indonesia tennis athletes in the New Normal Period. The purpose of this study was to determine the effect of exercise discipline, athlete's nutritional status, physical fitness, and parenting patterns on the basic technical skills of West Sumatran athletic athletes in the new normal era. This research method quantitatively uses a Path Analysis approach. The results of the research and analysis show that 1) There is a direct and significant effect of training discipline on the basic technical skills of Martial arts athletes as long as the path coefficient $\gamma X^1 = 0.422$ or 17.80 %; 2) There is a direct and significant effect on the nutritional status on skills. basic kill 0.4 times $X = 0.42\%$ athlete achievement during; 3) There are a



direct and significant effect of physical fitness on basic technical skills of basic athletic athletes, the path coefficient results $\gamma X^3 = 0.501$ or 25.10%; 4) There is a direct effect the influence and significant parenting pattern of parents on the basic technical skills of athletes during the New Normal, resulting in a path coefficient $\gamma X^4 = 0.$; 5) There is an indirect effect of training discipline on the basic technical skills of the athlete's softening test during, the magnitude of the indirect effect is 0.492 or 24.2 %; 6) There is an indirect effect of nutritional status on the basic technical skills of tennis athletes through parenting, the effect is 0.487 or 23.71%; 7) Status There is an indirect effect of nutritional status on soft parenting There is invalidity in the clinical skills of softening athletes through parenting, the magnitude of the effect is 0.594 or 35.28 %; and 8) There is a significant influence between discipline, nutritional status, physical fitness and parenting patterns for the basic immune system $=0.616$, and 9, $\gamma X^4 X^3 X^2 X^1$ is 61.6%.

Key Words: - Sports Discipline, Nutritional Status, Physical Fitness, Parenting.

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Resumen:

El problema en este estudio es el bajo nivel de habilidades básicas en los atletas de tenis de la provincia de Sumatra Occidental - Indonesia en el Nuevo Período Normal. El propósito de este estudio fue determinar el efecto de la disciplina del ejercicio, el estado nutricional del atleta, el estado físico y los patrones de crianza en las habilidades técnicas básicas de los atletas atléticos de Sumatra Occidental en la nueva era normal. Este método de investigación utiliza cuantitativamente un enfoque de análisis de ruta. Los resultados de la investigación y el análisis muestran que 1) existe un efecto directo y significativo de la disciplina de entrenamiento en las habilidades técnicas básicas de los atletas de artes marciales siempre que el coeficiente de trayectoria $\gamma X^1 = 0,422$ o 17,80 %; 2) Hay un efecto directo y significativo del estado nutricional sobre las habilidades. muerte básica 0,4 veces $X = 0,42$ % de logro del atleta durante; 3) Hay un efecto directo y significativo de la aptitud física sobre las habilidades técnicas básicas de los atletas atléticos básicos, el coeficiente de ruta resulta $\gamma X^3 = 0.501$ o 25.10%; 4) Hay un efecto directo

Introduction

The COVID-19 pandemic is a virus that has spread throughout all countries in the world, including Indonesia. During the pandemic, the community's lifestyle and behavior in doing everyday tasks and sports activities, such as tennis, has been altered dramatically. Tennis is one of the most popular sports among children and teens or even the elderly. Recently, several tennis clubs have been founded

de la influencia y el patrón de crianza significativo de los padres sobre las habilidades técnicas básicas de los atletas durante la Nueva Normalidad, lo que resulta en un coeficiente de trayectoria $\gamma X^4 = 0.$; 5) Hay un efecto indirecto de la disciplina de entrenamiento sobre las habilidades técnicas básicas de la prueba de ablandamiento del atleta durante, la magnitud del efecto indirecto es 0.492 o 24.2%; 6) Existe un efecto indirecto del estado nutricional sobre las habilidades técnicas básicas de los atletas de tenis a través de la crianza, el efecto es 0,487 o 23,71%; 7) Estado Hay un efecto indirecto del estado nutricional sobre la crianza suave. Hay invalidez en las habilidades clínicas de los atletas suavizantes a través de la crianza, la magnitud del efecto es 0.594 o 35.28%; y 8) Existe una influencia significativa entre disciplina, estado nutricional, aptitud física y patrones de crianza para el sistema inmunológico básico $=0.616$, y 9, $\gamma X^4 X^3 X^2 X^1$ es 61.6%.

Palabras Clave: - Disciplina Deportiva, Estado Nutricional, Aptitud Física, Crianza.

in every city/regency to discover new talents and achieve success at the national and international levels. In article 23 paragraphs 1 and 2 of the Law of the Republic of Indonesia No. 3/2005 establishing the National Sports System, it is stated: The community can provide sports coaching and development through various sports activities, either at the initiative of the central government and/or local government or

on their initiative.

The guidance and development of community sports as referred to in paragraph (1) is carried out through sports associations within the local community (Super *et al.*, 2018). Based on this law, it can be emphasized that sports coaching and development can be carried out in the community, either through public awareness or with government encouragement. Tennis is a sport that is still being promoted and developed (Pluim *et al.*, 2007), and West Sumatra Province is one of the provinces in Indonesia that continues to be determined to improve tennis to maximize the potential of its athletes. The purpose of this tennis practice is to improve the ability of athletes to give the best results at regional, national, and international levels.

Athletes who excel are those who have good basic technical skills and can display interesting games and achieve good results because basic tennis techniques are the main component in participating in an event related to achievement (Faber *et al.*, 2021). As a result, if an athlete lacks skills, he will often make mistakes in his game. To acquire the ability to play tennis in the new normal is difficult because it must be supported by several factors, one of which is the athlete's motivation when doing exercises, this motivation is a determinant of the success or failure of the training process. In this case, Amri (2013) argues that motivation is an interior force that acts to originate, underpin, and lead training behaviors. When exercising, a person with great motivation will be active and enthusiastic, tenacious and reluctant to give up, and eager towards improving performance. Athletes must not only be encouraged to take part in these training activities but must also be disciplined to enhance their skills and achievements optimally. In addition, the nutritional state of an athlete affects his performance because nutrition is the most important factor in achieving

success in training. Exercise will not be beneficial if athletes do not consume enough nutrients. Parenting, on the other hand, has an important role in the success of an athlete. According to Anisah (2017), parents' attention, control, and actions are forms of parenting that have a long-term impact on the continuity of children's physical and mental development. This statement shows that the right parenting pattern is expected to increase discipline as well as shape the behavior, mental and physical development of children positively and correctly. For example, when parents teach discipline to their children, the children already have a solid foundation of correct behavior when they become athletes based on what their parents have instilled with good parenting.

When discussing tennis or any other sport, the component of physical fitness is the most basic aspect. The physical fitness of the athletes affects their performance while participating in tennis sporting events in the new normal era. Inadequate physical fitness will make athletes tired quickly, especially during competitions or continuous activities, making it very difficult to perform well. Apart from the physical fitness level of the athlete, the training program created by the coach plays an important function in the athlete's achievement. A coach must provide the training program needed by athletes to ensure athletes are enthusiastic about training. This results in the development of good skills which will translate into achieving better results. Because the wrong program will affect the athlete's achievement and vice versa. Facilities and infrastructure are also a determinant of the success or failure of an athlete in achieving good performance if it is followed; providing complete and adequate facilities and infrastructure, will make athletes active and enthusiastic during tennis training, and athletes will achieve the expected results well. Moreover, the athlete's environmental conditions can affect the athlete's achievement in this new normal

period. Athletes can adjust their behavior in this setting. For example, if an athlete is in a training-oriented setting, he or she may appear to participate in training; on the other hand, if the environment is not supportive, the player's spirit and mentality can be disturbed. At the same time, training discipline is an important aspect to be used in the training process to achieve success. Because discipline will determine the success or failure of an athlete when exercising, a lack of discipline will affect an athlete's achievement.

Field observations found that the basic skill level of West Sumatran tennis athletes was still low, as evidenced by quite a several athletes who made mistakes in practicing basic techniques at a tennis match in Padang on 26 and 27 March 2021, such as hitting the ball with the wrong racket, a shot that is not on target, a distance that is too close, or a stroke that is too close, or a distance that is too far. As a result, this greatly affects the athlete's performance. In addition, only two players qualified for the main round and were eliminated in the second round at the national level. This shows that the West Sumatran tennis players have not yet achieved national recognition. Technical problems, athlete motivation problems, athlete nutritional status, athlete parenting, athlete physical fitness, training program carried out by coaches, athlete training discipline, infrastructure, and athlete environment are the main factors that affect the quality of athletes.

Methods

The research method is a technique used by researchers to obtain data in their research following the opinion of Sugiyono (2015) who says that research

methods are methods used by researchers in their research that aim to obtain certain data and uses. In this research, researchers used the Path Analysis method. This research was conducted in several active tennis clubs in Padang, West Sumatra Province - Indonesia. The population is junior tennis athletes. The sampling technique in this study used a purposive sampling technique. Thus the sample in this study amounted to 20 people.

Results

This research data description aims to describe the data obtained after conducting research at the FIK Tennis Court, Padang State University. The data described are independent variables consisting of Exercise Discipline (X^1), Nutritional Status (X^2), Physical Fitness (X^3), and the intermediate variable is Parental Parenting Pattern (X^4) and the dependent variable is basic tennis technical skills (Y). After obtaining data for each variable, the data is processed using a descriptive formula so that the max statistic is obtained, and the minimum value (min). For more details, the researcher explains each of the existing research variables, which can be seen as follows:

1. Description of Basic Tennis Skills

Data on basic tennis skills were obtained through research using the ITN instrument. From the raw data, data processing is carried out so that the average value (mean) obtained by junior athletes is 252. Furthermore, the highest (maximum) value is 264 and the lowest (minimum) value is 225. While the lowest (minimum) value is 225 and the standard deviation (SD) value is 10.

Table 1. Frequency Distribution of Basic Tennis Skills (Y)

No	Interval	Category	F	%
1	267 to the top	Very Good	0	0
2	257 – 266	Good	6	30
3	247 – 256	Enough	10	50
4	237 – 246	Not Good	3	15

5	236 – downwards	Not Very Good	1	5
Amount			20	100

2. Description of Athlete Training Discipline Data

Athletes' training discipline data was obtained by distributing questionnaires with a Likert scale to athletes who were selected as a pilot sample of 20 athletes. From these data, data processing was carried out, it was seen that the average (mean) value obtained by the athlete

was 61. Furthermore, the highest (maximum) value was 86 and the lowest (minimum) value was 51 while the standard deviation (SD) was 8. Frequency distribution of discipline data athlete's training is processed using the Norm Reference Assessment system. Further information is available in the Table 2 below.

Table 2. Frequency Distribution of Athlete's Exercise Discipline (X¹)

No	Interval	Category	F	%
1	86% - 100%	Very Good	1	5
2	76% - 85%	Good	1	5
3	60% - 75%	Enough	8	40
4	55% - 59%	Not Good	7	35
5	< 54%	Not Very Good	3	15
Amount			20	100

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3. Description of Athlete's Nutritional Status Data

The body mass index (BMI) test was used to collect data on the nutritional status of athletes up to 20 athletes who were selected as research samples. After processing the data, it can be seen that

the athlete's average (mean) value is 19, the highest (maximum) value is 27, the lowest (minimum) value is 13, and the standard deviation (SD) is 3. See the table below for more details on the distribution nutritional status data.

Table 3. Frequency Distribution of Athletes' Nutritional Status (X²)

No	Interval	Category	F	%
1	<-3 SD	Very Good	1	5
2	-3 SD up to < -2 SD	Good	2	10
3	-2 SD up to 1 SD	Enough	13	65
4	>1 SD up to 2 SD	Not Good	3	15
5	> 2 SD	Not Very Good	1	5
Amount			20	100

4. Description of Physical Fitness Data

The Indonesian Physical Fitness Test (TKJI) was used to collect physical fitness data from 20 athletes selected as samples. Data processing is carried out on all of these data, and it can be seen that the average value (mean) obtained

is 13.2. In addition, 22 is the highest (maximum) value and 8 is the lowest (minimum) value. The standard deviation (SD) was 3.61. See the table below for more information on the athlete's physical fitness distribution.

Table 4. Physical Fitness Frequency Distribution (X³)

No	Interval	Category	F	%
1	22 – 25	Very Good	1	5
2	18 – 21	Good	1	5
3	14 – 17	Enough	4	20



4	10 – 13	Not Good	10	50
5	5 – 9	Not Very Good	4	20
Amount			20	100

5. Description of Parenting Patterns Data

Parenting Patterns Data were obtained through distributing Likert scale questionnaires to athletes who were selected as research samples as many as 20 athletes. From these data, data processing is carried out, it can be seen

that the average value (mean) obtained by athletes is 62. Furthermore, the highest (maximum) value is 86 and the lowest (minimum) value is 51, while the standard deviation (SD) is 8. The frequency distribution of parenting style data is carried out using the Norm Reference Assessment system, which can be seen in the Table 5 below.

Table 5. Distribution of Parenting Patterns Data (X⁴)

No	Interval	Category	F	%
1	86% - 100%	Very Good	1	5
2	76% - 85%	Good	1	5
3	60% - 75%	Enough	9	45
4	55% - 59%	Not Good	7	35
5	< 54%	Not Very Good	2	10
Amount			20	100

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Discussions

The results of the normality test of research data were carried out using the Kolmogorov Smirnov test technique with the help of SPSS Version 20. The Kolmogorov Smirnov test was carried out as a basis for rejecting or accepting the decision or not the distribution of the research sample data (O'donoghue, 2009). It can be seen that the significance value of the variables of sports discipline, nutritional status, physical fitness, parenting, and basic tennis skills are 0.149, 0.906, 0.278, 0.451, 0.611, all of which are greater than the level = 0.05, indicating that the distribution of data on the variable sports discipline, nutritional status, physical fitness, parenting, and basic skills were declared Normal.

The linearity test is a regression line test of the independent variable with the dependent variable which aims to determine whether the data on the variables of exercise discipline, nutritional status, physical fitness, and parenting tend to form a linear line to the variables of basic tennis skills (Schneider *et al.*, 2010). This was done using the ANOVA technique with a significance level of 0.05. If the significance value of F is greater than = 0.05 (on the linearity deviation line) it means it is a linear regression line, if the F significance value is less than = 0.05 (on the linearity deviation line) then the regression line is not linear. As shown in the following Table 6 below.

Tabel 6. Linearity Test Between Variables

No	Variable	Sig	Sig. a	Conclusion
1	X ¹ with Y	0,655		
2	X ² with Y	0,376		
3	X ³ with Y	0,163		
4	X ⁴ with Y	0,959	0,05	linear
5	X ¹ with X ⁴	0,703		
6	X ² with X ⁴	0,632		



Testing this hypothesis was carried out using a Path Analysis approach assisted by the SPSS version 20 program. The results of the analysis of the variables of exercise discipline (X^1),

nutritional status (X^2), physical fitness (X^3), parenting (X^4), and basic tennis technical skills (Y) can be seen in the following Fig 1 and Fig 2 below.

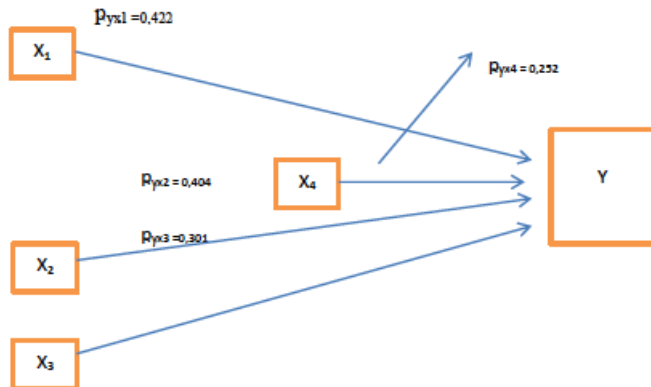


Fig 1. Sub Structure 1

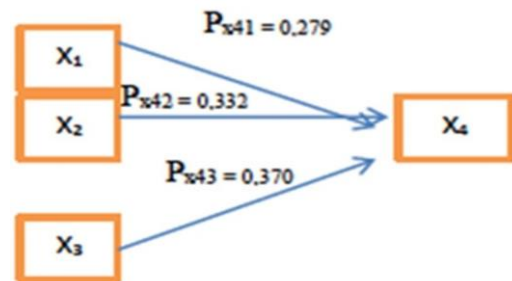


Fig 2. Sub Structure 2

1. The Direct Effect of Exercise Discipline (X^1) on Basic Tennis Technical Skills (Y)

The results obtained from the variables of training discipline and basic technical skills of tennis show that there is a direct influence of training discipline (X^1) on the basic technical skills of tennis (Y). These results can be seen in the coefficient table which shows the effect of $\gamma X^1 = 0.422$. Athletes' training discipline affects the basic technical skills of tennis they achieve. This is in line with Yani (2017) belief that discipline is very important because athletes who practice self-discipline will be more responsible and able to organize themselves to achieve their goals. Following this description, athletes must have strong self-discipline, because it will affect the training process and competition. Self-discipline allows athletes to respect themselves and all the elements that can help them improve their performance.

2. Direct effect of nutritional status (X^2) on basic tennis technical skills (Y)

From the results of research that has been obtained from the variable nutritional status of athletes and basic technical skills of tennis, it is found that there is a direct influence of nutritional status (X^2) on basic technical skills of tennis (Y). These results can be seen in

the coefficient table which shows the effect of $\gamma X^2 = 0.404$. The nutritional status of athletes also affects the basic technical skills of tennis that they achieve. Nutritional status is a measure of whether or not an athlete's diet is sufficient for daily nutrition. This is by Volkert *et al* (2019) which states that nutritional status is a state of the body based on certain variables such as age, weight, and height that can indicate the body's ability to absorb staple foods intended for one's growth and health. According to Komaini (2018) measuring and classifying a person's nutritional condition is used to determine a person's nutritional status based on food, absorption, and use of food substances.

3. Direct effect of physical fitness (X^3) on basic tennis technical skills (Y)

From the results of research that has been obtained from the variable physical fitness of junior table tennis athletes, it is known that there is a direct effect of physical fitness (X^3) on basic tennis technical skills (Y). These results can be seen in the coefficient table which shows the effect of $\gamma X^3 = 0.501$. The athlete's physical fitness also affects the basic technical skills of tennis he achieves. Physical fitness is the most valuable asset in human life. Athletes need a good level



of physical fitness to achieve high sports achievement, workers, and even students in schools need a high level of physical fitness to be more active in the learning process. Therefore, good physical fitness is needed so that the body can function effectively and efficiently, to prevent diseases due to lack of movement (hypokinesia).

4. Direct effect of Parenting Pattern (X^4) on basic tennis technical skills (Y)

Based on the results of research on parenting style variables and basic technical skills of tennis, there is a direct effect of parenting (X^4) on basic technical skills of tennis (Y). These results can be seen in the coefficient table which shows the effect of $\gamma X^4 = 0.252$. Athletes' upbringing also affects the basic technical abilities they achieve. The development of an athlete cannot be separated from the parenting style carried out by parents. Child development is strongly influenced by parenting patterns. According to Komaini (2018), parenting affects the regulation of children's needs including psychological, physical, and learning needs that aim to achieve children's achievements.

5. The indirect effect of training discipline on basic technical skills through the upbringing of junior tennis athletes

Based on the calculation of Path Analysis, there is an indirect effect of training discipline (X^1) on basic technical skills (Y) through parenting (X^4) of 0.492, so H_0 is rejected and H_a is accepted, this indicates that there is an indirect effect of training basic technical discipline skills through parenting parents of junior athletes. Based on previous findings, the direct effect of disciplinary training on basic technical skills was 0.422 (or 17.80%). The effect of discipline training (X^1) through parenting (X^4) on basic technical skills (Y) is 24.20 percent. Based on the description of the values above, the effect obtained is quite significant.

This finding shows that when the training discipline variable (X^1) is combined with the parenting style variable, the direct effect on basic technical skills (Y) increases significantly. Therefore, discipline training through parenting has a significant effect on basic technical skills.

6. Indirect effect of nutritional status on basic technical skills through tennis athlete parenting

From the results of Path Analysis calculations, it is known that there is an indirect effect of nutritional status (X^2) on basic technical skills (Y) through parenting (X^4) of 0.487 so that H_0 is rejected and H_a is accepted, meaning that there is an indirect effect of nutritional status on basic technical skills through the upbringing of junior athletes. Based on previous findings, the direct effect of nutritional status on basic technical skills was 0.404 or 16.32%. The effect of nutritional status (X^2) on basic technical skills (X^4) is 23.71%. Based on the description of the values above, the effect obtained is quite significant. This finding shows that when the nutritional status variable (X^2) is combined with the parenting style variable, the direct effect of the nutritional status variable (X^2) on basic technical skills (Y) increases significantly. This means that nutritional status due to parenting has a significant effect on the basic technical skills of athletes.

7. Indirect effect of physical fitness on basic technical skills through parenting patterns of tennis athletes

Path Analysis calculations show that there is an indirect effect of physical fitness (X^3) on basic technical skills (Y) through parenting (X^4) of 0.594 so that H_0 is rejected and H_a is accepted, meaning that there is an indirect effect of physical fitness on basic technical skills through parenting tennis athlete. Based on previous findings, the direct effect of physical fitness on basic technical skills is 0.501 or 25.10%. The effect of physical

fitness (X^3) through parenting (X^4) on basic technical skills is 35.28%. As seen in the value rendition above, the effect obtained is quite significant. These findings indicate that the integration of physical fitness variables (X^3) with parenting variables increases the direct effect of physical fitness variables (X^3) on basic technical skills (Y) which indicates that physical fitness through parenting has a significant effect on junior athletes. basic technical skills.

8. The effect of exercise discipline, nutritional status, physical fitness, and parenting patterns on the basic technical skills of tennis athletes

The results of research conducted on the variables of exercise discipline, nutritional status, physical fitness, parenting, and basic technical skills of athletes indicate that there is a simultaneous influence of training discipline (X^1), nutritional status (X^2), physical fitness (X^3), parenting (X^4) and basic technical skills (Y) obtained R squared = 0.616 or an effect of 61.6% so that H_0 is rejected and H_a is accepted because there is a stimulant effect between sports discipline, nutritional status, physical fitness, and basic technical skills. The influence of the four exogenous variables is exercise discipline (X^1), nutritional status (X^2), physical fitness (X^4), and basic technical skills (Y) so a score of 0.616 or 61.6 percent is obtained. The researcher's findings after statistical analysis revealed that basic technical skills were supported by four variables in this study. Another factor that the researcher did not discuss in this study was the remaining 38.4 percent.

Conclusions

Based on the research results and discussion, the following conclusions namely: 1) There is a direct and significant influence of training discipline on the basic technical skills of tennis athletes, with the results of the path coefficient $\gamma X^1 = 0.422$ or 17.80%; 2) There is a direct and significant effect of

nutritional status on the basic technical skills of tennis athletes, with the path coefficient $\gamma X^2 = 0.404$ or 16.32%; 3) There is a direct and significant effect of physical fitness on the basic technical skills of tennis athletes, the path coefficient $\gamma X^3 = 0.501$ or 25.10%; 4) There is a direct and significant effect of parenting parents on the basic technical skills of tennis athletes, the path coefficient results $\gamma X^4 = 0.252$ or 6.35%; 5) There is an indirect effect of training discipline on the basic technical skills of tennis athletes. The effect is 0.492 or 24.20%; 6) There is an indirect effect of nutritional status on the basic technical skills of tennis athletes through parenting, the effect is 0.487 or 23.71%; 7) There is an indirect effect of nutritional status on the basic technical skills of tennis athletes through parenting, the effect is 0.594 or 35.28%; and 8) There is a significant influence between exercise discipline, nutritional status, physical fitness, and parenting style on the basic technical skills of tennis athletes. Obtained the value of R-square = 0.616 and from the Anova table obtained $F = 6.019$ with probability (sig) = 0.004, because the value of sig < 0.05. $\gamma X^4 X^3 X^2 X^1$ was 61.6%.

Conflicts of interest - There is no conflict of interest in this paper. This paper is the result of annual research that I conducted at Universitas Negeri Padang..

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